

18th Anniversary India-Japan Fest
BICON 2023



**Biyani International Conference
on**

Nurturing Academic Entrepreneurs with Industrial Partnerships

26th–30th November, 2023



ISBN : 908-93-83343-41-6

DAY-1

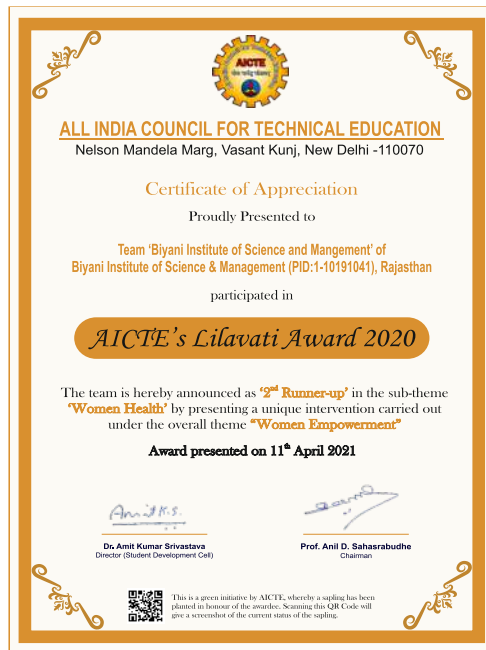
Advancing Cancer Care through Futuristic Technologies in Industry

Organised & Sponsored by :



BIYANI GROUP OF COLLEGES

*Approved by UGC, Govt. of Raj., AICTE, INC, RNC, PCI, NCTE, BCI,
Affiliated to UOR, RUHS, RTU, ALU, DSRRAU, RISU, JRRSU, ICSI, QCI
Sector No. 3, Vidhyadhar Nagar, Jaipur, Rajasthan (India)*



Minister for Foreign Affairs of Japan extends his deepest regards to **Biyani Group of Colleges** in recognition of its distinguished services in promoting mutual relationship between Japan and India.
— **Fumio Kishida**, Minister for Foreign Affairs of Japan

The 18th Anniversary India-Japan Fest in Pinkcity of India

BICON-2023



NURTURING ACADEMIC ENTREPRENEURS WITH INDUSTRIAL PARTNERSHIPS



Proceeding of the Conference DEPT. OF SCIENCE, NURSING AND PHARMACY Advancing Cancer Care through Futuristic Technologies in Industry

ISBN: 978-93-83343-41-6



Organized by:
BIYANI GROUP OF COLLEGES
Jaipur, India

Copyright 2023

All rights reserved. Copyright of this proceeding belongs to the BICMLLP

Reprint Permission: No part of this proceeding may be reproduced or transmitted in any form without the prior written permission of the Editor. Abstracting or indexing of papers in this proceeding is permitted with credit to the source. Instructors are permitted to photocopy isolated articles for educational classroom use. For other forms of copying, reprint, or replication permission, write to the BICON at acad@biyanicolleges.org, c/o R-4, Sector-3, Vidhyadhar Nagar, Jaipur-302039, Rajasthan (India)

ISBN: 978-93-83343-41-6

Copies of this proceeding are available for purchase. Please contact BICON at acad@biyanicolleges.org, c/o R-4, Sector-3, Vidhyadhar Nagar, Jaipur-302039, Rajasthan (India) for ordering information.

Published by

Biyani Institute of Commerce & Management LLP

Jaipur (India)

All papers of the present proceeding were peer reviewed by no less than two independent reviewers. Acceptance was granted when both reviewers's recommendation were positive.

Reviewers :

- | | |
|------------------------|-----------------------|
| • Ms. Ritu Jangid | • Dr. Yogesh Kumar |
| • Mr. Kishan Choudhary | • Ms. Laxmi Pharaswal |
| • Mr. Lala Ram Jat | |

Editors :

- | | |
|----------------------|-----------------------|
| • Dr. Shilpa Bhargav | • Dr. Dheeraj Chitara |
| • Ms. Remya Renjan | • Dr. Vidhi Sharma |

Designed by:

- Mr. Nilesh Sharma
- Mr. Surendra Mathur

Welcome to India-Japan Fest in Pinkcity of India!

This year we are celebrating the 18th Anniversary of India-Japan Fest at Biyani Group of Colleges, Jaipur. Since, the first conference in 2006, it has become an annual feature of our institution and has continued to grow. The institution is leaving no stone unturned in encouraging the spirit of research and innovation and strengthening the bilateral academic relationship between India and Japan. Every year, this event receives an increasing number of participants from both the countries, India and Japan, and we continue to evolve, adapt, and develop new collaborative programs between various institutions in India and Japan.

Biyani Group of Colleges is organizing this mega event in collaboration with partner institutes from Japan including Japan Advanced Institute of Science and Technology, Akita Prefectural University, Saitama University, and Kyushu University.

The theme of BICON 2023 is Nurturing Academic Entrepreneurs with Industrial Partnerships guided by different departments including Science, Pharmacy, Nursing, Commerce & Management, Information Technology, Social Science, Law, and Education based on a multidisciplinary-to-interdisciplinary approach.

BICON2023 introduce new partner relationships and foster a symbiotic interaction with academic institutes in Japan and India including Kwansei Gakuin University in Japan; Jai Narain Vyas University, Jodhpur; Metro M.A.S Heart Care & Multi-speciality Hospital, Jaipur; Bhagwan Mahaveer Cancer Hospital & Research Centre, Jaipur; Apply Board; ICSI; ISDC; Rajyoga Education & Research Foundation, Mount Abu.

BICON2023 also introduce new partner relationships with Japanese industries including Kaiho Industry; Sugino Machine Ltd.; InPro Japan; Setolas Holdings Inc.; Innovation Door LLC; Photovoltaic Foundry Pte. Ltd.; and Indian industries including DOITC; iSTART; Pearson VUE; Jaipur Buzz; Paisa on Demand; Dainik Bhasker; ICT Academy; Doordarshan; MY FM; Sach Bedhadak; Jan TV; Somani Industries; Jaipur Rugs; Sidbi. These partnership fosters an all-encompassing approach to knowledge development and innovation by addressing real-world difficulties in addition to academic advancements. This creates impact that goes beyond the event itself and influences the direction of research and industry practices as long as academics and industry continue to engage.

BICON 2023 has decided to call for an Abstract to be published in the conference proceedings with ISBNs. The Organizing Committee is vitalizing with reviewing all abstracts to accommodate the growing number of paper submissions. In a rigorous and time-consuming

review process, the committee members worked hard to ensure the continued high quality of accepted abstract or paper. There are 56 invited talks (10 Japan + 46 India) in BICON 2023.

The months of planning, hard work and team effort by dedicated staff have culminated into the success of this event for which we would like to thank the management committee who trusted us to organize this conference and contributed significant funds to support the event. We would also like to thank the Organizing Committee and the reviewers for their excellent work in reviewing the abstracts as well as their valuable input and advice. We would also like to express our sincere thanks to all the dedicated BICON-Team members for their active role and support in all aspects of this conference from collecting abstracts, assisting in coordination, helping to plan the agenda, recruiting sponsors, and assisting in organizing the conference. I want to thank all the conveners of each symposium: Dr. Rambir Singh (Pharmacy), Ms. Jishu B. George (Nursing), Ms. Kanchan Sharma (Science), Dr. Poonam Sharma (Information Technology), Dr. Shikha Dugar (Commerce & Management), Dr. Shipra Gupta (Education), Ms. Malti Saxena (Humanities), Ms. Kusum Saini (Law) and Graphic designer Mr. Nilesh Sharma for editing the conference proceeding in the last running moments and beautifully designing the brochure and other conference materials.

Finally, we want to express our sincere thanks to all the invited speakers, offline and online, who have joined us from India, Japan, and other countries, for taking out time from their busy schedules to participate in this conference. It has been a great pleasure to interact with them and receive their interest in collaborating in the future.

The venue of this conference is located in Pink City Jaipur and we have tried to promote a sense of the local culture and various Indian Cuisine to the attendees during this conference. We hope that this conference is intellectually stimulating, enjoyable, professionally satisfying, and memorable for all the attendees.

With warmest regards,

	<p>Dr. Manish Biyani Organizing Chair</p> <ul style="list-style-type: none">• Director (Research & Development), Biyani Group of Colleges, India• Professor (Research), JAIST, Japan		<p>Dr. Neha Pandey Conference Convener Principal, Biyani Girls College, Jaipur</p>
---	--	---	---

Prof. Alpana Kateja
Vice-Chancellor



University of Rajasthan
JLN Marg, Jaipur – 302004 (Raj.)
Phone: 0141-2707863, 2256501
Email: vc@uniraj.ac.in/ vcunorj@gmail.com



MESSAGE

I am indeed happy to know about efforts put in by Biyani Group of Colleges, Jaipur in organizing 18th Biyani International Conference (BICON-2023) during November 26-30, 2023.

The theme of the conference “Nurturing Academic Entrepreneurs with Industrial Partnerships” is relevant and pertinent in current scenario. Rajasthan has been benefitted from the special relationship between India and Japan. Since a long time, Rajasthan and Japan have collaborated in both education and industry, and this relationship will continue to grow in the future years.

I am confident that this conference would give an excellent forum to Academicians, Researchers and Industry Professional from India and Japan.

I wish the conference the very best.

A handwritten signature in black ink, which appears to read 'Alpana'.

(Prof. Alpana Kateja)

Jai Narain Vyas University, Jodhpur 342 011 India

PROF. KANHAIYA LAL SHRIVASTAVA

Ph.D., M.Tech. (Applied Geology), FGS (Bangalore)
FAGID (Brazil), FEEIU (Germany) FIAPG (Italy)

Vice Chancellor



Phone : 0291-2432947 (O)

Email : vcjnvu@gmail.com, vc@jnvu.edu.in

Res. : Vice-Chancellor's Bungalow,

Residency Road, Jodhpur 342 011 India



MESSAGE

I am glad to know that the 18th Biyani International Conference (BICON-2023) is being organised on November 26-30, 2023 on the theme "Nurturing Academic Entrepreneurs with Industrial Partnerships".

The theme of the conference will encourage collaboration between Industry and Academia by using futuristic pedagogies and practices in teaching, learning and assessment, as well as deeper engagement between higher education and the industrial ecosystem.

Academicians, industrialists, scientists, and research scholars will have the opportunity to exchange their expertise, build new strategies, and analyse recent advancements in their respective sectors at this four-day conference.

I am sure that the conference through its outcomes will strengthen the knowledge and foster both the Societies-Industry as well as Academia

I extend my best wishes for the BICON-2023 success.

(Prof. Kanhaiya Lal Shrivastava)

Resl. : 504 FF, Umaid Heritage, Umaid Palace Hill, Jodhpur - 342011 India, Mob.: +91-94141-32094, +91-94145-78924, Email: klsgeology@yahoo.co.in

'Excellence in Science and Technology' Awardee, ISCA/Gol

'Bharat Ratan APJ Abdul Kalam Gold Medal' Awardee

'Decree of Merit' Awardee, IBC, Cambridge U.K.

'Special Recognition' Awardee, Atlanta, USA

Chairman & Head (Former), Department of Geology

Jai Narain Vyas University, Jodhpur

President, Earth System Science, ISC Association (2015)

President, JNV University Teachers Assoc. (1997) (AIFUCTO)

Jai Narain Vyas University, Jodhpur 342 011 India

PROF. KANHAIYA LAL SHRIVASTAVA

Ph.D., M.Tech. (Applied Geology), FGS (Bangalore)
FAGID (Brazil), FEEIU (Germany) FIAPG (Italy)

Vice Chancellor



Phone : 0291-2432947 (O)

Email : vcjnvu@gmail.com, vc@jnvu.edu.in

**Res. : Vice-Chancellor's Bungalow,
Residency Road, Jodhpur 342 011 India**



MESSAGE

I am glad to know that the 18th Biyani International Conference (BICON-2023) is being organised on November 26-30, 2023 on the theme "Nurturing Academic Entrepreneurs with Industrial Partnerships".

The theme of the conference will encourage collaboration between Industry and Academia by using futuristic pedagogies and practices in teaching, learning and assessment, as well as deeper engagement between higher education and the industrial ecosystem.

Academicians, industrialists, scientists, and research scholars will have the opportunity to exchange their expertise, build new strategies, and analyse recent advancements in their respective sectors at this four-day conference.

I am sure that the conference through its outcomes will strengthen the knowledge and foster both the Societies-Industry as well as Academia

I extend my best wishes for the BICON-2023 success.

(Prof. Kanhaiya Lal Shrivastava)

Resl. : 504 FF, Umaid Heritage, Umaid Palace Hill, Jodhpur - 342011 India, Mob.: +91-94141-32094, +91-94145-78924, Email: klsgeology@yahoo.co.in

'Excellence in Science and Technology' Awardee, ISCA/Gol

'Bharat Ratan APJ Abdul Kalam Gold Medal' Awardee

'Decree of Merit' Awardee, IBC, Cambridge U.K.

'Special Recognition' Awardee, Atlanta, USA

Chairman & Head (Former), Department of Geology

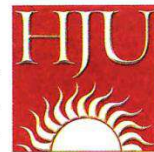
Jai Narain Vyas University, Jodhpur

President, Earth System Science, ISC Association (2015)

President, JNV University Teachers Assoc. (1997) (AIFUCTO)

Prof. Sudhi Rajiv
Vice-Chancellor

हरिदेव जोशी
पत्रकारिता और जनसंचार
विश्वविद्यालय



HARIDEV JOSHI UNIVERSITY
OF JOURNALISM AND
MASS COMMUNICATION

S.No. F()VC/HJU/2023/5671

Date: 30th November, 2023

Dr. Dhyan Singh Gothwal
Dean Administration
Biyani Group of Colleges
Vidhyadhar Nagar, Jaipur

Dear Mr.

I am happy and delighted to receive an invitation for the eighteenth India-Japan International Conference organized by Biyani Group of Colleges, Jaipur from the 26th to the 30th of November, 2023.

It shall provide an opportunity for interaction between two cultures by "Nurturing Academic Entrepreneurs with Industrial Partnerships". The subjects for discussions and deliberations are of great importance and would be addressed by eminent experts. It will improve the over all qualities and virtues in the youth - the future of India.

I wish the conference every success.

(Professor Sudhi Rajiv)
Vice Chancellor

Haridev Joshi University of Journalism
and Mass Communication, Jaipur &
Dr. Bhimrao Ambedkar Law University, Jaipur

राजीव गांधी विद्याभवन | Rajiv Gandhi Vidya Bhawan
सर्वपल्ली राधाकृष्णन शिक्षासंकुल, जवाहरलाल नेहरू मार्ग | Sarvepalli Radhakrishnan Shiksha Sanikul
जयपुर 302 017 (राजस्थान) | JLN Marg, Jaipur 302 017 (Rajasthan), India
+91 141 2710123 | registrar.hju@gmail.com | www.hju.ac.in

HJU, A UNIVERSITY ESTABLISHED BY AN ACT OF THE RAJ. STATE LEGISLATURE, IS A NATIONAL CENTRE FOR TEACHING, TRAINING AND RESEARCH IN JOURNALISM, MASS COMMUNICATION AND ALLIED FIELDS
पत्रकारिता, जनसंचार और संबंधित विषयों के शिक्षण, प्रशिक्षण और शोध के लिए राजस्थान विधानमंडल के अधिनियम द्वारा स्थापित राष्ट्रीय संस्थान



RAJASTHAN TECHNICAL UNIVERSITY, KOTA

राजस्थान तकनीकी विश्वविद्यालय, कोटा



Message

I am glad to know that Biyani Group of Colleges, Jaipur in organizing 18th Biyani International Conference (BICON-2023) on November 26-30, 2023.

The theme of the conference “Nurturing Academic Entrepreneurs with Industrial Partnerships” is very much relevant to budding engineers, managers and industrialists. The association of speakers from Japan in the conference is commendable. For a long time, Rajasthan and Japan have collaborated in both education and industry and such activities shall help growing this relationship in the future.

I am confident that this conference shall provide an excellent forum for the students, academicians and industrialists of both the countries to explore the Academia Industry Interface Model.

I wish the conference all the success.

Prof (Dr.) Dhirendra Mathur

Naveen Jain, IAS
नवीन जैन, आई.ए.एस.



Secretary to Government
School Education, Language, Library
And Panchayati Raj (Elementary Education),
Government of Rajasthan
शासन सचिव
स्कूल शिक्षा, भाषा, पुस्तकालय,
पंचायतीराज (प्रारम्भिक शिक्षा) विभाग
राजस्थान सरकार

D.O. No.: DS/Secy./School Edu./2023/ 313
Jaipur, Dated: 20-11-2023

Message

I am elated to learn about the 18th India-Japan Bilateral conference on "Nurturing Academic Entrepreneurs with Industrial Partnership" from 26th to 30th November, 2023 at Biyani Girls College, Jaipur. I am optimistic about the results to be generated when leading academicians, industrialists, scientists and research scholars will assemble and disseminate their learnings.

I am hopeful that it will pave the way in providing an unparalleled platform for many ground breaking possibilities in the field of innovative ideas and prototypes.

My sincere and best wishes for the endeavour!

Yours sincerely,

(Naveen Jain)

DR. VATHSALA MANI

Academician



It provides me an immense pleasure to find out that Biyani Group of Colleges is organizing an Indo-Japanese conference BICON-2023. The conference is going to enlighten so many young minds and feed them with knowledge and new experiences. Along with this the conference is going to establish even more cordial relationships With japan

I would like to congratulate the organizers for choosing such unique and appropriate themes. I would like to wish them all the best and they are going to perform a commendable task by organizing such an intellectual event Which is going to be remembered for it's academic contribution.



(Dr. Vathsala Mani)

FROM THE CONVENER'S DESK

It gives me great pleasure to extend to you all a warm welcome on behalf of Department of Science and Nursing, Biyani Girls' College. We are grateful to all the speakers, delegates, organizers and guests, who have accepted our invitation to participate in the BICON 2023.

It is an opportune time for you to renew contacts and discuss opportunities of mutual interest with delegates from both Japan and India bilaterally.

It is gratifying to note that the agenda of the Seminar covers a wide range of very interesting items relating to higher education frontiers in India and Japan, and resulting opportunities for both countries.

No matter how much we can do by ourselves on the national level, whether it be research or development, it is never enough. In a spirit of true cooperation, we in Asia, and particularly in Japan and India, are proud of nurturing past and present civilizations and cultures. We must join in an action-oriented effort to recognize and capitalize on the bilateral opportunities in the higher education sector in both countries.

The utter sincerity and dedication of the management, the teaching faculty, non-teaching staff and the students at Biyani Girls' College have brought this event to fruition. It is an outcome of the hard work and persistent efforts of all our colleagues. We hope that their efforts shine through, and all the delegates and participants have a fulfilling and rewarding experience here, that carries forward long after the event itself is over. Once again, a very warm welcome to you all.



Ms. Kanchan Sharma
(Dept. of Science)
Convener, Day-1



Ms. Jishu B. George
(Dept. of Nursing)
Convener, Day-1



Dr. Rambir Singh
(Dept. of Pharmacy)
Convener, Day-1

CORE COMMITTEE :

- Ms. Pushpa Biyani (Chief Patron)
- Prof. Sanjay Biyani (Director-Acad.)
- Prof. Neeta Maheshwari (Sr. Principal)
- Ms. Priyanka Biyani (Asst. Director)
- Dr. Radhika Biyani (Asst. Director)
- Dr. Neha Pandey (Principal)
- Dr. Sumedha Bajpai
- Dr. Dheeraj Chitara
- Dr. Rajeev Biyani (Chairman)
- Prof. Manish Biyani (Director-R&D)
- Dr. Sujata Biyani (Asst. Director)
- Dr. Madhu Biyani (Asst. Director)
- CA Abhishek Biyani (Asst. Director)
- Dr. Shilpa Bharagava
- Dr. Smriti Tiwari
- Mr. Virendra Kumar

ORGANIZING COMMITTEE :

- Ms. Tarawati Chowdhary
- Dr. Kanupriya Sharma
- Ms. Anisha Sharma
- Mr. Gaurav Jhankal
- Ms. Monika Saini
- Ms. Asha Kumari
- Ms. Rifa Khan
- Ms. Radhika Maheshwari
- Mr. Jitendra Prasad Sharma
- Dr. Shilpa Bhargava
- Dr. Rachana Khandelwal
- Ms. Suman Khandelwal
- Dr. Vidhi Sharma
- Ms. Remya Renjan
- Ms. Laxmi Pharaswal
- Mr. Vijay Singh
- Mr. Kishan Lal Choudhary
- Mr. Rakesh Kumar Sharma
- Ms. Meecal Nobel
- Ms. Urvashi
- Ms. Deepa Singh
- Dr. Neetu Rawat
- Dr. Anita Mishra
- Ms. Dipali Jangid
- Mr. Yogesh Kumar
- Ms. Pooja Khandelwal
- Ms. Gyanwati Agarwal
- Dr. Vishnu Sharma
- Mohd. Shakil Zai
- Ms. Ritu Jangid
- Dr. Dheeraj Chitara
- Dr. Neetu Khandelwal
- Mr. Rajendra Singh Shekhawat
- Mr. Ramesh Kumar Verma
- Mr. Nitin Shukla
- Mr. Ashok kumar Sharma
- Mr. Mangi Lal
- Ms. Sheela
- Ms. Rumana Ali
- Ms. Surbhi Sharma
- Ms. Priya Chauhan
- Mr. Ramesh Kumar Sharma

PROGRAMME AT A GLANCE

Date: November 26, 2023; Sunday (Day-1)

Theme: Advancing Cancer Care through Futuristic Technologies in Industry

Standard Time	Schedule
Inaugural Session, 08:00 AM-10:40 AM	
08:00 AM-08:30 AM	Registration
08:30 AM-09:00 AM	Flag Ceremony
09:00 AM-09:10 AM	Gathering of the Audience to Utsav Auditorium
09:10 AM-09.25 AM	Lighting of the Lamp by Dignitaries
09:25 AM-09:40 AM	Welcome address by Organizing Chair- BICON-2023 Prof. Manish BIYANI Director (Research & Development) Biyani Group of Colleges, INDIA
09:40 AM-09:50 AM	Inaugural Address by Chief Guest Prof. Alpna KATEJA Vice-chancellor, University of Rajasthan
09:50 AM-10:10 AM	Keynote Speaker - 1 Dr. Prasanna VENKATRAMAN Dy. Director, Cancer Research Institute, ACTREC, Mumbai
10:10 AM-10:30 AM	Keynote Speaker - 2 Prof. Koji TODAKA, MD, PhD Director, Center for Clinical and Translational Research, Kyushu University Hospital, Japan
10:30 AM-10:35 AM	Address by Director, Academics Prof. Dr. Sanjay BIYANI Biyani Group of Colleges, Jaipur, Rajasthan, INDIA
10:35 AM-11:00 AM	High Tea with Snacks

Cancer Symposium 2.0, 11:00 AM - 1:00 PM	
Chair: Ms. Kanchan Sharma	
11:10 AM -11:30 AM	Speaker - 1 Prof. Shinsuke FUJIWARA, PhD Dean, School of Biological and Environmental Sciences, Kwansei-Gakuin University, Japan
11:30 AM-11:50 AM	Speaker - 2 Dr. Swapnil U RANE MD, Professor of Pathology, Tata Memorial Centre, Mumbai, India
11:50 AM-12:10 AM	Speaker - 3 Dr. Madhu BIYANI Kanazawa University, Japan
12:10 AM-12:30 AM	Speaker - 4 Prof. Kaori YASUDA (Online) Toyama Prefectural University, Japan
12:30 AM-12:50 AM (16:00-16:20 JST)	Speaker - 5 Dr. Prakash Singh SHEKHAWAT Hemato Oncologist, Bhagwan Mahaveer Cancer Hospital, Jaipur, India
12:50 AM-01:00 PM	Vote of Thanks (Group Photo & Memento Distribution)
01:00 PM-02:30 PM	Lunch Break and Poster Presentation
Special Session on Industry & Entrepreneurship, 02:30 PM- 04:00 PM	
Chair: Ms. Jishu George	
02:30 AM-02:45 PM	Industry Expert Talk - 1 Mr. Vivek SWAROOP Managing Director, Kisuma Asia Pte. Ltd., Singapore
02:45 AM-03:00 PM	Industry Expert Talk - 2 Mr. Rupesh BHARGAVA CCO, Yash Raj Biotech, Mumbai, India

03:00 PM-03:15 PM	Industry Expert Talk - 3 Ms. Ishita MALLICK Associate Scientific Manager, Innoplexus, Pune, India
03:15 PM-03:30 PM	Start Up Talk - 1 Mr. Abhishek GARG Owner, Milsun Pharmachem, Jaipur
03:30 PM-03:45 PM	Start Up Talk - 2 Mr. Akshay PANDITA A-Nutral, Gurugram
03:45 PM-04:10 PM	Panel discussion and Q/A session
04:10 PM-04:15 PM	Memento Distribution & Group Photo
04:15 PM-04:30 PM	<i>High Tea with Snacks</i>
Oral Presentations, 04:30 PM-06:00 PM	
Judge: Dr. Taravati Choudhary & Dr. Vishnu Sharma	
04:30 PM-05:40 PM	Total 8 Young Oral Presentations (10 min. to each paper with Q & A)
05:40 PM-05:50 PM	Award Ceremony and Group Photo
05:50 PM-06:00 PM	Closing Remarks

TABLE OF CONTENTS

INVITED LECTURES		
IL1	Visualizing Protein Interactions in Cancer as Social Networks- Harnessing the Fundamental Principles for Translational Research <i>Prasanna Venkatraman</i>	24
IL2	The importance of Academic Research Organizations in the era of medical product open innovation <i>Koji Todaka</i>	27
IL3	Efficient Agmatine Production in <i>Aspergillus oryzae</i> through Solid-State Cultivation <i>Shinsuke Fujiwara</i>	31
IL4	Digital & Computational Pathology – Transforming Cancer Care through AI/ML <i>Swapnil Ulhas Rane</i>	34
IL5	Nanoscale imaging of dynamic binding of aptamer molecules to cancer-targeting proteins by high-speed atomic force microscopy <i>Madhu Biyani, Noriyuki Kodera, Masataka Nakano, Tatsuki Fukami, Miki Nakajima</i>	38
IL6	Development of <i>in vitro</i> and <i>in vivo</i> evaluation systems for vitamin D analogs and their application to drug discovery <i>Kaori Yasuda, Miyu Nishikawa, Shinichi Ikushiro, Toshiyuki, Sakaki</i>	41
IL7	Immunotherapy and Biotechnology: Industry Innovations Driving Immune-Driven Cancer Treatments <i>Dr Prakash Singh Shekhawat</i>	43
CONTRIBUTED PAPERS		
1.	Regenerative medicine and tissue engineering: Industry's breakthroughs in cancer rehabilitation <i>Aditi Pipliwal, Pranjal Khatri and Anisha Sharma</i>	46
2.	Advancements and Challenges of Smart Hydrogels in Tissue Engineering and Regenerative Medicine <i>Aditya, Shivraj Gurjar, Chandramani Goswami</i>	47
3.	Extraction of natural dye from <i>Tradescantia pallida</i> , <i>Beta vulgaris</i> , <i>Tagetes erecta</i> , <i>Tagetes Patula</i> & its fastning tests <i>Ankita Purohit, Shilpa Bhargav</i>	49

4.	Biogenic Synthesis, Characterization of ZnO Nanoparticles Using <i>Elaeagnus Latifolia</i> and Their Biological Assay <i>Annu Yadav, Nirmala Kumar Jangid, Azhar U. Khan</i>	53
5.	Application of nanotechnology in cancer diagnosis and therapy <i>Anupama Goyal</i>	54
6.	Advancements and Challenges in Hip Replacement Technology: A Comprehensive Review <i>Ayush Goyal, Ajay Sharma, Chandramani Goswami</i>	58
7.	Tunable diode laser absorption spectroscopy for gas sensing <i>Asha Kumari</i>	59
8.	Developing Polyherbal Silver Nanoparticles showing antifungal properties <i>Azra Iram, Ritu Jangid</i>	60
9.	Nurturing Academic Entrepreneurs Nanotechnology and Targeted Delivery <i>Bal Krishan Saini, Vishnu Kumar Jatav, Amit Kumar Mishra, Khemchand Bairwa, Anil Kumar Saini</i>	61
10.	In Silico interaction of Rapid-acting insulins with different stomach enzymes <i>Chanchal Sharma, Ritu Jangid</i>	67
11.	Fabrication and characterization of ZnO Nanoparticles for the development of a new electrochemical glucose biosensor <i>Chandan Singh Rawat, Ashima Bagaria, Prity Sharma</i>	68
12.	Synthesis, Spectroscopic Characterization, Applications, Structural Studies on Metal Complexes with Semicarbazone and Thiosemicarbazone Derivatives <i>Deepika Sihag, Deepankar Sharma and Purnima Nag</i>	69
13.	Advances in Fluid-Structure Interaction Modeling for Biomechanical Systems: A Comprehensive Review <i>Dipali Jangid, Preeti Jain, Chandramani Goswami</i>	69
14.	Groundbreaking approach in cancer therapeutics through the development of a novel nanoparticle mediated delivery system <i>Divya Varjani, Revika Shekhawat and Rifa Khan</i>	70
15.	Redefining Supportive Care and Rehabilitation in Cancer <i>Divya Varjani, Revika Shekhawat and Rifa Khan</i>	72
16.	Appliances of Gold nanoparticle in Nanotechnology <i>Geeta Meena, Samiksha Sangwan, Keerti Bairwa</i>	74

17.	Bio mimic synthesis of silver nanoparticles and their antimicrobial efficacy <i>Gyanwati Agarwal</i>	75
18.	In-vitro phytochemical, Antioxidant and Antimicrobial activity of leaf extract of Cannabis Sativa <i>Harsheesh Kour, Shilpa Bhargava</i>	75
19.	Value of Herb-based Cookies as a Supplementary Nutraceuticals Diabetes Care <i>Harshita Sharma, Vishnu Sharma</i>	81
20.	A Study to Evaluate Effectiveness of Bibliotherapy on Test Anxiety Reduction Among Adolescents in Selected High Schools at Jaipur, Rajasthan <i>Jishu Baiju</i>	82
21.	Biodiversity deprivation and its influence on society <i>Kalpna Soni</i>	83
22.	Challenges of Artificial Intelligence in Pathology and Radiology: A Review <i>Kanupriya Sharma</i>	84
23.	Use of derivatives of quinoline compounds as an anticancer <i>Khushi Khandelwal, Neetu Khandelwal</i>	89
24.	Assessment Of Knowledge Regarding Needle Stick Injury Among Nursing Students Of Selected Nursing College, Jaipur, Rajasthan <i>Kishan Lal Chaudhary, Rumana Ali</i>	89
25.	Activated fly ash as an efficient and novel catalyst for some selected organic reactions in solvent-free conditions: A Review <i>Kritika Parihar, Jainandini Bhatia, Garvita Sethi, Vishal Singh</i>	91
26.	Sequence Extraction and Molecular Visualization of Keratin Protein <i>Kumkum Yadav, Shilpa Bhargava</i>	91
27.	Removal of Chloride from Ground water Sample by Brick Powder as a Low-Cost Adsorbent: A Common Study <i>Kunal Sharma, Vishal Singh</i>	96
28.	Advanced And Innovative Nano-Systems For Anticancer Targeted Drug Delivery <i>Mansi Prajapati and Hansa Tanwar</i>	96
29.	Robotics in surgical oncology: precision procedure enabled by industrial invocations <i>Manisha Shekhawat</i>	98

30.	A Study to Assess the Various Factors and Hazards Related to Mobile phone Addiction Among the adolescents of different schools in Jaipur <i>Meecal Nobel, Urvashi Kumar</i>	99
31.	Revolutionizing Chemistry: Sustainable Green Innovations <i>Nawraj Darjee, Vedant Khandelwal, Vansh Minglani, Vishal Singh</i>	101
32.	Replacement of organic solvent by water <i>Payal Sharma, Sunishka Chhatrawal, Pooja Khandelwal, Neetu Khandelwal</i>	101
33.	A new era of teaching-learning via hybrid and blended mode <i>Neetu Kachhwaha</i>	102
34.	Indoor Plants And Their Role In Reducing Air Pollution <i>Neetu Rawat, Kanchan Sharma</i>	102
35.	Digital Therapeutics: Redefining Supportive Care And Rehabilitation In Cancer <i>Nisha Rathore</i>	104
36.	Advancements and Challenges in Ceramic Matrix Composites: A Comprehensive Review <i>Param Budania, Anshul, Chandramani Goswami</i>	105
37.	Regenerative Oncology <i>Pareek Prashansa</i>	106
38.	Hemiptera Fauna at Tal Chhapar Wildlife Sanctuary <i>Pritika Jangir</i>	107
39.	Advancing Cancer Care Through Futuristic Technologies In Industry Tissue Engineering And Regenerative Medicine <i>Priya Kudiwal, Parul Shekhawat, Yogita Jangid, Asma Khan Monika Saini</i>	108
40.	Peregrine Solitons of the Higher-Order, Inhomogeneous, Coupled, Discrete, and Nonlocal Nonlinear Schrödinger Equations <i>Pooja Kumari</i>	109
41.	Huge use of X-rays in medical Science <i>Rajesh Kumar Rajput, Dhruvashri Shekhawat</i>	110
42.	Environmental Sustainability and Ethical Disposal in Cancer Tech Development <i>Rajni, Akshita Mishra, Maya Bunkar, Neha Sharma and Anisha Sharma</i>	110

43.	An Interventional study to assess the effectiveness of laughter therapy in the reduction of stress among geriatric people in selected old age homes of Jaipur, Rajasthan, India <i>Rakesh Kumar Yadav, Vijay Choudhary</i>	112
44.	Deep Learning Algorithms for Predicting Patient Waiting Times in Emergency Department in Healthcare Queue Systems <i>Rakesh Kumar Mishra and Geetanjali Sharma</i>	113
45.	Sustainability: Pollution Prevention <i>Rakshita Jangid, Santosh Rathore, Pooja Khandelwal</i>	114
46.	Studies of Endangered Medicinal Plants <i>Rashmi Sharma</i>	115
47.	Environmental Sustainability & Development <i>Rekha Vijay, Poonam Hariyani Barkha Shrivastava</i>	116
48.	Impact of Educational Program on Knowledge Regarding “Home Management of Side Effects of Chemotherapy” among Caregivers of Cancer patients in selected Hospitals of Jaipur, Rajasthan. <i>Remya Renjan, Laxmi Pharaswal</i>	118
49.	Integrating futuristic technologies in cancer case with homoeopathic principles: A comprehensive approach to personalized healing <i>Ruchika Singh</i>	119
50.	Changing Paradigms of Nanoparticles in Sustainable Farming <i>Sanjana Bhat</i>	121
51.	Antioxidant activity of some medicinal plants of family Rubiaceae <i>Sapana Khandelwal and Varsha Sharma</i>	122
52.	The emerging role of digital therapeutics in Cancer treatment <i>Sarthak Dewanda</i>	123
53.	Adsorption of methylene blue dye from wastewater by using <i>Murraya koenigii</i> leaves as bio-adsorbent <i>Saveena, Anita Mishra</i>	123
54.	Optimisation of AGVs path layout in flexible manufacturing system using 0–linear integer programming <i>Sawan Kumar Yadav</i>	124
55.	The Microbial Fuel Cell: Advanced Waste Bioremediation with Renewable Energy <i>Shrishti Kajla, Vishnu Sharma</i>	125
56.	Studies on insecticidal properties of non- leguminous plants of Thar desert <i>Shriya Sharma, Deepali lall and Kamlesh Rawat3</i>	126

57.	Curcumin as a Potent Antidepressant Drug: Curcumin contains pharmacological properties which is extracted from Turmeric plays a vital role in curing depression <i>Simran Rajawat, Shruti Chamria, Sweta Khokhar</i>	128
58.	In-silico drug-drug and drug target predication of Doxorubicin and Cyclophosphamide with HER protein involved in Breast cancer <i>Sugandha Kumari, Ritu Jangid</i>	129
59.	Some Transition Metal Complexes Synthesis, Characterization, and Biological Screening <i>Suman Dhayal and Purnima Nag</i>	130
60.	Unraveling the Tapestry of Cancer: A Comprehensive Exploration of Molecular Insights, Therapeutic Innovations, and Future Perspectives <i>Sunita Gangwani, Monika Saini</i>	131
61.	Knowledge and Attitude Regarding Blood Donation among Undergraduate Students at selected College, Jaipur, Rajasthan <i>Surbhi Sharma, Priya Chauhan, Sheela</i>	132
62.	Advancements in Graphene Semiconductor Technology: A Comprehensive Review <i>Vansh Khandelwal, Chandramani Goswami</i>	134
63.	Pharmacological and Biochemical Investigations of Medicinal Plant Tribulus terrestris <i>Varsha Sharma, Poonam Meena and Sapana Khandelwal</i>	135
64.	Elucidating the Anticancer efficacy of Carica papaya leaf extracts: A comprehensive study on their therapeutic potential in Breast cancer treatment <i>Vasundhara Kanwar, Ritu Jangid</i>	136
65.	Awareness and attitude about basic life support among school teachers in Jaipur, Rajasthan: A cross-sectional study <i>Vidhi Sharma, Rakesh Sharma</i>	137
66.	Breast Cancer Transcriptional Regulatory Network Reprogramming by using the CRISPR/Cas9 system: an Ontogenetic Perspective <i>Vikas Pandey, Desh Deepak Singh</i>	139
67.	Structural Properties of Ni Thin Films deposited on to Self-assembled polystyrene nanosphere <i>Yogesh Kumar, Radhika Maheshwari J. Tripathi and A. Sharma</i>	140

68.	Performance evaluation of CETP (Common Effluent Treatment Plant) of Bhiwadi and its impact on environment <i>Indu Rawat and Dr. Rashmi Sharma</i>	140
69.	Anti-Cancerous Property of Ocimum sanctum : Higher concentration of Eugenol have been shown to have Anti-Cancerous Property <i>Sonakshi Das, Kratika Dadhich, Deepa Choudhary</i>	141
70.	Green synthesis of Nanoparticles by different methods <i>Kavita Rajpurohit</i>	143
71.	Synthesis and Characterizaion of silver nanoparticles using tea leaf extract and evaluation of their stability and antibacterial activity <i>Vishnu Kumar Khandelwal</i>	155
72.	Striving for a Greener Future: Environmental Sustainability and Ethical Disposal in Cancer Tech Development <i>Shikha Mathur</i>	157
73.	New sighting of Asian Woolly necked stork, <i>Ciconia episcopus</i> at wetland of Kekri District of Rajasthan <i>Umesh Dutt</i>	158

Invited Lecture 1

Visualizing Protein Interactions in Cancer as Social Networks- Harnessing the Fundamental Principles for Translational Research



Prasanna Venkatraman

Affiliation & Contact:

- Principal Investigator, Cancer Research Institute, ACTREC (since 2006)
- Deputy Director, Cancer Research Institute (since 2018)
- Head of Research (since 2018), Advanced Centre for Treatment, Research and Education in Cancer, Tata Memorial Centre.
- Head of Research ACTREC

Contact: 91 7738692223; E-mail: vprasanna@actrec.gov.in

Research Interests:

Proteasome Assembly, Structure and Function; Chaperones and their domain motif Interaction; Protein Interaction network and their role and relevance in Cancer; Targeting Protein Interfaces

Education & Professional Career:

1998	Ph.D., Biochemistry and Biophysics, Molecular Biophysics Unit, Indian Institute of Science, Bangalore, India
2004 – 2005	Senior Research Scientist, University of Massachusetts, Worcester
2000 – 2004	Post-Doctoral Research Fellow at Harvard Medical School, Boston
1998 – 2000	Post-Doctoral Research Fellow at University of California, San Francisco

Major Publications:

1. PSMD9 Chaperone Interaction Network Regulates Protein Homeostasis FEBS JOURNAL 04 September 2023 <https://doi.org/10.1111/febs.16948>
2. A druggable pocket on PSMD10^{Gankyrin} that can accommodate an interface peptide and doxorubicin. European Journal of Pharmacology, 915, 174718 (2022). <https://doi.org/10.1016/j.ejphar.2021.174718>
3. PSMD9 ribosomal protein network maintains nucleolar architecture and WT p53 levels, Biochemical and Biophysical Research Communications <https://doi.org/10.1016/j.bbrc.2021.05.004>
4. A Novel Determinant of PSMD9 PDZ Binding Guides the Evolution of the First Generation of Super Binding Peptides. Biochemistry, 2019, 58, 32, 3422-3433. <https://doi.org/10.1021/acs.biochem.9b00308>.

Abstract

Visualizing Protein Interactions in Cancer as Social Networks- Harnessing the Fundamental Principles for Translational Research

Prasanna Venkatraman

Cancer Research Institute, Advanced Centre for Research and Education in Cancer, Tata Memorial Centre, Navi Mumbai 410210; Homi Bhabha National Institute

Abstract

One of the most interesting aspect of research is the opportunity and the ability to propose a hypothesis, test it in a defined system, visualize it in a larger context and ultimately ask if this can be a unifying principle underlying biological function. It will be an icing on the cake if such a unifying principle can also be useful in translating these findings to a prototype that can be used for interfering with disease like cancer. In this talk, I will describe one such example by which communication is established in cancer cells using very small ‘motifs’ or signatures and how this is used to make a network of communication connecting many proteins and other molecules in cells. This is much like the social networks that many of us are familiar with. Depending on who is connected to who, we can identify one or two nodal persons capable to bring together many communities in a network. Information flows through some important connections and this is very vital to hold the community together or disrupt it. Similarly, I will describe our research on

important protein molecules that are responsible for establishing networks and how this network is rewired in a cancer cell when the protein levels are altered. I will show you how the core network uses some guiding principles that are universal across organisms. Towards the end I will show how the architecture of the network can be manipulated by devising strategies that can kill or disable the cancer cells.

Keywords: Network, Cancer, Motifs, Protein Interaction, Inhibitor



Invited Lecture 2

The importance of Academic Research Organizations in the era of medical product open innovation



Koji Todaka

MD, Ph.D., FJCS

Affiliation & Contact:

Center for Clinical and Translational Research, Kyushu University Hospital
Academic Research and Industrial Collaboration Management Office, Kyushu University
3-1-1 Maidashi, Higashi-ku, Fukuoka 812-8582, Japan
Phone and Fax: +81-92-642-5092
Email: todaka.koji.514@m.kyushu-u.ac.jp

Research Interest:

Research in regulatory science, clinical trial methodology, designing clinical trials. Survey research on the difference in medical product regulation by Regulatory Agencies overseas. Clinical research in cardiology, especially cardiac function, and heart failure.

Education & Professional Career:

1979-1985	M.D. and B.A., School of Medicine, Kyushu University, Fukuoka, Japan
1985-1990	Cardiologist and Researcher, Research Institute of Angiocardiology, School of Medicine, Kyushu University
1990-1992	Staff Cardiologist, Affiliated hospitals with Kyushu University, Saga and Iizuka
1993-1997	Post-doc Research Fellow, Division of Circulatory Physiology, Columbia University, New York, USA
1997	Ph.D. (Dr of Medical Science), Kyushu University
1997-2002	Staff Cardiologist, Kyushu University Hospital, affiliated hospitals, Fukuoka, and National Cardiovascular Center, Suita, Osaka

2002-2004	Medical Reviewer, Pharmaceuticals and Medical Devices Evaluation Center, Ministry of Health, Labour and Welfare, Japan (later reorganized into PMDA, Pharmaceuticals and Medical Devices Agency)
2004-2012	Assistant Professor, Research Associate Professor, Department of Cardiovascular Medicine, Kyushu University
2012-2019	Associate Professor, Center for Clinical and Translational Research, Kyushu University Hospital
2019	Professor in the same Center
2022	FJCS, Fellow of Japanese Circulation Society

Major Publications:

- Hosokawa K, Watanabe H, Taniguchi Y, Ikeda N, Inami T, Yasuda S, Murohara T, Hatano M, Tamura Y, Yamashita J, Tatsumi K, TSUJINO I, Kobayakawa Y, Adachi S, Yaoita N, Minatsuki S, Todaka K, Fukuda K, Tsutsui H, and Abe K. A Multicenter, Single-Blind, Randomized, Warfarin-Controlled Trial of Edoxaban in Patients with Chronic Thromboembolic Pulmonary Hypertension: KABUKI Trial. *Circulation*. 2023 In press
- Nakano Y, Yamamoto M, Matoba T, Katsuki S, Nakashiro S, Takase S, Akiyama Y, Nagata T, Mukai Y, Inoue S, Oi K, Higo T, Takemoto M, Suematsu N, Eshima K, Miyata K, Usui M, Sadamatsu K, Kadokami T, Hironaga K, Ichi I, Todaka K, Kishimoto J, Tsutsui H; QcVIC Investigators. Association between Serum Oxysterols and Coronary Plaque Regression during Lipid-Lowering Therapy with Statin and Ezetimibe: Insights from the CuVIC Trial. *J Atheroscler Thromb*. 2023 Aug 1;30(8):907-918. doi: 10.5551/jat.63507. Epub 2022 Dec 1.
- Kimura K, Kanto T, Shimoda S, Harada K, Kimura M, Nishikawa K, Imamura J, Ogawa E, Saio M, Ikura Y, Okusaka T, Inoue K, Ishikawa T, Ieiri I, Kishimoto J, Todaka K, Kamisawa T. Safety, tolerability, and anti-fibrotic efficacy of the CBP/ β -catenin inhibitor PRI-724 in patients with hepatitis C and B virus-induced liver cirrhosis: An investigator-initiated, open-label, non-randomised, multicentre, phase 1/2a study. *EBioMedicine*. 2022 Jun;80:104069. doi: 10.1016/j.ebiom.2022.104069. Epub 2022 May 20.
- Kobayakawa Y, Todaka K, Hashimoto Y, Ko S, Shiraishi W, Kishimoto J, Kira JI, Yamasaki R, Isobe N A novel quantitative indicator for disease progression rate in amyotrophic lateral sclerosis. Pooled Resource Open-Access ALS Clinical Trials Consortium. *J Neurol Sci*. 2022 Aug 24;442:120389. doi: 10.1016/j.jns.2022.120389. Online ahead of print. PMID: 36041329
- Nakamura K, Ozawa H, Shibata T, Ushirozawa N, Hata T, Okita N, Fuse N, Sato N, Ikeda K, Hanaoka H, Maruyama T, Wada M, Shimizu S, Kasai H, Yamamoto Y, Sakurai J, Todaka K, Tashiro S, Yamamoto H. Survey Results and Recommendations from Japanese Stakeholders for Good Clinical Practice Renovation. *Ther Innov Regul Sci*. 2022 Mar;56(2):220-229. doi: 10.1007/s43441-021-00350-4. Epub 2021 Nov 17. PMID: 34787814; PMCID: PMC8596855.

- Tohyama T, Ide T, Ikeda M, Kaku H, Enzan N, Matsushima S, Funakoshi K, Kishimoto J, Todaka K, Tsutsui H. Machine learning-based model for predicting 1 year mortality of hospitalized patients with heart failure. *ESC Heart Fail.* 2021 Oct;8(5):4077-4085. doi: 10.1002/ehf2.13556. Epub 2021 Aug 13. PMID: 34390311; PMCID: PMC8497366.
- Arima M, Inoue H, Nakao S, Misumi A, Suzuki M, Matsushita I, Araki S, Yamashiro C, Takahashi K, Ochiai M, Yoshida N, Hirose M, Kishimoto J, Todaka K, Hasegawa S, Kimura K, Kusuhara K, Kondo H, Ohga S, Sonoda K. Study protocol for a multicentre, open-label, single-arm phase I/II trial to evaluate the safety and efficacy of ripasudil 0.4% eye drops for retinopathy of prematurity. *BMJ Open.* 2021 Jul 27;11(7):e047003.
- Oda S, Ashida K, Uchiyama M, Sakamoto S, Hasuzawa N, Nagayama A, Wang LX, Nagata H, Sakamoto R, Kishimoto J, Todaka K, Ogawa Y, Nakanishi Y, Nomura M. An open-label phase I/IIa clinical trial of 11 β -HSD1 inhibitor for Cushing's syndrome and autonomous cortisol secretion. *J Clin Endocrinol Metab.* 2021 Sep 27;106(10):e3865-e3880. doi: 10.1210/clinem/dgab450.
- Takao Y, Tsunoda C, Kimura M, Todaka K. Safety information management in investigator-initiated trials in Japan. *Japanese Journal of Clinical Pharmacology and Therapeutics.* 2021, 52(1):13-19
- Todaka K, Kishimoto J, Ikeda M, Ikeda K, Yamamoto H. Impact of risk, benefit perception and trust on medical technology acceptance in relation to drug and device lag: a tripartite cross-sectional survey. *Ther Innov Regul Sci.* 2018, 52(5):629-640.

Abstract

The importance of Academic Research Organizations in the era of medical product open innovation

Koji Todaka

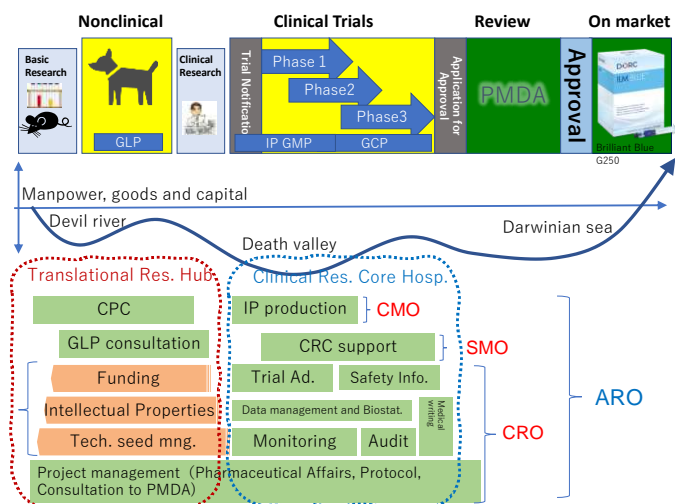
Center for Clinical and Translational Research, Kyushu University Hospital

Abstract

In 2007, the Japanese government began establishing academic research organizations (AROs) at several universities in order to overcome the situation in Japan, where promising basic research results had not led to the practical application of new drugs. At the same time, an R&D method in which AROs incubate inventions from academia to some extent and then license them out to pharmaceutical companies is becoming a global trend. The majority of new drugs approved by the US FDA from 1998 to 2007 were discoveries made in academia. In Japan as well, results are beginning to emerge, with 23 cases being approved over the three-year period from 2020 to 2022

through a system of investigator-initiated clinical trials for approval purpose, which is rare in the world. From the beginning, Kyushu University received support from the Ministry of Education and the Ministry of Health through the Translational Research Hub Project and Clinical Research Core Hospital Project, respectively, and has been developing an ARO staffed by around 100 experts. We have a system in place to cover every step to mature basic research into new drugs (intellectual property, pharmaceutical affairs, toxicology, engineering, CMC [chemistry, manufacturing and control], project management, data management, biostatistics, trial quality control, IT, ethics, regulatory science) within the university. Although there are many development targets for incurable and rare diseases that are difficult for pharmaceutical and medical device companies to reach and also to make a profit, the morale of the staff is high in delivering new treatments to bedside, which leads to gathering talented people and efficient development. Examples of approved products include alveolar bone fillers and staining materials for eye surgery, which have become de facto standard products and are used around the world. We also have new drug development technologies that have a wide range of applications, including the production of protein preparations by introducing genes into special silkworms that have been cultivated in the Faculty of Agriculture for over 100 years, and technology that allows even larger molecules of 500 Da or more to penetrate into the body through normal skin.

We are actively working on international contributions, and especially in Asia. We are conducting joint research and development with local academia to resolve unmet medical needs such as infectious diseases, which are caused by regionally specific circumstances. Your country's CDSCO have a reference country rule that simplifies domestic evaluations by referring to approvals in Japan, which can hopefully be utilized. We hope that the introduction of our university's activities in this lecture will lead to joint development and international clinical trials with academia in your country.



Keywords: unmet medical needs, translational research, reference country



Invited Lecture 3

Efficient Agmatine Production in *Aspergillus oryzae* through Solid-State Cultivation



Shinsuke Fujiwara *Ph.D.*

Affiliation & Contact:

Department of Biosciences, School of Biological and Environmental Sciences, Kwansei-Gakuin University, 1 Gakuen-Uegahara, Sanda, Hyogo, 669-1330 *Japan* Phone +81-79-565-7601; Fax +81-79-565-7605

Email: Fujiwara-s@kwansei.ac.jp

Research Interest:

Enzymology, Molecular Genetics, Archaea, Filamentous Fungi

Education & Professional Career:

1985-1990	M.S. and Ph.D. Hiroshima University (Microbiology)
1990-1992	Nihon Shokuhin Kako Co Ltd. (Protein Engineering of CGTase)
1992-1994	Research Associate, University of Illinois at Chicago, College of Medicine (Cystic fibrosis)
1994-2001	Asst. Prof in Osaka University (Application of KOD polymerase)
2001-2002	Asso. Prof in Osaka University (Cold adaptation of thermophiles)
2002-2006	Asso. Prof in Kwansei-Gakuin University (Environmental Microbiology)
2006	Prof. in Kwansei-Gakuin University (Biological roles of polyamines)
2020	Dean of School of School of Biological and Environmental Sciences

Major Publications:

1. Juma, K.M. et al.: Recombinase polymerase amplification using novel thermostable strand-displacing DNA polymerases from *Aeribacillus pallidus* and *Geobacillus zalihae*. J.Biosci.Bioeng. S1389-1723(23)00026-9. (2023)
2. Shimakawa,G. et al: Immobilization of a Broad Range of Polypeptides on the Frustule of the Diatom *Thalassiosira pseudonana*, Appl.Environ.Microbiol., 88, 1-11 (2022)
3. Fukuda,W. et al.: Substrate specificity of an aminopropyltransferase and the biosynthesis pathway of polyamines in the hyperthermophilic crenarchaeon *Pyrobaculum calidifontis*. Catalysts. 12, 567, 1-13 (2022)
4. Ishi,Y. et al.: Leucine-responsive regulatory protein in acetic acid bacteria is stable and functions at a wide range of intracellular pH levels. J.Bacteriol. 203, e00162-21 (2021)
5. Akasaka,N. and Fujiwara,S. The therapeutic and nutraceutical potential of agmatine, and its enhanced production using *Aspergillus oryzae*. Amino Acids 52, 181-197 (2020)

Abstract

Efficient Agmatine Production in *Aspergillus oryzae* through Solid-State Cultivation

Shinsuke Fujiwara

Department of Biosciences, School of Biological and Environmental Sciences, Kwansei-Gakuin University, 1 Gakuen-Uegahara, Sanda, Hyogo, 669-1330 Japan

Agmatine, a natural polyamine synthesized from arginine-by-arginine decarboxylase, was first discovered in 1910. Its physiological significance remained unclear for over a century. Recent findings have revealed agmatine's role as an endogenous ligand for $\alpha 2$ -adrenergic and imidazoline receptors in the mammalian brain, suggesting its potential as a therapeutic agent for various central nervous system-related diseases. Numerous preclinical and clinical studies conducted in the past two decades have demonstrated its versatile functions in modulating various molecular targets, including neurotransmission, nitric oxide synthesis, glucose metabolism, polyamine metabolism, and carnitine biosynthesis. These findings indicate the potential for agmatine in therapeutic applications and as a nutraceutical to enhance the quality of life(1,2). Although mammals have low enzymatic activity of arginine decarboxylase, the enzyme responsible for agmatine production from arginine, it is suggested that a significant portion of agmatine comes from dietary sources and gut microbiota. Intriguingly, certain fermented foods produced by *Aspergillus oryzae* contain substantial agmatine, despite the absence of L-arginine decarboxylase (ADC) orthologs in the *A. oryzae*

genome. This raised the question of how efficient agmatine production is achieved. Our research has shown that *A. oryzae*'s solid-state cultivation leads to significantly higher ADC activity than submerged culture conditions, particularly at a low pH of 3.0 and 30°C(3). These findings suggest that the efficient production of agmatine is facilitated by a yet unidentified low pH-dependent ADC induced during the solid-state cultivation of *A. oryzae*(4). Recent progress in this field includes the purification and identification of natural ADC from *A. oryzae* hyphae obtained during solid-state cultivation. This ADC exhibited the characteristic features of pyruvyl-dependent decarboxylases in its amino acid sequence. Furthermore, a recombinant form of this ADC expressed in *Escherichia coli* cells displayed the same low pH-dependent ADC activity observed in its natural counterpart. These discoveries shed light on the mechanisms behind agmatine production and could have implications for its sustainable production and applications in various fields.

References (1)Piletz JE et al.: Drug Discov Today 18:880–893(2013) (2)Barua S et al.: Neurochem Res 44: 735–750 (2019) (3)Akasaka N et al.: Appl Environ Microbiol 84: e00722-18 (2018) (4)Akasaka N and Fujiwara S: Amino Acids 52: 181-197 (2020)

Keywords: agmatine, arginine decarboxylase, *Aspergillus oryzae*, polyamine



Invited lecture 4

Digital & Computational Pathology – Transforming Cancer Care through AI/ML



Swapnil Ulhas Rane

Affiliation & Contact:

Professor & Pathologist, Tata Memorial Centre.

Contact: +918693080123, +912224177260

E-mail: raneswapnil82@gmail.com

Education & Professional Career:

2010	M.D. Pathology, D.N.B. Pathology, PGIMER, Chandigarh
2012	PDCC Renal & Transplantation Pathology, PGIMER, Chandigarh
2014	MRes (Translational Cancer Medicine), King's College London
2015	Fellowship in Oncopathology, Tata Memorial Centre, HBNI.
2022	FRC Path (Histopathology), Royal College of Pathologists
2015-2019	Assistant Professor & Pathologist, Tata Memorial Centre
2019-2022	Associate Professor & Pathologist, Tata Memorial Centre
2022-present	Professor & Pathologist, Tata Memorial Centre

Scientific Activities:

2010 -2012	Senior Resident, Pathology, PGIMER, Chandigarh
2012 - 2015	Fellow in Pathology, Tata Memorial Centre.

Research Interests:

1. I am the PI of a Computational Pathology Laboratory at Tata Memorial Centre and also the Cancer Imaging Biobank Project, which aims to collate timeline pathology and radiology images of cancer patients linked to their clinical information, tests and outcome data. We aim

to build, train and validate AI/ML/DL algorithms that are relevant in clinical practice and work towards deployment

2. I look at Head Neck Cancer and urological cancers as a part of my diagnostic interests. I am particularly interested in using computational pathology to find patterns in timeline pathology that can be used in predicting response to therapy and predicting outcomes.
3. I also do molecular pathology and am interested in finding the molecular basis of cancer and correlating it with the morphological patterns on the glass slide especially those that can be investigated by computational pathology.
4. I am interested in using Data Science in solving daily problems in Healthcare. I lead the development of a Level 6 Synoptic Reporting Platform at Tata Memorial Centre.

Publications:

1. RK Gupta, S Nandgaonkar, NC Kurian, S Rane, A Sethi. EGFR Mutation Prediction of Lung Biopsy Images using Deep Learning. arXiv preprint arXiv:2208.12506, 2022
2. Anand, D., Yashashwi, K., Kumar, N., Rane, S., Gann, P. H., Sethi, A. (2021). Weakly supervised learning on unannotated H&E-stained slides predicts BRAF mutation in thyroid cancer with high accuracy. The Journal of Pathology. <https://doi.org/10.1002/path.5773>
3. Rane S, Yadav S, Shah A, Narahari B, Yadav D, Desai S. The impact of level 6 synoptic reporting system on turn-around times in a surgical pathology laboratory of a tertiary cancer centre. In VIRCHOWS ARCHIV 2021 Aug 1 (Vol. 479, No. SUPPL 1, pp. S36-S36).
4. Abhijeet Patil, Harsh Diwakar, Jay Sawant, Nikhil Cherian Kurian, Subhash Yadav, Swapnil Rane, Tripti Bameta, Amit Sethi. Efficient quality control of whole slide pathology images with human-in-the-loop training, Journal of Pathology Informatics, Volume 14, 2023. <https://doi.org/10.1016/j.jpi.2023.100306>.

Abstract

Digital & Computational Pathology – Transforming Cancer Care through AI/ML

Swapnil Rane

Professor & Pathologist, Tata Memorial Centre, HBNI

Abstract :

Computational Pathology is an interdisciplinary field, focusing on the use of computational tools to transform pathology as a branch. It is fueled by the availability of large-scale multi-dimensional

datasets primarily in the form of whole slide images linked to clinical information including treatment data, outcomes, genomic data and others. Computational pathology uses machine learning and deep learning algorithms to look at patterns that may not be visible to the human eye. Accurate prediction of genomic mutations^{1,2,3} from histology images not only offers us ways and means to reduce costs and turn-around-times for healthcare delivery. Further the ability of computational pathology to predict response/benefit⁴ to therapy not only promises personalized medicine, but also guides further investigations into the molecular mechanisms of response to therapy. Computational pathology is also moving towards interpretable AI where patterns recognizable by the human mind can be built into risk stratification scores that are interpretable by the clinicians. Patients can be risk stratified into those likely to recur early following a particular therapy and those likely to have long term response/disease free status⁵.

AI/ML/DL algorithms are affected by several pre-analytical variables, such as slide quality, image quality, processing artefacts, staining variations, interlaboratory variations in addition to true biological variables such as ethnic differences and tumor heterogeneity. Several tools are being built to detect, segment, and quantify artefacts on the digitized slide^{6,7,8} which are important supporting tools for introducing AI/ML/DL algorithms for clinical use. Cautious AI⁹ tools are also essential for making the AI algorithms more robust and reliable for use in the clinics and to test their generalizability.

Large volumes of data are required to facilitate rapid testing and training of new algorithms. It is well known that AI algorithms trained on one population may not work equally well on another population due to a number of variables related to ethnic, epidemiological, laboratory, biological and other factors. To test any new algorithm and to train algorithms which work on your populations, data representative of your population is essential. Cancer Imaging Biobank (CAIB)¹⁰ is one such project which is aggregating pathology WSI and radiology images along with their linked clinical, treatment and outcome information from 4 organizations from India. CAIB currently has >10000 pathology WSI images and radiology DICOM studies of head neck and lung cancer with a plan to expand the project to other cancers in due course.

References:

1. Anand, D., Yashashwi, K., Kumar, N., Rane, S., Gann, P. H., Sethi, A. (2021). Weakly supervised learning on unannotated H&E-stained slides predicts BRAF mutation in thyroid cancer with high accuracy. *The Journal of Pathology*. <https://doi.org/10.1002/path.5773>
2. RK Gupta, S Nandgaonkar, NC Kurian, S Rane, A Sethi. EGFR Mutation Prediction of Lung Biopsy Images using Deep Learning. arXiv preprint arXiv:2208.12506, 2022
3. Anand D, Kurian NC, Dhage S, Kumar N, Rane S, Gann PH, Sethi A. Deep Learning to Estimate Human Epidermal Growth Factor Receptor 2 Status from Hematoxylin and Eosin-

- Stained Breast Tissue Images. J Pathol Inform. 2020 Jul 24;11:19. doi: 10.4103/jpi.jpi_10_20. PMID: 33033656; PMCID: PMC7513777
4. Lu C, Lewis JS Jr, Dupont WD, Plummer WD Jr, Janowczyk A, Madabhushi A. An oral cavity squamous cell carcinoma quantitative histomorphometric-based image classifier of nuclear morphology can risk stratify patients for disease-specific survival. Mod Pathol. 2017 Dec;30(12):1655-1665. doi: 10.1038/modpathol.2017.98. Epub 2017 Aug 4. PMID: 28776575; PMCID: PMC6128166.
 5. Neeraj Kumar, Ruchika Verma, Ashish Arora, Abhay Kumar, Sanchit Gupta, Amit Sethi, and Peter H. Gann "Convolutional neural networks for prostate cancer recurrence prediction", Proc. SPIE 10140, Medical Imaging 2017: Digital Pathology, 101400H (1 March 2017); <https://doi.org/10.1117/12.2255774>
 6. Patil A, Diwakar H, Sawant J, Kurian NC, Yadav S, Rane S, Bameta T, Sethi A. Efficient quality control of whole slide pathology images with human-in-the-loop training. J Pathol Inform. 2023 Mar 21;14:100306. doi: 10.1016/j.jpi.2023.100306. PMID: 37089617; PMCID: PMC10113897.
 7. Janowczyk A, Zuo R, Gilmore H, Feldman M, Madabhushi A. HistoQC: An Open-Source Quality Control Tool for Digital Pathology Slides. JCO Clin Cancer Inform. 2019 Apr;3:1-7. doi: 10.1200/CCI.18.00157. PMID: 30990737; PMCID: PMC6552675.
 8. Haghighat, M., Browning, L., Sirinukunwattana, K. et al. Automated quality assessment of large digitised histology cohorts by artificial intelligence. Sci Rep 12, 5002 (2022). <https://doi.org/10.1038/s41598-022-08351-5>
 9. Kanse AS, Kurian NC, Aswani HP, Khan Z, Gann PH, Rane S, Sethi A. Cautious Artificial Intelligence Improves Outcomes and Trust by Flagging Outlier Cases. JCO Clin Cancer Inform. 2022 Oct;6:e2200067. doi: 10.1200/CCI.22.00067. PMID: 36228179.
 10. <https://caib.actrec.gov.in/>



Invited lecture 5

Immunotherapy and Biotechnology: Industry Innovations Driving Immune-Driven Cancer Treatments



Prakash Singh Shekhawat

Affiliation & Contact:

Bhagwan Mahaveer Cancer Hospital & Research Centre
Phone +91 8420345335; Email: drprakashsinghshekhawat@gmail.com

Jaipur Hematology Centre, B-23, Govind Marg, Jaipur
Phone +911413535678; Email: jaipurhematology@gmail.com

Research Interest:

Childhood cancer and bone marrow transplant

Education & Professional Career:

2001-2006	MBBS
2010-2013	MD
2016-2018	Postdoctoral fellowship
2018-2021	DM (Clinical Hematology)
2021-2023	Assistant Professor, NIMS University
2023(March) onwards	BMCHRC

Major Publications:

1. Telemedicine in hematology; long-term implications of a short-term experience during COVID-19 pandemic

2. COVID-19 Pandemic: Insights into Molecular Mechanisms Leading to Sex-based Differences in Patient Outcomes Running Title: Molecular Mechanisms for Sex-based Differences in COVID-19
3. Bone infarct (osteonecrosis) as late side effect of steroid in acute lymphoblastic leukemia survivor
4. Myeloid sarcoma: experience from a hematology care centre of Eastern India
5. Indian Society of Hematology and Blood Transfusion (ISHBT) Consensus Document on Hematological Practice During COVID-19 Pandemic encountered in caring for hematology patients during the COVID-19 pandemic in India
6. Host Vulnerability Factors Affecting Patient Outcomes in COVID-19: An Update
7. Hemarthrosis in hemoglobin E beta thalassemia: a rare clinical scenario
8. Care in crisis: management of hematology patients during COVID-19 Pandemic
9. Institutional Sensitivity Pattern Guides Initial Antimicrobial Selection in Febrile Neutropenia; Sharing Experience from a Hemato-Oncology Care Center in India.
10. Molecular Mechanisms for Sex-based Differences in Patient Outcomes in COVID-19: A Systematic Review
11. Azacitidine Causing Generalized Skin Rash: A Rare Side Effect
12. Pathogenesis Guided Therapeutic Management of COVID-19: An Immunological Perspective
13. Clinicopathological Characteristics and Outcome in Patients of Primary CNS Lymphoma Treated with Modified De-Angelis Protocol: An Audit
14. Acute Promyelocytic Leukemia: A Decade Long Experience with Evolving Treatment Strategies
15. Profile of Autoimmune Haemolytic Anaemia: Analysis of 10 Years Data from a Hematology Center in Eastern India
16. Chapter in Medicine API 2021 book titled “Approach to a case of polycythemia- More blood may be bad...”
17. Chapter in API textbook of medicine 12th edn. on Nutritional Anemia
18. Chapter in API Medicine Update on “Revisiting pancytopenia”-releasing May 2023 Presentations at conferences

Abstract

**Immunotherapy and Biotechnology: Industry Innovations
Driving Immune-Driven Cancer Treatments**

Dr Prakash Singh Shekhawat

BMCHRC, Jaipur

Abstract

Immune system is a surveillance system of our body that constantly patrolling for the abnormal cells. Despite of this , cancer cells are tricky and notorious —they have various mechanism to hide from the immune check. They may evade detection or dampen the immune response. Immunotherapy steps in to break this evasion tactic.

Checkpoint inhibitors are the other upgrades in the armarium, which unleash the immune system by blocking the brakes that cancer cells exploit to avoid an attack.

Currently the genetically engineering T cells (a type of immune cell) are also available and they can better target and destroy cancer cells.

Thus immunotherapy so promising is its ability to create a lasting impact. Unlike traditional treatments, it can train the immune system to remember and recognize cancer cells, providing long-term protection without the side effects related to chemotherapy.

one-size-fits-all solution, is yet not true for all .Immunotherapy paving its way as a personalised approach and research is ongoing to refine and expand its applications. But immunotherapy is undoubtedly a shining beacon of hope in the world of oncology.

Keywords: Immunotherapy, CAR T cell, Precision oncology



Invited lecture 6

Nanoscale imaging of dynamic binding of aptamer molecules to cancer-targeting proteins by high-speed atomic force microscopy



Madhu Biyani

Affiliation & Contact:

NanoLSI (WPI), Drug Metabolism and Toxicology Laboratory, Faculty of Pharmaceutical Sciences, Kanazawa University

Kakuma-machi, Kanazawa, Ishikawa, 920-1192, Japan,

Phone +81-766-56-7500; Fax +81-766-56-2498

Email: kyasuda@pu-toyama.ac.jp

Research Interest:

Molecular Biology, Aptamer technology, Drug discovery

Education & Professional Career:

2007-2009	Researcher in Saitama Bio Project, Saitama University
2009-2011	PhD in Engineering, Saitama University
2014-2019	Researcher, JAIST and BioDevice Co, Ltd, Ishikawa Prefecture
2019-2020	Post-doctoral fellow, Toyama Prefecture University
2020-Present	Assistant Professor, Nano Life Science Institute, Kanazawa University

Major Publications:

1. Biyani M, Yasuda K, Isogai Y, Okamoto Y, Weilin W, Kodera N, Flechsig H, Sakaki T, Nakajima M, Biyani M, Novel DNA Aptamer for CYP24A1 Inhibition with Enhanced Antiproliferative Activity in Cancer Cells, ACS Appl. Mater. & Interfaces, refereed, 14, 18064-18078, 2022.

2. Biyani R, Sharma K, Kojima K, Biyani M, Biyani M, et al, Development of robust isothermal RNA amplification assay for lab-free and lab-quality testing of RNA viruses, Sci Rep, refereed, 11, 15997, 2021.

Abstract

Nanoscale imaging of dynamic binding of aptamer molecules to cancer-targeting proteins by high-speed atomic force microscopy

**Madhu Biyani¹, Noriyuki Kodera¹, Masataka Nakano^{1,2}, Tatsuki Fukami^{1,2},
Miki Nakajima^{1,2}**

¹*WPI Nano Life Science Institute (WPI-NanoLSI), Kanazawa University,*

²*Drug Metabolism and Toxicology, Faculty of Pharmaceutical Sciences, Kanazawa University,
Kanazawa, Japan*

Aptamers are single-stranded oligonucleotides that fold into defined architectures and bind to targets such as proteins with high affinity and specificity [1]. Due to their low molecular weight, low/no immunogenicity, and versatility to manipulate for improved stability and target efficacy, they attracted much attention in cancer diagnosis and treatment. However, a deeper insight into conformational dynamics and the search for the most atomistically stable aptamer-target complexes are prerequisites for the development of aptamers as lead candidates for the development of targeted drugs against cancer. Numerous experimental methods have been developed to understand biomolecular interactions on a structural and dynamic level [2]. Among them, high-speed atomic force microscopy (HS-AFM) has emerged as a leading technology to directly observe the structural dynamics and dynamic processes of biological molecules in physiological solutions [3].

In our studies, we analyzed the dynamic binding interactions between aptamers and proteins by HS-AFM. The HS-AFM movies characterized the aptamer-protein dynamic complex binding at the nanoscale level. In addition, nanoscale-level observations were further evaluated by the molecular docking interpretation at the atomic level [4]. In this talk, I will present our recent imaging studies of dynamic complexes between aptamers and proteins using HS-AFM in combination with molecular docking in the development of aptamers as anticancer agents.

1. Keefe et al. Nat. Rev. Drug Discovery, (2010)
2. Gauto et al. Nat. Commu., (2019)
3. Ando et al. Chem Rev., (2014)
4. Biyani et al. ACS Appl. Mater. & Interfaces, (2022)

Keywords: Aptamers, HS-AFM, Molecular docking



Invited lecture 7

Development of *in vitro* and *in vivo* evaluation systems for vitamin D analogs and their application to drug discovery



Kaori Yasuda

Affiliation & Contact:

Department of Pharmaceutical Engineering, Faculty of Engineering, Toyama Prefectural University, Toyama, Japan

Phone +81-766-56-7500; Fax +81-766-56-2498

Email: kyasuda@pu-toyama.ac.jp

Research Interest:

Biochemistry, Drug metabolism, Metabolism and molecular mechanism of vitamin D and its analogs

Education & Professional Career:

2002-2004	M.S. in Engineering, Kyoto University
2004-2005	Government Employee, Fukui Prefectural Government
2005-2008	Researcher, Research Institution of Innovative Technology for the Earth
2008-2013	Researcher, Toyama Prefectural University (2013, Ph.D, in Engineering)
2013-2016	Post-doctoral fellow, Toyama Prefectural University
2016-2019	Assistant Professor, Toyama Prefectural University
2019-2022	Junior Associate Professor, Toyama Prefectural University
2023-Now	Associate Professor, Toyama Prefectural University

Major Publications:

1. Kise S, Yasuda K, Sakaki T et al., Functional analysis of vitamin D receptor (VDR) using adenovirus vector. *J Steroid Biochem Mol Biol.*, 26:106275.(2023)

2. Yogo Y, Yasuda K, Sakaki T et al., Metabolism of non-steroidal anti-inflammatory drugs (NSAIDs) by *Streptomyces griseolus* CYP105A1 and its variants. *Drug Metab Pharmacokinet.*, 45:100455. (2022)
3. Yasuda K, Sakaki T et al., Elucidation of metabolic pathways of 25-hydroxyvitamin D3 mediated by CYP24A1 and CYP3A using *Cyp24a1* knockout rats generated by CRISPR/Cas9 system *J. Biol. Chem.*, 296: 100668 (2021)
4. Yasuda K, Sakaki T et al., Development of In Vitro and In Vivo Evaluation Systems for Vitamin D Derivatives and Their Application to Drug Discovery. *Int. J. Mol. Sci.*, 22:11839. (2021)

Abstract

Development of *in vitro* and *in vivo* evaluation systems for vitamin D analogs and their application to drug discovery

Kaori Yasuda*, Miyu Nishikawa, Shinichi Ikushiro**,
Toshiyuki, Sakaki***

**Department of Pharmaceutical Engineering, Toyama Prefectural University, Japan*

***Department of Biotechnology, Toyama Prefectural University, Japan*

Vitamin D3 is metabolized to 25-hydroxyvitamin D3 (25D3) by CYP2R1 and CYP27A1 in the liver, and further metabolized by CYP27B1 in the kidney to 1 α ,25-dihydroxyvitamin D3 (1,25D3). 1,25D3 has biological effects by binding to the vitamin D receptor (VDR) as a ligand, while both 25D3 and 1,25D3 are sequentially metabolized to inactive metabolites by CYP24A1. Vitamin D analogs with high VDR affinity and resistance to CYP24A1-mediated metabolism could be good therapeutic agents.

So far, we have constructed the following original systems and attempted to evaluate vitamin D analogs. (1) VDR-affinity evaluation system using chimeric protein consisting of split luciferase and VDR [1]. (2) Metabolic prediction system using a recombinant human CYP24A1 expressed in *E. coli* [2]. (3) CYP24A1 KO rats were generated using genome editing method [3]. (4) Metabolism prediction system using a human CYP24A1-expressing adenovirus vector.

Since the CYP24A1-dependent metabolic profile of vitamin D analogs differs between rats and humans, accurate prediction of metabolism of vitamin D analogs in human is difficult from metabolic studies using rats. So, in addition to the above evaluation systems, we are in the process

of establishment of a rat models expressing human CYP24A1 by infection of human CYP24A1-expressing adenovirus vector to CYP24A1-KO rats.

1. Mano et al., *J. Steroid Biochem. Mol. Biol.*, 178, 55-59 (2018)
2. Yasuda et al., *Int. J. Mol. Sci.* 22, 11839 (2021)
3. Yasuda et al., *J. Biol. Chem.*, 296, 100668 (2021)

Keywords: Vitamin D, Drug metabolism



CONTRIBUTED PAPERS

Abstract

Regenerative medicine and tissue engineering: Industry's breakthroughs in cancer rehabilitation

Aditi Pipliwal, Pranjal Khatri and Anisha Sharma

Biyani Girls College Jaipur, India

Corresponding Email: sharmaanu7790@gmail.com

Abstract

Introduction

The development of cancer involves sustained chronic proliferation of cancer cells, which leads to the formation of hyper-vasculature and defective vascular architecture. Such architecture enables nanomaterials to diffuse easily from blood vessels and accumulate within and around the tumour, which is defined as the enhanced permeability and retention (EPR) effect.

The advent of Regenerative medicine and tissue engineering has revolutionized the treatment of various disorders like cancer. Tissue engineering helps develop promising in vitro and in vivo models, such as spheroids, organoids, and organ-on-a-chip for studying cancer biology and evaluating the safety and effectiveness of novel antitumor drugs. Moreover, drug delivery systems that use scaffolds and stem cells enable sustained and localized release of antitumor drugs. Scaffolds and stem cells could also be utilized in cancer immunotherapy and in healing wounds caused by the resection of tumours. Advancements in tissue engineering and regenerative medicine may provide therapeutic approaches to treat tumours effectively.

Methodology

The function of regenerative therapies, including growth factor administration, mesenchymal stem cell therapy, platelet-rich plasma, hematopoietic stem cell transplantation and Musculoskeletal repair, and cognitive rehabilitation.

Result

This also delves into the idea of personalized medicine in the context of regenerative medicine, with a focus on patient-specific treatments that make use of the patient's own cells to improve recovery results. It also covered the possibility of using immunomodulation to strengthen the immune system's function in preventing cancer and healing from the adverse effects of therapy. To sum up, it underscores the remarkable potential of regenerative medicine to transform the field of cancer

rehabilitation. Regenerative medicine stands to benefit from interdisciplinary cooperation and the advancement of evidence-based research.

Conclusion

Intricate interactions between treatments and how they affect different tissues and organs, cancer rehabilitation presents special difficulties. With an emphasis on tissue repair, regeneration, and functional recovery, the field of regenerative medicine has emerged as a creative solution to these problems.

Keywords: Tissue engineering, Regenerative medicines, Stem cells, Cancer rehabilitation



Advancements and Challenges of Smart Hydrogels in Tissue Engineering and Regenerative Medicine

Aditya, Shivraj Gurjar¹, Chandramani Goswami^{1*}

¹Mechanical Engineering Department, School of Engineering and Technology, JECRC University Jaipur, India

**Corresponding Email: chandramani.goswami10@gmail.com*

Abstract

The field of regenerative medicine, driven by advancements in bioengineering, possesses significant potential to revolutionize the results of medical treatments. This comprehensive overview examines the many methodologies utilized in tissue engineering and the construction of functional structures within the field of regenerative medicine. The primary objective is to effectively reinstate, preserve, and rejuvenate deteriorated tissues and organs, thereby heralding a transformative epoch in the field of healthcare. At the core of these solutions lies the incorporation of biomimetic materials, cells, and bioactive chemicals, which together constitute a triad that coordinates tissue regeneration and functions as therapeutic systems. Hydrogels have developed as prominent entities within this domain, establishing themselves as prevalent tissue engineering scaffolds throughout the preceding two decades. Hydrogels have become crucial instruments in the field of regenerative medicine due to their distinctive capability to uphold a distinct three-dimensional structure, offer mechanical support, and imitate the characteristics of the original extracellular matrix. The high water content of hydrogels is a crucial characteristic that significantly contributes to their efficacy in tissue engineering. This property not only permits a distinct 3D structure but also produces an optimum environment for

cell survival, closely replicating real tissues. The utilization of hydrogel systems has been crucial in aiding the immobilization of cells and enabling the controlled release of growth factors, hence enhancing their importance in the process of tissue regeneration. The present review commences with a succinct examination of the fundamental characteristics, composition, and techniques employed in the production and manufacturing of intelligent hydrogels. This study explores the structural complexities that contribute to the intelligent and versatile nature of hydrogels, rendering them suitable for a wide range of applications in the field of tissue engineering. The discourse thereafter expands to encompass the various uses of intelligent hydrogels, spanning from the healing of wounds to the regeneration of organs, so highlighting their multifaceted nature and significant influence within the field of regenerative medicine. This study also investigates the changing terrain of smart hydrogel synthesis and fabrication methods, emphasizing new progressions that improve their effectiveness and suitability. Additionally, the research underscores the significance of comprehending the biological reactions to smart hydrogels, guaranteeing their compatibility with living organisms and mitigating any possible detrimental consequences. The review article examines the future prospects of smart hydrogels in the field of tissue engineering, considering developing technology, novel applications, and prospective advancements that may occur in the near future. The purpose of this prospective viewpoint is to provide guidance to researchers, doctors, and practitioners on effectively utilizing the complete capabilities of smart hydrogels for the advancement and customization of regenerative therapies. In summary, this review offers a thorough examination of the characteristics, production methods, practical uses, and prospective advancements of intelligent hydrogels within the field of tissue engineering. This study is a significant resource for individuals interested in comprehending, contributing to, and innovating within the dynamic and quickly growing field of regenerative medicine, by emphasizing the crucial role it plays in this area.

Keywords: Regenerative Medicine, Tissue Engineering, Hydrogels, Bioengineering Advances



Extraction of natural dye from *Tradescantia pallida*, *Beta vulgaris*, *Tagetes erecta*, *Tagetes Patula* & its fastning tests

Ankita Purohit¹, Shilpa Bhargava

¹Department of Science, Biyani Group of Colleges, Jaipur, India

Corresponding E-mail: sci.shilpabhargava@biyanicolleges.org

Abstract

In recent years due to biodegradability and high environmental compatibility, natural dyes have attracted a lot of attention when it comes to dying fabrics. The specialists claim that natural dyes have a great deal of potential and may even be able to readily replace synthetic ones in some applications. The extraction of dyes from *Tradescantia pallida*, *Beta vulgaris*, *Tagetes erecta*, *Tagetes Patula* and the effects of various mordanting techniques and its fastning test are all covered in this study. From an environmental standpoint, swapping out synthetic dyes for natural ones creates new opportunities for markets and employment in addition to lowering risk and pollution. Different types of fibres will be used for example synthetic wool, cotton and silk. After dyeing the fibre its fastning test will be carried.

Introduction

Natural dyes are organic and obtained from materials found in nature. In comparison to synthetic colors, natural dyes are typically more environmentally friendly, biodegradable, less poisonous, and less allergic. Natural colors are biodegradable, Therefore when they are drained into water bodies, they don't disrupt the aquatic ecosystem. Since natural dyes have a tendency to fade quickly, Properties to the fabric dye fixative are used, this can be in the form of starch, seaweed, Alum (hydrated double sulfate salt), table salt, vinegar. Fabrics dyed with natural dye are more delicate and have to be handled with care, it should not be dried directly in sunlight. *Tradescantia pallida*, *Beta vulgaris*, *Tagetes erecta*, *Tagetes Patula* are used to extract natural dyes.

Methodology

1. Sample collection: Purple Heart-The sample was collected from Biyani group of girls colleges, Jaipur. Beetroot-The sample was brought from nearby *sabzi mandi* of Jaipur Flowers-The sample was brought from nearby flower vendor

2. Drying of Flowers: Flowers were dried after washing

3. Making Extract:

A. Purple Heart: Leaves of Purple Heart were taken from campus. The leaves were washed properly. 50g of leaves was taken in the 100ml of Acetone:Ethanol:dH₂O in the ration 1:1:2 i.e, 25ml of Acetone, 25ml of Ethanol and 50ml of dH₂O . It was kept on hot plate for one hour along with adding water if required.

- B. Beetroot:** 100g of beetroot was taken in Ethanol:Acetone:dH₂O in ratio 1:1:2. That is 25ml of Acetone 25ml of Ethanol 50ml of dH₂O. It was heated on hot plate for 1hr with adding dH₂O if required.
- C. Flower extract:** 25g of dried flower powder in Ethanol:Acetone:dH₂O in ratio 1:1:2. That is 25ml of Acetone 25ml of Ethanol 50ml of dH₂O. It was heated on hot plate for 1hr with adding dH₂O if required
- 4. Filtration of extract:** Extract was filtered using Whatman filter paper and the filtrate was collected in beaker.
- 5. Dyeing of threads/ fabrics:** The fabric is kept in the dye for 2-4 hrs. It is removed from dye and kept in sunlight for 1 hr let it dry completely
- 6. Mordanting of threads:** Mordants and dH₂O was taken in ratio 1:40, i.e 1g of mordant with 40ml of distilled water. The threads were kept in it for 1-2 hrs. Later the threads were removed and kept for drying.

Result and Discussion

1. Dyeing of threads by *Tradescantia pallida*:



FIG 1: Without Mordant



FIG 2: With Mordant K₂Cr₂O₇

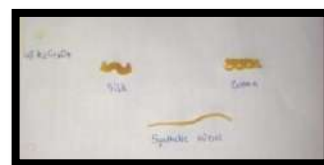


FIG 3: With mordant FeSO₄

The colour obtained without mordant is Green. (shown in fig 1).

The colour obtained with mordant K₂Cr₂O₇ is yellow (shown in fig 2).

The colour obtained with mordant FeSO₄ is brown (shown in fig 3).

2. Dyeing process by *Beta vulgaris*:

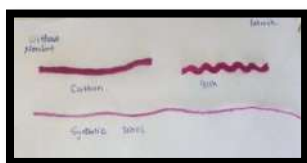


FIG 4: Without mordant

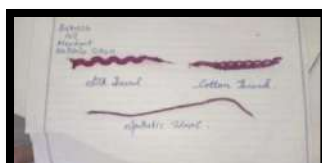


FIG 5: With mordant Alk(SO₄).12H₂O

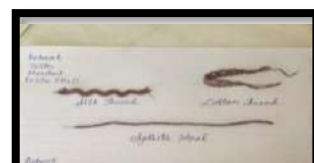


FIG 6: With mordant FeSO₄.7H₂O

The color obtained without mordant is Pink (shown in fig 4).

The color obtained with mordant $\text{AlK}(\text{SO}_4) \cdot 12\text{H}_2\text{O}$ is Dark pink (shown in fig 5).

The color obtained with mordant FeSO_4 is brown (shown in fig 6).

3. Dyeing process with *Targetes patella*:



FIG 7: Without mordant

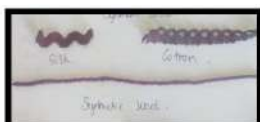


FIG 8: With Mordant $\text{AlKSO}_4 \cdot 12\text{H}_2\text{O}$

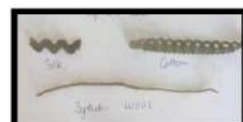


FIG 9: With Mordant $\text{K}_2\text{Cr}_2\text{O}_7$

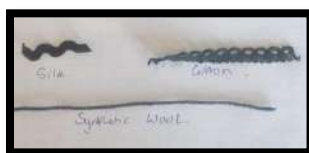


FIG 10: With Mordant $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$

The color obtained without mordant is pink (shown in fig 7).

The color obtained with mordant $\text{AlK}(\text{SO}_4) \cdot 12\text{H}_2\text{O}$ is Pinkish Purple (shown in fig 8).

The color obtained with mordant $\text{K}_2\text{Cr}_2\text{O}_7$ is Green (shown in fig 9)

The color obtained with mordant FeSO_4 is blue (shown in fig 10).

4. Dyeing process with: *Targetes erecta*



FIG 11: Without Mordant

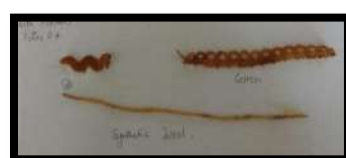


FIG 12: With Mordant $\text{Alk}(\text{SO}_4) \cdot 12\text{H}_2\text{O}$

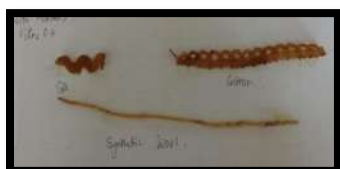


FIG 13: With Mordant $\text{K}_2\text{Cr}_2\text{O}_7$



FIG 14: With Mordant $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$

The color obtained without mordant is Yellow (shown in fig 11).

The color obtained with mordant $\text{AlK}(\text{SO}_4) \cdot 12\text{H}_2\text{O}$ is Dark yellow (shown in fig 12).

The color obtained with mordant $\text{K}_2\text{Cr}_2\text{O}_7$ is Bright yellow (shown in fig 13)

The color obtained with mordant FeSO_4 is brown (shown in fig 14).

Conclusions :

In this report, many natural Dye were extracted. In conclusion, natural dyes offer a host of benefits for human use. Most significantly, they are better for the environment and our health.

Keywords: extraction, natural dyes, Removal of the dye molecule, dyeing threads, mordants, Fixing Dye.

References :

1. H. B. Sowbhagya et al., Natural Colorant from Marigold- Chemistr and Technology.Food Reviews International, Vol.20, No.1, pp. 33-50, 2004
2. [http://shodhganga.inflibnet.ac.in/bitstream/10603/26319/7/07 chapter%202.pdf](http://shodhganga.inflibnet.ac.in/bitstream/10603/26319/7/07%20chapter%202.pdf)
3. Indian Horticulture Database-2014 10 Jothi D. (2008): Extraction of Natural Dyes from African Marigold Flower (*Tagetes erecta*) for Textile Colouration, Autex Res, Journal 8(2): 49-53. 11 Kumeresan M., Palani P. N, and Kumar P.E (2011): Application of Eco-Friendly natural Dyes on Silk Using Combination of Mordants. Int. J. Chem. Res 2(1):11-14
4. Lokaewmance K., Yamauchi K., Komori T., Saito K. (2011): Enhancement of yolk color in raw and boiled egg yolk with lutein from marigold flower meal and marigold flower extract. Journal of Poultry Science, 48, 25-32/



Biogenic Synthesis, Characterization of ZnONPs using *Elaeagnus Latifolia* and their Biological Assay

Annu Yadav¹, Nirmala Kumar Jangid^{*1}, Azhar U. Khan^{*2}

¹Department of Chemistry, Banasthali Vidyapith Banasthali-304022

² School of Life and basic Science, SIILAS CAMPUS, Jaipur National University, Jaipur

Corresponding Emails: azhar.u.kha@gmail.com, nirmalajangid.111@gmail.com

Abstract

Nanotechnology a emerging area in have wide applications in biomedical, electronics and agriculture involves to fabricated materials at nanoscale level having the size ranging 1-100nm. Nanoparticles draw more attention due to its distinguish chemical, physical and biological characteristic. Green approach of synthesizing nanoparticles come to light as an alternative to conventional approach, due to presence of bio-active constituents in plants act as stabilizing as well as capping agents and enhance the rate of reduction and stabilization of synthesized nanoparticles. Herein we report the biohenic synthesis of ZnO NPs using *Elaeagnus Latifolia* the obtained materials characterized using UV-vis spectroscopy, FTIR, X-ray diffraction, field emission scanning electron microscopy (FE-SEM) and transmission electron microscopy (TEM). The photocatalytic activity of ZnONPs nanoparticles were investigate by degradation of methyl blue under UV radiation and also antibacterial activity against S.aureus, S. paratyphi, V.Cholerae and E.coli were screened.

Methodology

In a 250 mL conical flask, 15 ml of *Elaeagnus Latifolia* were heated at 50°C for 10 min then 85 ml of 1mM zinc acetate solution was added dropwise with continuous stirring for 6 hrs. The reaction mixture turned yellowish and a cream-colored precipitate of zinc hydroxide was formed. Then centrifuged at 10,000 rpm for 10 minutes. The reduction of Zn^{2+} to Zn^0 was confirmed by change in colour of the solution from light yellow to cream.

Result and Discussion

The spectral studies (UV-vis, FTIR, XRD, FE-SEM & TEM) favour the formation of ZnONPs using the extract *Elaeagnus Latifolia*. The bioactive moieties in extract *Elaeagnus Latifolia* act as bioreducing, stabilizing and capping agent and enhance the potential of biogenic ZnONPs.

Conclusions

In this study, ZnONPs were synthesized using extract *Elaeagnus Latifolia* as reducing and stabilizing agent. The extract *Elaeagnus Latifolia* determined to play an effective role as reducing agent in controlling the size of particles. The spectral technique employed here is very simple,

inexpensive and eco-friendly. The spectral evidences of techniques like UV-vis, FTIR, XRD, SEM and TEM favour the structure, size, and crystallinity of Zn nanoparticles showing that ZnONPs may be promising possibility for wide range of applications.

Keywords: Green synthesis; ZnONPs, *Elaeagnus Latifolia*, photocatalytic activity, antimicrobial activity.



Application of nanotechnology in cancer diagnosis and therapy

Anupama Goyal

Jayoti Vidyapeeth Women's University, Jaipur

Corresponding Email: goyalanupama29@gmail.com

Abstract

Cancer is the leading cause of death and poor quality of life worldwide. Although several strategies have been proposed to reduce death, reduce chronic pain, and improve quality of life, there is still a gap in the adequacy of these cancer therapies. Early detection of cancer cells and application of drugs with high specificity to reduce toxicity are essential steps to ensure optimal cancer treatment. Due to increased systemic toxicity and resistance to conventional tools for cancer diagnosis and treatment, other strategies including nanotechnology are being used to improve diagnosis and mitigate the severity of the disease. Over the years, nanotechnology-based immunotherapeutic agents have been used for several types of cancer to reduce the invasiveness of cancer cells while preserving healthy cells at the target site. Nanomaterials including carbon nanotubes, polymeric micelles, and liposomes have been used in anticancer drug design, where they have demonstrated significant pharmacokinetic and pharmacodynamic advantages in cancer diagnosis and treatment. In this review, we outline commonly used nanomaterials that are used in cancer diagnosis and treatment. We have highlighted the suitability of these nanomaterials for cancer treatment based on their physicochemical and biological properties. We further reviewed the challenges associated with various nanomaterials that limit their use and prevent their translatability to the clinical setting in certain types of cancer.

Keywords: nanomaterials, nanotechnology, cancer, diagnosis, treatment

Introduction

Cancer is a leading cause of death and a global health burden. By 2018, there will be an estimated 18.1 million new cancer cases and 9.6 million cancer-related deaths. Cancer is a disease characterized by uncontrolled cell proliferation that spreads from the initial focus to other parts of

the body and causes death. For these reasons, it is crucial to ensure earlier detection and treatment of cancer to reduce disease spread and mortality. Among the widely used strategies in cancer research today is nanotechnology. Nanotechnology has led to several promising results with its applications in cancer diagnosis and treatment, including drug delivery, gene therapy, detection and diagnosis, drug delivery, biomarker mapping, targeted therapy, and molecular imaging. Several studies have investigated different forms of nanomaterials, such as liposomes, polymers, molecules, and antibodies, concluding that combining these nanomaterials in cancer drug design can achieve a balance between increasing efficacy and decreasing drug toxicity. However, due to the potential toxicity of nanomaterials, there is still a long way to go before they are readily accepted in the clinic for cancer treatment. With the rapid development of nanotechnology, this article will review its application in cancer diagnosis and treatment, focusing on its advantages and limitations during use (Figure 1).

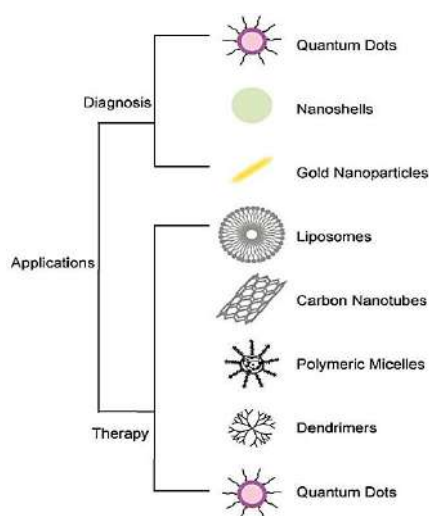


Figure 1. Application of nanomaterials in cancer diagnosis and therapy.

Methodology

In current research, nanotechnology can validate cancer imaging at the tissue, cellular and molecular levels. We used some spatial and temporal techniques based on nanotechnology that can help to accurately track living cells and monitor dynamic cellular events in tumors. Quantum dots that emit fluorescence in the near-infrared spectrum (ie, 700-1000 nanometers) have been designed to be more suitable for imaging colorectal cancer, liver cancer, pancreatic cancer, and lymphoma. A second near-infrared (NIR) window (NIR-ii, 900-1700 nm) with greater depth of tissue penetration, higher spatial and temporal resolution has also been developed to aid in cancer imaging.

We have used nano-carriers such as liposomes, micelles, dendritic macromolecules, quantum dots and carbon nanotubes to treat cancer.

Results and discussion

Nanoshells

Another commonly used nanotechnology application is the use of nanoshells. Nanoshells are dielectric cores between 10 and 300 nanometers in size, usually made of silicon and coated with a thin metal shell (usually gold). These nanoshells work by converting plasma-mediated electrical energy into light energy and can be flexibly optically tuned using UV-infrared emission/absorption fields. Nanoshells are desirable because their imaging lacks heavy metal toxicity[28], although their use is limited by their large size.

Colloidal gold nanoparticles

Gold nanoparticles (AuNPs) are good contrast agents because of their small size, good biocompatibility, and high atomic number. Research shows that AuNPs work in both active and passive ways to target cells. The principle of passive targeting is guided by the collection of gold nanoparticles to improve imaging due to the tension permeability (EPR) effect in tumor tissues. Active targeting, on the other hand, is mediated by conjugating AuNPs with tumor-specific drugs, such as EGFR monoclonal antibodies, to achieve active targeting of AuNPs to tumor cells (Figure 2).

Nanotechnology tools for cancer treatment

The development of nanotechnology is based on the use of small molecular structures and particles as tools for drug delivery. Nanocarriers such as liposomes, micelles, dendritic macromolecules, quantum dots, and carbon nanotubes are widely used in cancer therapy.

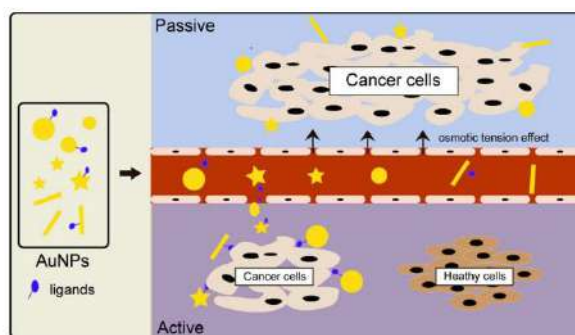


Figure 2. Different types of gold nanoparticles (different sizes, morphologies and ligands)

Accumulate in tumor tissues through the effect of osmotic tension (referred to as passive targeting) or localize to specific cancer cells through ligand-receptor binding (referred to as active targeting).

Liposomes

Liposomes are one of the most studied nanomaterials, which are nanospheres composed of a natural or synthesized phospholipid bilayer membrane and aqueous phase cores[51]. Due to the amphiphilicity of phospholipids, liposomes form spontaneously[51], allowing hydrophilic drugs to preferentially remain in the monolayer liposome, while hydrophobic ones form in front of the multilamellar liposome.

Carbon Nanotubes

Carbon nanotubes also have a property that allows them to absorb light from the near-infrared (NIR) region, which causes the nanotubes to heat up by the thermal effect and therefore can target tumor cells. Natural forms of carbon nanotubes promote non-invasive penetration of biofilms and are considered highly competent carriers for the transport of various drug molecules into living cells.

Conclusion and future directions

Nanotechnology has shown great promise in cancer treatment over the years. Nanomaterials, with their improved pharmacokinetic and pharmacodynamic properties, have contributed to the improvement of cancer diagnosis and treatment. Nanotechnology enables the targeted delivery of drugs to affected organs with minimal systemic toxicity due to their specificity. However, as with other therapeutic options, nanotechnology is not completely free of toxicity, and its use presents several problems, including systemic and certain organ toxicity, causing failures in their clinical applications. Given the limitations of nanotechnology, further advances need to be made to improve drug delivery, maximize efficacy while minimizing downsides. By improving the interactions between the physicochemical properties of the nanomaterials used, safer and more effective derivatives for diagnosis and treatment can be made available for cancer treatment.

□□□

Advancements and Challenges in Hip Replacement Technology: A Comprehensive Review

Ayush Goyal¹, Ajay Sharma¹, Chandramani Goswami^{1*}

*¹Mechanical Engineering Department, School of Engineering and Technology, JECRC
University Jaipur, India*

**Corresponding Email: chandramani.goswami10@gmail.com*

Abstract

The total joint replacement operation stands as a significant advancement in orthopedic implant surgery. This review aims to comprehensively assess, describe, elucidate, and consolidate pertinent information from essential and past reports concerning the physical, mechanical, and tribological behavior of diverse composite materials employed in hip joint replacement applications. Encompassing a multidisciplinary approach, this research delves into various subjects, particularly focusing on biomaterials, specifically bio-ceramic materials, and their mechanical and wear responses. Numerous researchers have demonstrated their commitment to formulating and innovating novel hip implant composites, investigating their biocompatibility within simulated body fluid environments. The selection of hip implant materials hinges on two primary criteria: the restoration of function and the attainment of aesthetic characteristics. Other crucial considerations include biocompatibility, physical properties, mechanical properties, tribological properties, cost-effectiveness, and availability. This chapter provides an extensive review of hip replacement technology, injectable biomaterials, design requirements, and differentiation between physical and mechanical properties, offering a comprehensive overview of the efficacy for each system.

The underlying purpose of this literature review is to furnish foundational knowledge on the issues and challenges to be addressed in this thesis and underscore the significance of the present study. By exploring the advancements and challenges in hip replacement technology, this review aims to contribute to the broader understanding of orthopedic implant surgery, providing a thorough foundation for further research and innovation in the field.

Keywords: Orthopedic implant surgery, Hip joint replacement, Composite materials, Biomaterials, Mechanical, properties, Biocompatibility exploration



Tunable diode laser absorption spectroscopy for gas sensing

Asha Kumari

IIT Gandhinagar, India

Corresponding Email: ashakumari6748@gmail.com

Abstract

Gas sensing plays an important role in the real time world. Detection of Various harmful gases like methane, carbon- dioxide and nitrogen dioxide which affects life, gas-detection helps in pollution control and industrial monitoring.

The various conventional methods of gas detection such as gas chromatographer, pellistor and electrochemical gas sensors but due to their disadvantages such as slow response, low sensitivity and large size, they are not good choices for large scale gas detection.

Absorption spectroscopy, is a technique for real time measurements to extract gas parameters such as temperature, pressure, mole fraction, using rotational, vibrational lines of gases. When light passes through a medium some part of it gets absorbed and the output intensity of the light is measured on the detector. On the basis of the obtained absorption profile, various parameters are measured. In this project various measurements with tunable diode laser absorption spectroscopy are explored.

In this project I focussed on the TDLS system, in which we pass a tuned laser light through the gas that is being targeted. The photodetector measures the intensity of light at each wavelength. The intensity of light changes with the wavelength due to the current ramp input to the laser. On the output of the photodetector, a ramp-like signal with the absorption line on it is obtained. By comparing the absorption profile with the acquired gas signal, gas parameters such as mole fraction and pressure are extracted.

Keywords: TDLS and Current ramp



Developing Polyherbal Silver Nanoparticles showing antifungal properties

Azna Iram¹, Ritu Jangid²

¹*Department of Science, Biyani Girls College Jaipur, India*

²*Assistant Professor, Biyani Girls College, Jaipur, India*

Corresponding Email: sci.ritujangid@biyanicolleges.org

Abstract

A comprehensive exploration of polyherbal nanoparticles derived from medicinal plants, showcasing potent antifungal properties. The synthesis of nanoparticles involves the strategic combination of diverse plant extracts known for their medicinal efficacy. The study encompasses the fabrication process, physicochemical characterization, and evaluation of antifungal activity against various fungal strains. The polyherbal nanoparticles exhibit significant antifungal efficacy, demonstrating a promising alternative to synthetic antifungal agents. Detailed analyses of particle size, morphology, and composition contribute to a thorough understanding of the nanomaterial's characteristics. The research findings suggest the potential application of these polyherbal nanoparticles in developing effective and sustainable antifungal therapeutics. This study underscores the importance of harnessing the natural antimicrobial potential of medicinal plants through nanotechnology, offering a novel approach to combat fungal infections. The results pave the way for further research and development in the utilization of polyherbal nanoparticles as safe and efficient antifungal agents for diverse applications in healthcare and biotechnology.

Keywords: Nanotechnology, antifungal, antimicrobial, polyherbal nanoparticles



Nurturing Academic Entrepreneurs Nanotechnology and Targeted Delivery

Bal Krishan Saini, Vishnu Kumar Jatav, Amit Kumar Mishra, Khemchand Bairwa, Anil Kumar Saini

Shree Krishna College, Sikandra, Dausa

Corresponding E-Mail: balkishansaini28896@gmail.com

Abstract

Nanotechnology was defined by the [National Nanotechnology Initiative](#) as the manipulation of matter with at least one dimension sized from 1 to 100 [nanometers](#) (nm). At this scale, commonly known as the nanoscale, [surface area](#) and [quantum mechanical](#) effects become important in describing properties of matter. The definition of nanotechnology is inclusive of all types of research and technologies that deal with these special properties. It is therefore common to see the plural form "nanotechnologies" as well as "nanoscale technologies" to refer to the broad range of research and applications whose common trait is size. An earlier description of nanotechnology referred to the particular technological goal of precisely manipulating atoms and molecules for fabrication of macroscale products, also now referred to as [molecular nanotechnology](#). Nanotechnology as defined by size is naturally broad, including fields of science as diverse as [surface science](#), [organic chemistry](#), [molecular biology](#), [semiconductor physics](#), [energy storage](#), [engineering](#), [microfabrication](#), and [molecular engineering](#). The associated research and applications are equally diverse, ranging from extensions of conventional [device physics](#) to completely new approaches based upon [molecular self-assembly](#), from developing [new materials](#) with dimensions on the nanoscale to [direct control of matter on the atomic scale](#).

Keywords : Nanotechnology, [Surface area](#), [Surface science](#), [Organic Chemistry](#), [Molecular biology](#)

Introduction:

Nanotechnology is defined as the study and use of structures between 1 nanometer and 100 nanometers in size. To get an idea of how small this is, we would need to take eight hundred 100 nanometer particles together to match the width of a human hair.

Introduction to Nanotechnology: Looking at Nanoparticles

Scientists have been studying and experimenting with nanoparticles for centuries, but their work has been hampered by the inability to see the structure of nanoparticles. Recently, in the last few decades, the development of microscopes capable of viewing particles as small as atoms has helped scientists see these tiny nanoparticles.

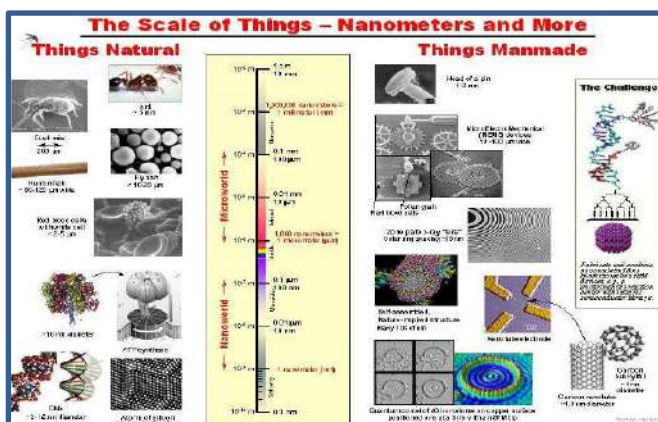


Fig. 1

Nanotechnology is used to create structures and devices that have increased properties and functions due to reduced size. The substance exhibits unusual physical and chemical properties due to the increase in volume ratio and surface area as the particles become smaller in size. This effect is called the quantum size effect. This means that the properties of materials at the nanoscale can be very different from those that exist at the larger scale. Scientists design and build devices and take advantage of the properties of matter by changing shape and size at the nanoscale with wide-ranging effects. In which there are many fields like medicine, electronics, military applications, computing, space science. Due to the continuous efforts of scientists and engineers during the last few years, there has been immense use and development of nanotechnology in various fields like food technology, water purification, agriculture, energy storage, cosmetics, automobiles, clothing manufacturing materials etc. The concept of nanotechnology first came into existence in a speech titled "There's Plenty of Room at the Bottom" given by physicist Richard Feynman at an American Physical Society meeting at Caltech on December 29, 1959. The term "nanotechnology" was defined by Professor Norio Taniguchi of Tokyo Science University in a 1974 paper as "nanotechnology" primarily involves processing, separation, consolidation, and deformation. material by an atom or a molecule."

Nanoparticles and nanoscale materials can be classified into 4 types based on the materials:-

1. **Carbon-based nanomaterials:** Depending on the type, these nanomaterials contain carbon. Carbon-based nanomaterials include fullerenes, CNTs, graphene and its derivatives, graphene oxide, nano-diamonds, and carbon-based quantum dots. Graphene is the most researched nanomaterial in recent decades.
2. **Inorganic-based nanomaterials:** Generally these are metal and metal oxide nanoparticles and nanoscale materials. Inorganic-based nanomaterials include precipitation, electrospinning, sol-gel techniques and CVD, superparamagnetic iron oxide NPs, paramagnetic.

3. **Organic-based nanomaterials:** Organic nanomaterials include dendrimers, micelles, liposomes, ferritin. Most organic nanomaterials exist naturally while some are produced by chemical means.
4. **Composite-based nanomaterials :** Composite based NMs are multiform structures where there is 1 phase at the nano-scale that will either combine the nanoparticles with other nanoparticles that are attached to larger materials or more complex frameworks, nanocomposites can be divided into four types;-
 - a. Ceramic-matrix nanocomposites consisting of one component metal and the other component either nitride, boride, silicide.
 - b. Metal-matrix nanocomposite consisting predominantly of CNT metalmatrix nanocomposites.
 - c. Polymer-matrix nanocomposites.
 - d. Magnetic nanocomposites.

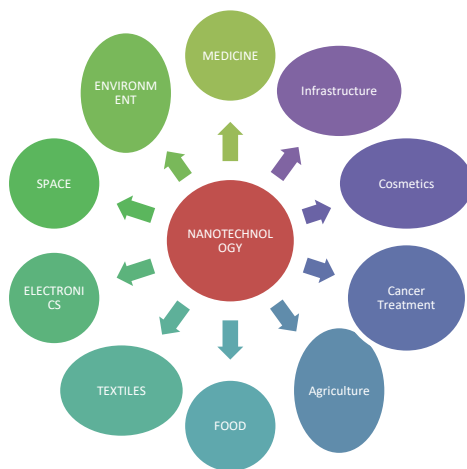


Fig-2

1. Medicine:

Nanomedicine, the application of nanotechnology in medicine, enables precise solutions for disease prevention, diagnosis, and treatment. This includes new imaging tools like improved MRIs; lab on-a-chip technologies for rapid testing in a doctor's office; novel gene sequencing technologies; nanoparticles that can help deliver medication directly to cancer cells, minimizing damage to healthy tissue; and graphene nanoribbons to help repair spinal cord injuries. Manipulation of drugs, active compounds and devices at nanometer scale, allows to control and alter the essential properties and bioactivity of the ingredients. Thus, they allow to control the solubility of drugs, controlled

release, and targeted drug delivery . The scientific and scientific analysis areas have utilized the exclusive qualities of nanomaterials for various programs (e.g., comparison providers for mobile picture and therapeutics for the treatment cancer). Conditions such as biomedical nanotechnology, bio nanotechnology, and nanomedicine are used to explain this Multiple area. Features can be included to nanomaterials by interfacing them with scientific elements or component

2. Environmental Protection:

Nanotechnology can help in developing green technologies that can minimize environmental pollution. Nanotechnology-enabled sensors and solutions are now able to detect and identify chemical or biological agents in the air, water, and soil with much higher sensitivity than ever before. Substance catalysis and purification methods are two popular illustrations where nanotechnology already performs a part. The functions provide novel components with designed functions and chemical properties: for example, nanoparticles with a unique chemical around (ligands), or particular visual qualities. In this feeling, chemical makeup is indeed a primary nanoscience. In a short-term viewpoint, chemical makeup will provide novel “nanomaterials” and in the long run, excellent procedures such as “self-assembly” will allow time and energy protecting methods. Thus, chemical makeup types a platform for nanotechnology offering tailor-made elements, polymers etc, as well as groups and nanoparticles. A smartphone extension has been developed to help firefighters monitor air quality around fires [1]. For environmental treatment, different implementations of nanotechnology have been successfully implemented at the laboratory scale. However, mostly these applications need confirmation of their

3. Space:

Nanotechnology may hold the key to making space flight more practical. Advancements in nanomaterials make lightweight solar sails and a cable for the space elevator possible. By significantly reducing the amount of rocket fuel required, these advances could lower the cost of reaching orbit and traveling in space. In addition, new materials combined with Nano-sensors and nanorobots could improve the performance of spaceships, spacesuits, and the equipment used to explore planets and moons, making nanotechnology an important part of the ‘final frontier’fectiveness and safety in the field.

4. Electronics :

Nanotechnology in electronics allows for faster, smaller, and more powerful handheld devices. It also allows for new display technologies. These products are more conductive nanomaterials, data storage, quantum computing. It also provides printable and flexible electronics and magnetic nanoparticles for data storage. Nanoelectronics uses nanotechnology in electronic components. There are various applications such as computing and electronic devices. Devices such as Flash memory chips, antimicrobial and antibacterial coatings for mouse, keyboard. Also, mobile phone castings are good examples of nanoelectronics.

5. Textiles :

Nanotechnology also has real commercial potential for the textile industry. This is mainly due to the fact that conventional methods used to impart different properties to fabrics often do not lead to permanent effects and will lose their functions after laundering or wearing. Nanotechnology can provide high durability for fabrics because nanoparticles have a large surface area-to-volume ratio and high surface energy, thus presenting better affinity for fabrics and leading to an increase in the durability of the function. In addition, a coating of nanoparticles on fabrics will not affect their breathability or hand feel. Nanotechnology in manufacturing composite fibers include the following topics-

- Carbon nano fibers and carbon nano particles
- Clay Nano particles
- Metal Oxide Nano particles
- Carbon nano tubes
- Nano cellular foam structures

6. Food :

Recent innovations in nanotechnology have transformed a number of scientific and industrial areas including the food industry. Applications of nanotechnology have emerged with increasing need of nanoparticle uses in various fields of food science and food microbiology, including food processing, food packaging, functional food development, food safety, detection of foodborne pathogens, and shelf-life extension of food and/or food products. This review summarizes the potential of nanoparticles for their uses in the food industry in order to provide consumers a safe and contamination free food and to ensure the consumer acceptability of the food with enhanced functional properties. Aspects of application of nanotechnology in relation to increasing in food nutrition and organoleptic properties of foods have also been discussed briefly along with a few insights on safety issues and regulatory concerns on nano-processed food products.

7. Agriculture :

Nanotechnology is one of the promising technologies that could improve agricultural productivity via nano fertilizers, use of efficient herbicides and pesticides, soil feature regulation, wastewater management, and pathogen detection. It is equally beneficial for industrial food processing with enhanced food production with excellent market value, elevated nutritional and sensing property, improved safety, and better antimicrobial protection. Nanotechnology can also reduce post-farming losses by increasing the shelf life with the aid of nanoparticles.

8. Cancer Treatment :

Nanomaterials including carbon nanotubes, polymeric micelles and liposomes have been used in cancer drug design where they have shown considerable pharmacokinetic and pharmacodynamic benefits in cancer diagnosis and treatment. In this review, we outline the commonly used

nanomaterials which are employed in cancer diagnosis and therapy. We have highlighted the suitability of these nanomaterials for cancer management based on their physicochemical and biological properties.

9. Cosmetics :

The applications of [nanotechnology](#) and [nanomaterials](#) can be found in many cosmetic products including moisturisers, hair care products, make up and sunscreen. In cosmetics, nanoparticles are used for various purposes, including to enhance the delivery of active ingredients, improve the appearance and feel of products, and provide sun protection.

For example, nanoparticles can be used to create more effective sunscreens by allowing for higher levels of active ingredients to be delivered to the skin while still remaining transparent. They can also be used to improve the texture and appearance of cosmetics, such as makeup and skin care products, by providing a smoother, more even application.

10. Infrastructure :

Nanotechnology has great potential to improve the construction industry. nanotechnology can enhance traditional construction materials such as concrete, steel, glass, coatings, and wood. reducing production and maintenance costs and achieving sustainable construction is possible through nanotechnology applications.

Conclusion :

Nanoscience refers to the science & discipline and Nano technology refers the applied part of it including the engineering to control, manipulate and structure the matter at an unimaginably small scale: Nano scale. Nanotechnology has changed the living of people and develop the society in various way. The benefits of nanotechnology use are numerous and this technology offer lot of possibilities in different fields. Nanotechnology may offer us a wide variety of proficiencies and these may be utilized in reasonable and thoughtful way. Furthermore, nanotechnology and nanomaterials is a swiftly growing area of research where new properties of materials on the Nano-scale can be utilized for the benefit of industrial and a number of capable developments exist that can potentially modify the service life and life-cycle cost of construction infrastructure to make a new world in future.

□□□

***In Silico* interaction of Rapid-acting insulins with different stomach enzymes**

Chanchal Sharma, Ritu Jangid

Department of Science, Biyani Girls College Jaipur, India

Corresponding Email: sci.ritujangid@biyanicolleges.org

Abstract

Diabetes mellitus, a prevalent chronic metabolic disorder characterized by elevated blood glucose levels, impacts a significant portion of the global population. In India alone, an estimated 101 million individuals contend with diabetes. Type 2 diabetes, featuring insulin resistance and impaired insulin secretion, introduces complex disruptions in glucose metabolism. Insulin, a pivotal hormone synthesized by pancreatic beta cells, orchestrates key physiological processes, including glucose uptake, suppression of hepatic glucose production, and promotion of glycogen synthesis. Dysregulation of insulin function leads to hyperglycemia, a hallmark of diabetes. Current diabetes management approaches involve insulin replacement therapy, oral hypoglycemic agents, and lifestyle modifications. Advancements in insulin delivery technologies strive to improve treatment adherence and optimize glycemic control. Despite the widespread availability of insulin injections, drawbacks such as persistent pain at the injection site, weak pulse, coughing, wheezing, and shortness of breath persist. This investigation explores the potential conversion of rapid-acting insulin into tablet form by examining its interaction with stomach enzymes, with the aim of alleviating the discomfort associated with injection-based insulin administration.

Methodology

Molecular docking is employed to model the atomic-level interaction between rapid-acting insulin and stomach enzymes. Autodock Vina predicts the binding of small molecules and drug candidates to receptors, while SWISS ADME serves as a valuable tool in drug discovery and medicinal chemistry contexts. Additionally, the Drug Lipinski rule of five aids in predicting the oral bioavailability of biologically active molecules.

Results

The study reveals that rapid-acting insulin demonstrates favourable interactions with stomach enzymes, particularly with notable efficacy observed in its interactions with pepsin and peptidase. This encouraging outcome suggests the potential formulation of rapid-acting insulin in tablet form, providing a viable alternative to conventional injection-based delivery.

Conclusions

The positive interactions observed between rapid-acting insulin and stomach enzymes pave the way for future advancements in tablet-based insulin administration, offering a prospect for improved patient comfort and treatment adherence.

Keywords: Diabetes mellitus, Rapid-acting insulin, *in-silico*, digestive enzymes



Fabrication and characterization of ZnO Nanoparticles for the development of a new electrochemical glucose biosensor

Chandan Singh Rawat¹, Ashima Bagaria¹, Prity Sharma²

¹*Department of Physics, Manipal University Jaipur, Jaipur 303007, Rajasthan, India*

²*Department of Chemistry, LBS PG College, Jaipur 302004, Rajasthan, India*

Corresponding Email: chandan.rawat87@yahoo.com

Abstract

The aim of this study was to synthesize and characterize Zinc Oxide nanoparticles (ZnO NPs) prepared by an aqueous precipitation method. In this study, we employed zinc nitrate $\text{Zn}(\text{NO}_3)_2$ as a precursor and potassium hydroxide KOH as a precipitating agent to synthesize ZnO nanoparticles respectively. The synthesized ZnO nanoparticles were characterized by XRD, SEM techniques. The XRD pattern reveals the formation of phase pure hexagonal ZnO NPs. The lattice parameters calculated from the XRD pattern are $a=3.253 \text{ \AA}$, $b=3.253 \text{ \AA}$, and $c=5.209 \text{ \AA}$. Applying the Scherrer formula, the average crystalline size of ZnONPs is estimated to be about 30 nm. The SEM images depict the granular nature of the ZnO NPs. There is formation of large clusters of the ZnO NPs having oval and or spherical shape. The formation of such large clusters happens most likely due to the agglomeration of the individual NPs as they precipitate out of the solution. These ZnO nanoparticles can be utilized in glucose biosensors to enhance the electron conducting and catalyze the oxidation of hydrogen peroxide produce. The propose glucose biosensor exhibit low detection limit and high sensitivity to glucose concentration change.

Keywords: Nanoparticle, ZnO, Glucose biosensor



Synthesis, Spectroscopic Characterization, Applications, Structural Studies on Metal Complexes with Semicarbazone and Thiosemicarbazone Derivatives

Deepika Sihag¹, Deepankar Sharma and Purnima Nag¹

¹*Department of Chemistry, Jaipur National University, Jaipur, India, 302017.*

Corresponding Email: purnima_nag007@yahoo.com

Abstract

A carbonyl or thiocarbonyl molecule reacts with semicarbazide or thiosemicarbazide to produce derivatives of semicarbazone and thiosemicarbazone. A hydrazone intermediate is created during the reaction, and this intermediate reacts with metal ions to create metal complexes. The newly synthesized complexes were characterized on the basis of elemental analysis, ¹H-NMR, and IR spectroscopy. Due to numerous uses in areas such as catalysis, medicinal chemistry, and materials science, metal complexes have attracted a lot of attention. Antimicrobial screening reflected that all these compounds are biologically active.

Keywords: Semicarbazone, hydrazone.



Advances in Fluid-Structure Interaction Modeling for Biomechanical Systems: A Comprehensive Review

Dipali Jangid¹, Preeti Jain¹, Chandramani Goswami^{2*}

¹*Department of Mathematics, Bansthali University, Niwai, India*

^{2*}*Mechanical Engineering Department, School of Engineering and Technology, JECRC University Jaipur, India*

**Corresponding Author: chandramani.goswami10@gmail.com*

Abstract

Recent strides in biomechanics owe much to Fluid-Structure Interaction (FSI) modeling, enhancing our grasp of physiological processes and shaping medical technology. This study assesses recent FSI advances in biomechanics, stressing the role of mathematical modeling in deciphering complex physiological phenomena. The paper opens with an overview of FSI in biomechanical research,

noting its presence in various biological systems like blood circulation, lung air exchange, and soft tissue movements. Mathematical models play a crucial role in simulating and analyzing fluid-structure interactions in the human body, advancing our understanding of physiological processes.

The review explores FSI in cardiovascular biomechanics, highlighting research on blood flow dynamics, arterial deformations, and fluid forces on vascular structures. Summarizing various studies, it underscores FSI's role in enhancing medical interventions and cardiovascular device development. Advanced mathematical models reveal intricate biomechanical details, advancing tailored therapy and rehabilitation. The paper also discusses FSI in soft robotics and prosthetics, particularly flexible strain sensors. Bio-inspired robotic systems, replicating biological tissues properties using mathematical models, hold promise for adaptive prosthetics, improving limb-loss patients' well-being. This comprehensive examination underscores how FSI modeling shapes biomechanical research, exploring mathematical modeling, computational methods, and applications in cardiovascular, musculoskeletal, and soft robotics biomechanics. In conclusion, FSI modeling transforms biomechanical research, advancing understanding and catalyzing innovations in medical technologies, laying a strong foundation for future breakthroughs.

Keywords: *Biomechanics, Fluid-Structure Interaction (FSI), Mathematical Modeling, Cardiovascular Biomechanics, Musculoskeletal Biomechanics, Soft Robotics and Prosthetics.*



Groundbreaking approach in cancer therapeutics through the development of a novel nanoparticle mediated delivery system

Divya Varjani¹, Revika Shekhawat¹ and Rifa Khan¹

¹*Biyani Girls College, Jaipur, India*

Corresponding Email: rifak106@gmail.com

Abstract

Cancer remains a formidable challenge in the field of medicine, necessitating continuous advancements in therapeutic delivery systems to enhance treatment efficacy while minimizing systemic toxicity. This abstract introduces a groundbreaking approach in cancer therapeutics through the development of a novel nanoparticle-mediated delivery system. This innovative strategy aims to revolutionize the current landscape of cancer treatment by providing precise and targeted delivery of therapeutic agents to cancerous cells. The proposed delivery system utilizes

advanced nanoparticles engineered with a multifaceted design to overcome the limitations of conventional drug delivery methods. These nanoparticles exhibit unique properties, including size uniformity, surface modification for enhanced targeting, and the ability to encapsulate a diverse range of therapeutic payloads. This approach leverages the principles of nanotechnology to achieve unprecedented precision in drug delivery, allowing for tailored treatments based on the specific characteristics of individual tumours. One key feature of this novel system is its ability to navigate the complex biological barriers within the body, such as the blood-brain barrier and extracellular matrix, which often impede the effective delivery of therapeutic agents to their intended targets. The engineered nanoparticles possess inherent capabilities to overcome these obstacles, ensuring the efficient and targeted delivery of therapeutic payloads directly to cancer cells while minimizing collateral damage to healthy tissues. Furthermore, the nanoparticle-mediated delivery system incorporates real-time imaging and diagnostic functionalities. This integration allows for the monitoring of drug release and therapeutic responses, enabling clinicians to adapt treatment regimens based on the dynamic nature of the disease. The inclusion of imaging components not only facilitates accurate assessment of treatment efficacy but also provides valuable insights into the tumour microenvironment, guiding personalized therapeutic strategies. In addition to its precision and adaptability, the proposed delivery system addresses concerns related to systemic toxicity commonly associated with traditional cancer treatments. By selectively targeting cancer cells, the nanoparticles minimize exposure to healthy tissues, mitigating adverse side effects and improving overall patient quality of life during the course of treatment. The development of this innovative delivery system also opens avenues for synergistic combination therapies. The nanoparticles can be tailored to simultaneously deliver multiple therapeutic agents, exploiting synergies between different treatment modalities. This combinatorial approach holds great promise for overcoming drug resistance and enhancing treatment outcomes, particularly in cases of aggressive or recurrent cancers. The nanoparticle-mediated delivery system represents a paradigm shift in cancer therapeutics. Its unique combination of precision, adaptability, and reduced systemic toxicity positions it as a frontrunner in the quest for more effective and personalized cancer treatment.

Keywords: Nanotechnology, tumour microenvironment, drug resistance, systematic toxicity reduction targeted drug delivery



Redefining Supportive Care and Rehabilitation in Cancer

Divya Varjani¹, Revika Shekhawat¹ and Rifa Khan¹

¹ *Biyani Girls College Jaipur, India*

Corresponding Email: rifak106@gmail.com

Abstract

Digital therapeutics, defined as evidence-based therapeutic interventions driven by high-quality software programs, are increasingly recognized as invaluable tools in cancer care. These interventions extend far beyond the traditional scope of treatment, embracing a holistic approach that addresses the multifaceted challenges faced by cancer patients. From symptom management to psychosocial support, digital therapeutics offer a tailored and dynamic framework for personalized care.

One of the key strengths of digital therapeutics lies in their ability to provide continuous support and rehabilitation, transcending the limitations of time and physical constraints. Mobile applications, virtual reality experiences, and wearable devices are among the diverse array of digital tools contributing to this paradigm shift. These tools empower patients to actively participate in their care, fostering a sense of agency and control over their health journey.

In the realm of supportive care, digital therapeutics offer innovative solutions for symptom tracking, medication management, and remote monitoring. Real-time data collection enables healthcare professionals to make informed decisions, leading to more timely and targeted interventions. Moreover, these interventions extend beyond the clinical setting, permeating the daily lives of patients and seamlessly integrating into their routines.

Psychosocial support, often a neglected aspect of cancer care, receives a renewed focus through digital therapeutics. Virtual support groups, cognitive behavioural therapy modules, and mindfulness applications cater to the emotional and psychological needs of patients, fostering a sense of community and resilience. The digital realm becomes a sanctuary where patients can find solace, connect with others facing similar challenges, and access resources that enhance their mental well-being.

Rehabilitation, a crucial phase in the cancer journey, witnesses a revolution propelled by digital therapeutics. Tailored exercise programs, rehabilitation apps, and virtual physical therapy sessions empower patients to regain their strength and functionality at their own pace. The accessibility and flexibility afforded by these digital interventions break down barriers to rehabilitation, ensuring that all patients, irrespective of geographical location or socioeconomic status, can benefit.

As digital therapeutics redefine the landscape of cancer care, they also reshape the healthcare ecosystem. The integration of these interventions necessitates collaborative efforts among healthcare providers, technology developers, and regulatory bodies. Establishing robust frameworks for data security, evidence generation, and interoperability becomes paramount to ensure the seamless incorporation of digital therapeutics into mainstream cancer care.

Methodology

The methodology employed in this study involved a comprehensive review of existing literature, focusing on research articles, clinical trials, and case studies related to the integration of digital therapeutics in cancer care. Searches were conducted in major scientific databases, including PubMed, IEEE Xplore, and ScienceDirect, using keywords such as "digital therapeutics," "cancer care," "supportive care," and "rehabilitation." The inclusion criteria encompassed studies published between 2010 and 2022, ensuring relevance to recent advancements in digital therapeutic applications.

Result and discussion

Rehabilitation recommendations in oncology guidelines have not been characterized and may provide insight to improve the integration of rehabilitation into oncology care. This report was developed as a part of the World Health Organization (WHO) Rehabilitation 2030 initiative to identify rehabilitation-specific recommendations in guidelines for oncology care. A systematic review of guidelines was conducted. Only guidelines published in English, for adults with cancer, providing recommendations for rehabilitation referral and assessment or interventions between 2009 and 2019 were included. 13840 articles were identified. After duplicates and applied filters, 4897 articles were screened. 69 guidelines were identified with rehabilitation-specific recommendations. Thirty-seven of the 69 guidelines endorsed referral to rehabilitation services but provided no specific recommendations regarding assessment or interventions. Thirty-two of the 69 guidelines met the full inclusion criteria and were assessed using the AGREE II tool.

Conclusions

In conclusion, digital therapeutics emerged as a powerful force in redefining supportive care and rehabilitation in cancer. Their capacity to personalize interventions, foster patient engagement, and transcend traditional boundaries positions them as integral components of comprehensive cancer care. As the digital era unfolds, the synergy between healthcare and technology holds the promise of not only improving clinical outcomes but also enhancing the overall well-being of individuals navigating the complexities of cancer.

Keywords: Rehabilitation, Cancer Care, Digital Therapeutics, Patient Engagement, Psychosocial Support



Appliances of Gold nanoparticle in Nanotechnology

Geeta Meena, Samiksha Sangwan, Keerti Bairwa

Department of Zoology, University of Rajasthan, Jaipur

Corresponding Email: gtmeena1982@gmail.com

Abstract

Nanotechnology is the study of matter on nano scale range between usually 10-100 nanometer. Nanotechnology mainly related to the formation of nanoparticle and uses of their in different field. Gold nanoparticle formerly known in biology, physics, and in chemistry due to their uncommon electrical, optical properties. We use nanotechnology in different field because of their mechanical, electrical, optical and magnetic properties. We use nanotechnology in the different field -: nanotechnology use in the formation of biosensor, medicine, in solar cells, in paper batteries, in the information technology, in electronics, in food industry etc. Among all metal nanoparticle gold nanoparticle are most important nanoparticle because gold nanoparticle has uncommon properties. Gold nanoparticle use in electronic, in cancer therapy, as catalyst. Gold is malleable, delicate and transition metal which is rare chemically active element. It used as a valuable metal in jewellery. Color of gold is yellow while colloidal solution of gold nanoparticle wine red. Gold nanoparticles have physical, chemical, optical, and electronic properties which makes them more useful. Au particle is most stable metal nanoparticle. They use due to their stability and optical properties. Optical properties of gold nanoparticles are governed by the morphology. Gold nanoparticles is nontoxic in nature. Gold nanoparticle is the chemically inert type nanoparticle. Optical property like Plasmon resonance is exhibited by the gold nanoparticle. Surface Plasmon resonance is a feature of gold nanoparticle. Gold nanoparticles have greater biocompatibility. Au nanoparticle is less invasive. Au nanoparticles are less toxic to human beings. Au nanoparticle can form by simple and fast method. Au nanoparticle is eco-friendly that's why in all metal nanoparticles gold nanoparticle mostly uses.

Keywords: Gold, Nanoparticle, Optical, Plasmon, Biocompatibility



Bio mimic synthesis of silver nanoparticles and their antimicrobial efficacy

Gyanwati Agarwal

¹Department of Zoology, Biyani Group of Colleges Jaipur, India
Corresponding Email: gyanumittal18@gmail.com

Abstract

An efficient protocol for synthesis of silver nanoparticles (AgNPs) using the combination of aqueous extract of *Tinospora cordifolia* leaves and 5 mM silver nitrate (AgNO₃) solution was developed. This study revealed that bioactive compounds present in the extract function as stabilizing and capping agent for AgNPs. scanning electron microscope and transmission electron microscope studies confirm the structure and surface morphology of the AgNPs. The size of synthesized AgNPs was in the range of 30–50 nm having spherical morphology. The crystalline nature of NPs was defined by the X-ray diffraction pattern. The AgNPs were found to be toxic against pathogenic bacteria such as *Escherichia coli* (ATCC 25922), *Pseudomonas aeruginosa* (ATCC 27853), and *Staphylococcus aureus* (ATCC 29213) and against plant pathogenic fungi *Fusarium oxysporum* (MTCC 8608) and *Sclerotinia sclerotiorum* (MTCC 8785). The use of AgNPs as antibacterial and antifungal agent is advantageous over other methods for control of pathogenic microorganisms, and it can be of great importance in developing novel drugs for curing many lethal diseases.

Keywords: *Tinospora cordifolia* leaves, silver nanoparticles, Antimicrobial



In-Vitro Phytochemical, Antioxidant and Antimicrobial activity of leaf extract of Cannabis Sativa

Harsheesh Kour, Shilpa Bhargava

Department of Science, Biyani Group of Colleges, Jaipur, India
Corresponding E-mail: sci.shilpabhargava@biyanicolleges.org

Abstract

This study investigates the phytochemical composition, antioxidant potential, and antimicrobial activity of *Cannabis sativa* in vitro. The plant extract was subjected to qualitative phytochemical

analyses, revealing the presence of various secondary metabolites, including cannabinoids, terpenoids, and flavonoids.

The antioxidant activity was assessed using assays, such as DPPH and demonstrating a significant radical scavenging capacity. Moreover, the study evaluates the antimicrobial potential against a range of pathogenic microorganism, including bacteria Results indicate promising inhibitory effects, suggesting the therapeutic potential of *Cannabis sativa* in combating microbial infections.

This research contributes to the understanding of the medicinal properties of *Cannabis sativa*, emphasizing its potential as a source of natural antioxidants and antimicrobial agents. Further investigations are warranted to elucidate the underlying mechanisms and explore its applications in pharmaceutical and healthcare industries.

Introduction

Cannabis sativa L. (Cannabaceae) is one of the oldest medicinal plants used by humans. *Cannabis sativa* is the most common type of cannabis plant used as marijuana, although there are other forms of cannabis including *Cannabis indica* and *Cannabis ruderalis*. *Marijuana* is primarily smoked or ingested orally when used for its psychoactive effects.

The cannabis preparations are derived from the female plant of *Cannabis sativa*. *Marijuana* consists of the dried flowering tops and leaves; hashish consists of dried cannabis resin and compressed flowers. *Marijuana* and hashish are commonly smoked but it can be also eaten or used in a tea form¹

The herbs continue to have a religious association in India, and during religious ceremonies Hindu devotees offered Cannabis to Shiva (God). The Cannabis has very long history of medicinal uses. One of the world's oldest cultivated plants is Cannabis sativa. The plant is native to India and Persia, but over the last 6000 years, it has been cultivated in nearly all temperate and tropical countries of the world and is likely to be one of the oldest non-food crops known. The name 'hemp' is a term most commonly used in connection with the Cannabis sativa plant C. sativa has been cultivated throughout recorded history, used as a source of industrial fiber, seed oil, food, recreation, religious and spiritual moods and medicine. Each part of the plant is

harvested differently, depending on the purpose of its use. The species was first classified by Carl Linnaeus in 1753. The word sativa means "things that are cultivated."

Collection of plant materials

Fresh leaves of Cannabis Sativa plant were collected from the region of Jammu and Kashmir .The plants leaves were identified by the department of biotechnology University of Rajasthan .The plant leaves were shade dried until all the water molecules get evaporated and well dried for grinding, the plant leaves were grinded well by using mechanical blender into fine powder and transferred into air tight container with proper labeling for future use.

Preparation of plant extract

The dried and powdered leaves were measured for the leaf extract preparation. The 20gm of leaf powder were dissolved in the 100ml of distilled water and heated on a hot plate for maximum 3hours .After the three hours of heating it was filtered and kept in incubator for incubation process .Till it forms sticky leaf extract. The leaf extract is used for phytochemical test which insures the presence of leaf metabolites, with the help of leaf extract phytochemical tests were performed such as alkaloid terpenes and flavonoids, etc.

Result and Discussion

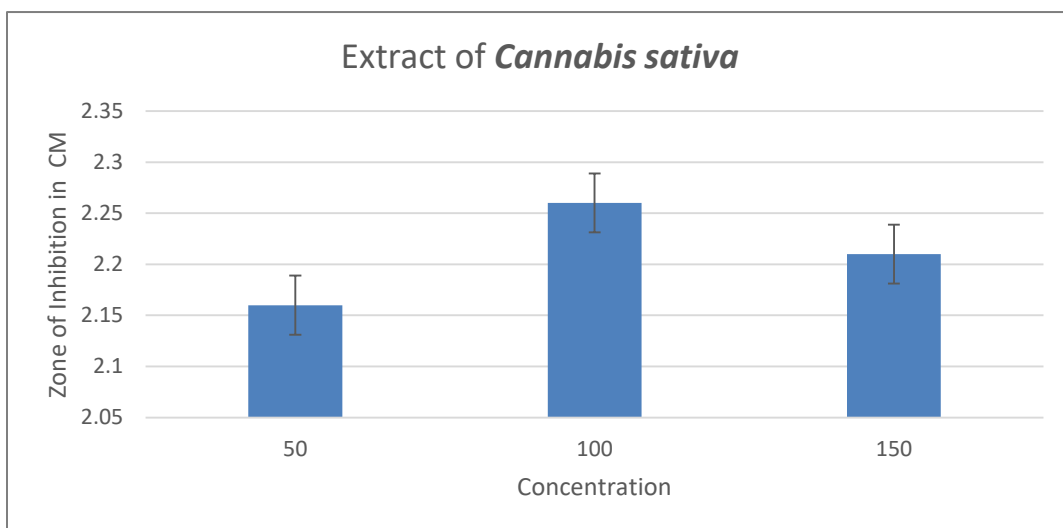
QUALITATIVE ANALYSIS PLANT: CANNABIS SATIVA

CONSTITUENT	TEST	RESULT
Alkaloid test	Mayer's test	(+)
	Wager's test	(+)
	Dragendroff's test	(+)
	Hager's test	(+)
Saponin test	Foam test	(+)
	Frothing test	(+)
Flavanoid test	Lead acetate test	(+)
	Alkaline test	(+)
Phenol and Terpens test	Liberman test	(+)
Protein test	Million test	(+)
	Ninhydrin test	(-)
	Biuretttest	(-)
	Xanthoprotein test	(+)
Carbohydrate test	Molish test	(+)
	Barford test	(-)
	Benedict test	(-)
	Fehling test	(-)
Phytosterol test	Salkowkis test	(+)
	Liberman test	(-)
Cardiac glycosides	Keller Killiani test	(+)



Table 1: Antibacterial activity of leaf extracts of *Cannabis sativa*

MICROORGANISM	Zone of inhibition (cm)		
	50 mg/ml	100 mg/ml	150 mg/ml
<i>Bacillus</i>	2.3 ±0.01	2.26±0.02	2.21±0.01

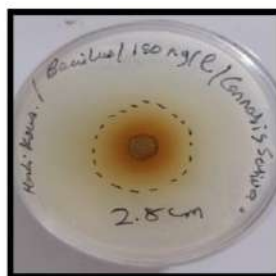




DOSE : 50uL

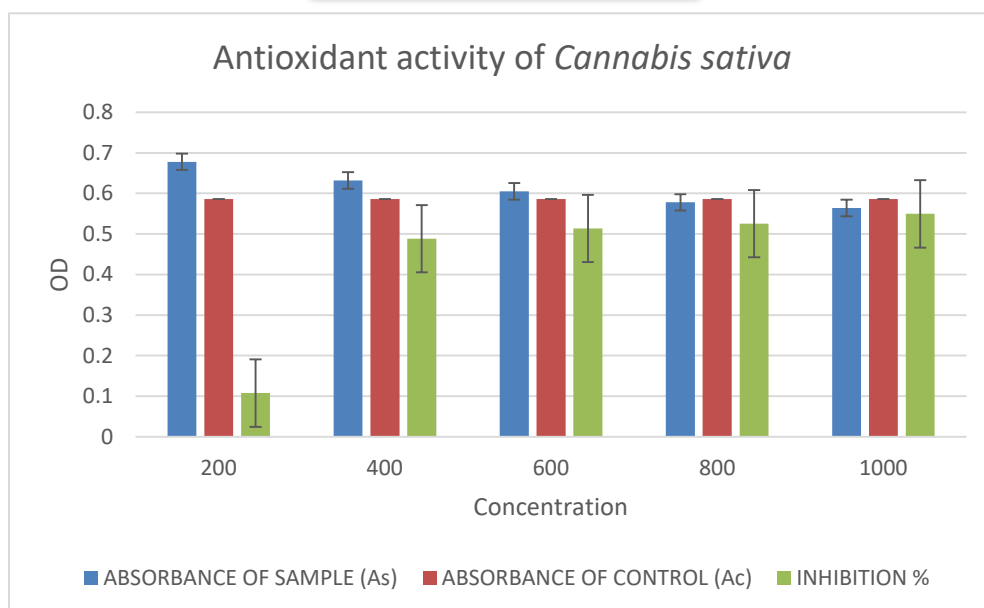


DOSE: 100 uL



DOSE: 150 uL

ANTIOXIDANT ACTIVITY :



CONCENTRATION OF THE SAMPLE	ABSORBANCE OF SAMPLE(As)	ABSORBANCE OF CONTROL (Ac)	INHIBITION %
200uL	0.523	0.586	10.7509%
400uL	0.3	0.586	48.8055%
600uL	0.285	0.586	51.3652%
800uL	0.278	0.586	52.5597%
1000uL	0.264	0.586	54.9488%

Conclusions

In conclusion, this study reveals that the Cannabis sativa contains several chemical compounds such as cannabinoids, such as tetrahydrocannabinol as well as terpenes and flavonoids. These active phytochemical compounds present in cannabis are responsible for the 'high' associated with its use. Thus, these phytochemicals have therapeutic benefits for a range of conditions such as epilepsy, anxiety and chronic pain. Cannabis sativa has been shown to have antimicrobial properties against *Bacillus* bacterium, which means it is effective in inhibiting microorganisms such as bacteria. The studies also revealed that cannabis extract may be effective in reducing oxidative stress in a range of conditions.

Keywords: Cannabis, antioxidant, antimicrobial, phytochemical activities, sensitivity of Cannabis

References

1. Ashton CH, Pharmacology and effects of cannabis: A brief review. British Journal of Psychiatry, 178, 2001, 101-106.
2. Kuddus M, Ginawi IAM, Al-Hazimi A, Cannabis sativa: An ancient wild edible plant of India. Emirates Journal of Food and Agriculture, 25, 2013, 736-745.
3. De Furest PR, Crim D, Morton CV, Crim M, Henderson RA, Microscopic Morphology of Marijuana Ash. J Forensic Science, 19, 1974, 372-378.
4. Gigliano SG, Cannabis sativa L. botanical problems and molecular approaches in forensic investigations, Forensic Sci Rev., 13, 2001, 1-17.
5. Honorio KM, Silva AA, Silva ABF. Therapeutic aspects of compounds of the plant Cannabis sativa, Química Nova, 29, 2006, 318-325.

□□□

Value of Herb-based Cookies as a Supplementary Nutraceuticals Diabetes Care

Harshita Sharma, Vishnu Sharma

Department of Biotechnology, Biyani Girls College Jaipur, India

Corresponding Email: sharmaharshita1209@gmail.com

Abstract

The rapid growth of the 21st century has brought about significant transformations in the lifestyles of humans, leading to a widespread prevalence of chronic diseases such as diabetes mellitus on a worldwide scale. Diabetes mellitus is a metabolic disorder characterized by abnormally high amounts of glucose in the bloodstream. The onset of Diabetes is often linked to a concurrent occurrence of impaired β cell activity in the pancreas and insulin resistance in several target organs, including the liver, muscle, and adipocytes. In the context of insulin resistance, healthy β cells respond by augmenting insulin production as a compensatory mechanism. However, the inability of this compensatory mechanism to adequately address insulin resistance results in the development of glucose intolerance. After the onset of hyperglycemia, there is a decline in β -cell activity and an exacerbation of insulin resistance, which is referred to as glucose toxicity. Traditionally, the treatment of diabetes entails the administration of different prescriptions of metformin supplements in the form of allopathic drugs. Nevertheless, the longer anti-diabetic medications have shown a wide range of adverse effects or dose-level resistance, including symptoms such as diarrhea, nausea, vomiting, heartburn, and the occurrence of lactic acidosis.

However, in conjunction with conventional medications, dietary habits are a key factor in the management of diabetes. Most individuals eat cookies for breakfast, snacks, and while they're just hanging around to keep from becoming too hungry. In contrast to conventional high-carbohydrate and sugary diet, the cookies incorporating herbs are good nutritious refreshment alternative for individuals with diabetes or those aiming to sustain optimal blood sugar levels. These are abundant in fiber, protein, and significant herbs to aid the regulation of blood sugar. The primary constituents included in diabetic-friendly cookies are chickpea flour and multiple herb spices, such as stevia, bitter melon, tulsi, fenugreek, aloe vera, turmeric, cumin, and coriander. The present review addresses alternative Nutraceutical Care supplements with capable lower carbohydrate content and desirable sensory characteristics, to effectively regulate blood glucose levels.

Keywords: Hyperglycemia; Diabetes; Diet; Herbal Cookies; Nutraceutical Care



A Study to Evaluate Effectiveness of Bibliotherapy on Test Anxiety Reduction among Adolescents in Selected High Schools at Jaipur, Rajasthan

Jishu Baiju

Department of Nursing, Biyani Institute of Science & Management, Jaipur-302039, Rajasthan

Corresponding Email:biyaninursing@gmail.com

Abstract

Teenagers, the interim stage of development between childhood and adulthood, represents the time during which a person experiences a variety of changes and encounters a number of emotional issue. Bibliotherapy helps the children in developing confidence and self-esteem. It attempts to normalize a child's world by offering coping skills and reducing their feelings of isolation, reinforcing creativity, and problem solving. Anxiety during examination can interface with further learning and it can affect badly on memory of the students. Anxiety causes poor academic performance. Decreased academic performance affects the society also. Hence, it is important to provide psychological support and proper intervention in order to improve the academic performance of students thus the productivity of the Nation. Bibliotherapy has been shown to be effective in the treatment. The study aimed to assess the level of test anxiety, to evaluate the effectiveness of bibliotherapy on test anxiety reduction among adolescents in selected high schools and to find out the association between test anxiety among adolescents in selected high schools with their selected socio demographic variables.

Methodology

The research approach adopted for this study is an evaluation approach. Pre-experimental one-group pre-test post-test design was used to assess the effectiveness of Bibliotherapy on test anxiety reduction among adolescents. The investigator utilized convenience sampling for the selected of the subjects. A sample of 30 adolescents was selected. The tool used for data collection was the modified west side test anxiety self-assessment scale and it is organized into two sections: Socio-demographic data containing 8 items; age, sex, type of family, religion, Area of Residence, parent education, support to study. Modified West Side test anxiety self-assessment scale. The collected data was gathered, analyzed and interpreted in terms of the objectives of the study.

Results

The results showed that there was a significant difference between the mean post-test anxiety score and pre-test test anxiety score. These scores were demonstrated by using 't' test. The analysis of mean and SD of the knowledge scores in pre-test and post-test revealed that the overall pre-test and post-test mean text anxiety score of adolescents shows that the result that the mean pre-test anxiety score was 83.75%. Further, the mean post test anxiety score is obtained as 47.5%. Paired 't' test was done to assess the significance of bibliotherapy on test anxiety reduction and it was found to be $t =$

29.33*, $p < 0.01$. Hence, it can be concluded that the bibliotherapy has an influence in test anxiety reduction among adolescents. Further, it is found that there is significant association between the sex and the pretest anxiety score (chi square value = 4.615, $p < 0.05$). The overall pre-test and post-test mean text anxiety score of adolescents shows the mean pre-test anxiety score was found 83.75%. Further, the mean post-test anxiety score is obtained as 47.5%. Paired 't' test was done.

Conclusion

It can be concluded that the bibliotherapy has an influence in test anxiety reduction among adolescents. Bibliotherapy is effective in reducing test anxiety among adolescents. This can be extended to nursing education and nursing practice.

Keywords: Bibliotherapy, adolescents, stress, anxiety



Biodiversity deprivation and its influence on society

Kalpana Soni

Department of Zoology, Raj Rishi Govt. (Autonomous) College, Alwar

Corresponding Email: kalpanasoni2506@gmail.com

Abstract

All levels of biological structure, from macromolecules within cells to biomes, contribute to the enormous diversity (or heterogeneity) found in our biosphere. Earth's rich ecosystem diversity is one of its greatest strengths. Biodiversity is "the variability among living organisms from all sources including, inter alia, terrestrial, marine, and other aquatic ecosystems and the ecological complexes of which they are part," as defined by the Resolution on Biological Diversity. This reflects the wide range of organismal, ecological diversity, and genetics available on Earth, which is supported by the more than 9 million species of life (bacteria, fungi, animals, plants, and protists) that share the planet with humans. The health of Earth's ecosystem depends on the intricate interactions of its many diverse species. But in the last few decades, we've seen a dramatic deterioration in the number of species and the range of those that remained. Humanity's disruptive activities on the Earth's environment are killing off more species, genes, and biological features than ever before.

Keywords: Biodiversity, Species, Ecosystem, Society.



Challenges of Artificial Intelligence in Pathology and Radiology: A Review

Kanupriya Sharma

Biyani Girls College Jaipur, India

Corresponding Email: drkanu.chem@gmail.com

Abstract

Artificial intelligence (AI) in the real-time world has brought about significant changes in the fields of pathology and radiology, particularly in the area of diagnostic accuracy. Although AI has enormous potential for enhancing the precision and effectiveness of diagnosis, it also presents an array of challenges. This paper deals with the diagnostic challenges posed by AI in the areas of data quality, generalization, interpretability, and hardware limitations. The paper focuses on the ethical and regulatory implications of AI in diagnostic settings, including issues of bias and transparency. It offers potential solutions to address these challenges, such as standardization of AI algorithms, data sharing initiatives, saliency mapping, adversarial training of algorithms, cloud computing, edge computing, hybrid approaches, and increased collaboration between human experts and AI systems. Overall, this review highlights the critical importance of addressing the diagnostic challenges of AI in pathology and radiology to make sure AI is able to achieve its potential to enhance patient care.

Keywords: Artificial intelligence, Diagnostic challenges, Algorithms, Cloud computing.

Introduction

The role of artificial intelligence (AI) in pathology and radiology is rapidly expanding and promises to revolutionize patient care in the coming years. Radiology was relatively quick to adopt AI whereas pathology (specifically surgical pathology) only recently began utilizing AI. Pathology and radiology form the core of cancer diagnosis. Radiology locates unusual lesions and provides information on the clinical stage and any probable comorbidities linked with it, whereas pathology establishes particular histologic and molecular characteristics of tissues. Pathology and radiology form an innovative diagnostic tool, on combination with genetics, forms the integrated diagnosis. Demand for deep integrated workflows between radiology and pathology has recently increased, owing primarily to technological advances in computational sciences that enable meaningful integration of these diagnostic specialties. In the field of AI, significant development has occurred in studies that focus on the strategic aspects of challenges, acceptance, and consensus to advance and incorporate technology in the field of health. They range from reducing workload to instrumentation quality control (QC). The potential of feature recognition, automatic recognition, and QC, along with the drawbacks and associated issues, are of interest to these researchers.

The application of AI to medical imaging, encompassing yet not confined to image processing and interpretation, constitutes one of the most potential areas of health-care innovation. AI systems, in particular deep learning, have made great progress in image recognition and classification, offering excellent diagnostic accuracy for a variety of disorders(10)

Applications of AI in Pathology and Radiology

AI algorithms is being used in radiology and pathology of chronic diseases like cancer. It analyze large volumes of medical data, including medical images and patient records, to identify patterns and make predictions.

Diagnostic applications

Computer vision algorithms can extract multiple features from whole slide images (WSI) to make diagnostic predictions. One of the key advantages of AI in pathology is its ability to precisely evaluate quantitative features such as immuno histochemical biomarker assessment, cell counting, and various tissue features like cell arrangement, architecture, structure density, and distribution pattern. AI algorithms can assist in standardizing histological scoring standards for morphological traits that reflect an array of cellular processes, like Gleason score for prostatic carcinoma and breast cancer grading. AI helps in lymph node examination and metastasis detection. A deep neural network-based technique has been proven to be capable of classifying and categorizing hundreds of WSI from prostate cancer, basal cell carcinoma, and breast cancer metastases to axillary lymph nodes. As a result, the pathologists will be able to remove 65–75% of slides while maintaining 100% of sensitivity AI algorithms can accurately classify WSI of colorectal.

In radiology, AI has numerous applications including computer-aided detection (CAD), computer-aided diagnosis (CADx), and image segmentation. CAD involves using AI algorithms to analyze medical images and detect abnormal features that may be indicative of disease. CADx uses AI algorithms to provide a step further and uses AI algorithms to provide a diagnosis based on reviewing of images. Image segmentation involves using AI algorithms to identify and label different parts of a medical image, such as organs, blood vessels, or tumors. This can help radiologists locate abnormalities more easily and accurately and aid in the planning of surgical procedures.

AI algorithms have been developed to identify potential abnormalities in medical images, This can lead to faster and more accurate diagnosis, especially in cases where time is of the essence, such as in stroke or heart attack. These algorithms can assist radiologists in detecting cancer, identifying bone fractures, heart diseases, nodules and masses on X-rays, and detecting early signs of Alzheimer's disease.

Predictive and prognostic analytics

AI algorithms can analyze patient data to predict the likelihood of certain medical conditions, such as cancer or cardiovascular diseases, enabling early intervention and treatment. On the basis of

morphological characteristics, AI can prognosticate a patient's outcome and responsiveness to a certain medication.

Workflow optimization

AI can help automate and streamline many aspects of both pathology and radiology workflows, such as image analysis, report generation, and communication with other healthcare professionals.

Quality Control

Although being a time-consuming stage in the diagnostic routes, ensuring the QC of slides is currently highly crucial. AI tools can detect a range of flaws in scanned slides such as staining quality, tissue representation, processing faults, tissue fixation quality, and staining quality of control samples. In radiology, an amalgamation of machine learning, for natural language interface classification and deep learning (e.g., convolutional neural networks) models, has been studied in deciding on a suitable imaging study protocol based on the patient's signs and symptoms and prior imaging reports, obviating the need for an experienced radiologist for the same.

Treatment planning

AI algorithms can assist in treatment planning for certain medical conditions, such as cancer. By analyzing medical images and patient data.

Diagnostic Challenges Of Ai In Pathology And Radiology

Despite the potential benefits of AI in pathology and radiology, there are still several diagnostic challenges that need to be addressed before widespread adoption of these technologies can be realized

Lack of standardization

One of the main challenges of using AI is the lack of standardization in imaging and diagnostic protocols. Folded tissue section during cutting, staining variation, and the presence of air bubble during covering slide as well as brightness, intensity disparity, and boundary intensity during scanning can cause unreliable raw data. A single noise in big data can cause misclassification and change the slide prediction, resulting in a large number of false positives or negatives. Data quality is a major challenge in radiology.

Generalization/Limited training data

There is a lack of training data that is high quality enough to make AI algorithms. There is also an issue of data being not large enough to cause development of good AI systems. Institutional xenophobia may restrict access to image data between institutions. Failure to assemble a sufficiently large enough training set is a potential pitfall that could have the effect of making the results less accurate or generalizable.

Interpretability

While AI algorithms can make accurate predictions, it can be difficult to understand how they arrive at their conclusions. The inherent limits in distinguishing normal versus abnormal in continually variable biologic data may be the most significant limitation for AI in imaging. This can make it challenging for clinicians to trust and interpret the results of AI models and can limit the use of AI in clinical decision-making.

Bias

AI algorithms can be biased and can reflect and reinforce existing biases in healthcare. This can lead to disparities in health-care outcomes for certain patient populations. Recent literature on medical data has shown algorithmic bias in demographic inequities alleviating medical data bias can provide meaningful data normalization where patient data are being analyzed and not being inaccurately predicted Regulatory and ethical considerations.

Hardware limitations

One of the main hardware limitations of AI is processing power AI algorithms require large amounts of computational power to analyze medical images and identify potential abnormalities. Another hardware limitation of AI in DR and DP is storage capacity...Interoperability is another hardware limitation. Different imaging modalities and diagnostic systems may use different hardware and software platforms, which can make it difficult to develop and deploy AI algorithms that work seamlessly across multiple systems. Finally, cost can be a significant hardware limitation of AI in DR and DP. High-performance computing resources, storage solutions, and other hardware requirements for AI can be expensive and may be prohibitive for many health-care facilities and clinics.

Overcoming AI's Limitations

Despite the initial success of AI image models in pathology and radiology, their adoption in everyday practice has lagged behind expectations. Here are a few examples of how AI can be applied here:

Data quality: One of the biggest challenges in developing AI algorithms is ensuring that the data used to train these algorithms are of high quality. These issues can be resolved with the assistance of machine learning models and advanced algorithms, allowing for more accurate diagnosis and treatment recommendations. High-quality clinical data are crucial for conducting prospective, randomized, and multicenter trials required to find AI solutions, in addition to image data. Advanced solutions for data cleaning and validation can include techniques such as automated image segmentation, QC algorithms, and outlier detection. In addition, data enhancement techniques can be employed to produce additional training data and reduce the risk of overfitting.

Generalization: One possible solution to this challenge is to use a diverse training dataset that includes a wide range of cases. For example, if an AI model is being trained to diagnose breast cancer, the training dataset should include a diverse set of cases, including different types of tumors, different stages, and patients with different characteristics (e.g., age, race, and ethnicity). This will ensure that the AI model learns to recognize a broad range of features and characteristics that are relevant to accurate diagnosis, rather than just memorizing features that are specific to the cases in the training dataset. Another solution is to use transfer learning, which involves training an AI model on a large dataset in one domain and then fine-tuning it on a smaller dataset in another domain

Interpretability: Advanced techniques for visualizing and explaining the outputs of AI algorithms can include techniques such as saliency mapping, which is influential in the algorithm's decision-making process.

Ethics and bias : The most frequent ethical problem is unfairness caused by bias in data sources To address ethical difficulties in data, resource allocation and practices, ethicists must be included in the supervision of the entire AI process with full independence to the ethical committee In addition, techniques such as adversarial training, where models are trained to be robust to adversarial attacks that might attempt to introduce bias, can help to improve transparency in AI-based diagnostic tools.

Cloud computing: It allows medical institutions to outsource their computing needs to cloud-based infrastructure providers, which can offer significant scalability and performance improvements for AI-based medical imaging analysis. Cloud-based platforms such as Amazon Web Services or Google Cloud Platform can provide access to powerful graphics processing units (GPUs) and central processing units (CPUs) that can be used to train and validate AI models, without requiring significant investment.

Edge computing: It involves deploying AI algorithms on local devices, such as mobile phones or edge servers. It is useful for medical imaging applications where low latency and real-time analysis are critical, such as in emergency situations. It also reduces the risk of data breaches or other security issues.

Hardware optimization: Researchers have developed hardware-accelerated neural networks that can run on specialized hardware like field-programmable gate arrays or application-specific integrated circuits.

Hybrid approaches: Hybrid approaches combine the benefits of cloud computing and edge computing, by using cloud-based infrastructure for training and validation, while deploying the resulting models on local devices for real-time analysis.

Conclusions: The development of AI in pathology and radiology has enormous potential to revolutionize how diseases are detected and treated, but it also presents several challenges that need to be addressed. These challenges include data quality, standardization, generalization, ethical

considerations, and hardware limitations. To overcome these challenges, researchers and clinicians need to work together to develop advanced solutions that take into account the unique characteristics of health-care data and the complex nature of diagnostic decision-making. Overall, AI has great potential to transform the way we diagnose and treat diseases, ultimately leading to better patient outcomes and a healthier society.

□□□

Use of derivatives of quinoline compounds as an anticancer

Khushi Khandelwal, Neetu Khandelwal

Department of Science, Biyani Group of Colleges Jaipur, India

Abstract

Quinoline is a weak tertiary base, composed of benzene and pyridine ring fused at two adjacent carbon atoms obtained by condensation of a benzene ring with pyridine. The quinoline ring plays an important role in biological and pharmacological activities. In recent years, large numbers of quinoline derivatives, including mono-, di-, tri-, tetra- and heterocyclic substituents have been synthesized and their cytotoxic activity reported. These quinoline and their derivatives possessed remarkable anticancer activity due to their structure diversity, which are responsible for their anticancer activities. Till date a large number of quinoline derivatives have been marketed for their cytotoxic activity and now scientists are also focusing on introducing new quinoline in the market to encompass anticancer activity. Among heterocyclic compounds, quinoline scaffold has become an important construction motif for the development of new drugs quinoline and its derivative possess many types of biological activities and have been reported to show significant anticancer activity. Quinoline compounds play an important role in anticancer drug development as they have shown excellent results through different mechanisms of action such as growth inhibition by cell cycle arrest, apoptosis, inhibition of angiogenesis, disruption of cell migration and modulation.

Keywords: quinoline, pharmacological activities, heterocyclic.

□□□

Assessment of Knowledge Regarding Needle Stick Injury Among Nursing Students Of Selected Nursing College, Jaipur, Rajasthan

Kishan Lal Chaudhary, Rumana Ali

Department of Nursing, Biyani Institute of Science & Management, Jaipur-302039, Rajasthan

Corresponding Email: kishannitharwalkalwar@gmail.com

Abstract

Worldwide, about 35 million healthcare professionals face the risk of sharps injuries from contaminated sharp objects every year. Needle stick injury (NSI) became a major issue. Nursing students are posted in clinical areas to fulfil their curricular requirement. In clinical duties the students provide direct patient care which may include Intravenous drug administration, IM drug administration, Blood withdrawal etc. Nursing students are at high risk for getting Needle stick injury. These injuries also commonly occur during needle recapping and as a result of failure to place used needles in approved sharps containers. Research studies regarding NSI are conducted only among Medical students and health care workers. The objective of this study is to measure the occurrence of needle stick injury, the measures adopted post exposure and to assess the knowledge regarding needle stick injury among nursing student.

Methodology

A quantitative research approach was adopted in this study. A cross-sectional study was conducted in Selected Nursing college at Jaipur, Rajasthan. The study participants comprised of 63 nursing students. 35 students were studying in 4th year B.Sc. (N) and 28 in 3rd year General Nursing and Midwifery (GNM). Non probability Convenient sampling method was selected. A structured knowledge questionnaire was administered among students regarding their knowledge about needle stick injury and their occurrence to Needle Stick Injury throughout their clinical training with focus on measures adopted following exposure to needle injury.

Result

The study among 63 nursing students included 35 (55.55%) B.Sc. Nursing Students and 28 (44.44%). Out of a total 63 students, 63 (100 %) were females. The occurrence of NSI during their course was reported by 40 (63.49%) participants. The maximum NSI occurred during the first year of programme (60%). It was found that 23 (36.50%) of NSIs were not reported. Among those exposed, only 10 (25%) students had undergone blood investigation and very few students took post exposure measures. It was found that 55 (87.30%) students were immunized against Hepatitis B before NSI.

Conclusion

The present study revealed that there are huge chances of needle stick injuries among nursing students but most of the cases went unnoticed or unreported due to lack of knowledge about needle stick injuries. Students are not aware about complications and post exposure measures of Needle stick injury. There is an urge to educate the students about Needle stick injury, its complications, importance of prompt reporting of exposure and other post exposure measures before placing them in clinical areas.

Keywords: Knowledge, Needle stick Injury, Nursing students



Activated fly ash as an efficient and novel catalyst for some selected organic reactions in solvent-free conditions: A Review

Kritika Parihar, Jainandini Bhatia, Garvita Sethi, Vishal Singh

Department of Science, St. Edmund's School, Jaipur, Rajasthan (India)

E-mail: vishal@edmunds.in

Abstract

There are several advantages to perform synthesis in solvent-free media (Microwave assisted): (i) short reaction times, (ii) increased safety (iii) economic advantages due to the absence of solvent (iv) clean and efficient (v) excellent yields. Activated Fly ash has the tendency to catalyze reactions which have industrial, pharmacological and therapeutic importance. Stereoselective Knoevenagel condensation, 'One-Pot' conversions of ketones to amides, Beckmann rearrangement, Schiff bases formation, biodiesel production, Claisen-Schmidt condensation of benzaldehyde etc. are some reactions which have been carried out using fly ash. The Claisen-Schmidt condensation between acetophenone and benzaldehyde derivatives is a valuable C–C bond-forming reaction which produces chalcones having a wide spectrum of biological activities including antioxidant, antibacterial, antileishmanial, anticancer, antiangiogenic, anti-infective and anti-inflammatory activities. Bulk and surface structure and their active sites formed by chemical and thermal treatment of solid based fly ash catalysts was elucidated by XRD, FTIR, SEM and TEM.

Keywords: Microwave assisted, Industrial, Pharmacological, Stereoselective.



Sequence Extraction and Molecular Visualization of Keratin Protein

Kumkum Yadav¹, Shilpa Bhargava²

¹*University of Rajasthan, India*

²*Biyani Girls College, Jaipur*

Corresponding Email: sci.shilpabhargava@biyanicolleges.org

Abstract

Introduction

Keratin is a naturally deduced polymer which is biodegradable and cross linked to hydrogels. It is a 80 amino acid protein. It is used in organic detergents and production of urea. Keratin proteins have been shown to play a crucial part in crack mending. Keratin proteins are pivotal structural factors of epithelial cells, play a significant part in cancer progression and treatment. This study focuses on the sequence birth and molecular visualization of keratin proteins in the environment of cancer remedy. Sequences of keratin isoforms associated with colorful cancer types were uprooted and anatomized for conserved motifs and mutations. Molecular visualization ways, similar as structural modeling and docking simulations, were employed to understand the commerce between keratins and implicit remedial agents. Keratin offer avenues for targeted curatives, showcasing the eventuality of keratin proteins as biomarkers or remedial targets in cancer treatment strategies.

Methodology

GenBank is the NIH inheritable sequence database, an annotated collection of all intimately available DNA sequences. GenBank is part of the International Nucleotide Sequence Database Collaboration, which comprises the DNA DataBank of Japan(DDBJ), the European Nucleotide Archive(ENA), and GenBank at NCBI. These three associations exchange data on a diurnal base. The GenBank database is designed to give and encourage access within the scientific community to the most over- to- date and comprehensive DNA sequence information. thus, NCBI places no restrictions on the use or distribution of the GenBank data. In 1982, NIH awarded a five- time contract for the nucleic acid sequence database to the private establishment of Bolt, Beranek and Newman with a subcontract to Los Alamos National Laboratory, marking the sanctioned morning of GenBank.

Uniport Database

UniProt is the Universal Protein resource, a central depository of protein data created by UniProt is the Universal Protein resource, a central depository and functional information, numerous entries being deduced from genome sequencing systems combining the Swiss- Prot, TrEMBL and PIRPSD databases. It's a freely accessible database of protein sequence. It contains a large quantum of information about the natural function of proteins deduced from the exploration literature. It's maintained by the UniProt institute, which consists of several European bioinformatics associations and a foundation from Washington, DC, United States. Fast A (FAST ALIGNMENT) In bioinformatics and biochemistry, the FASTA format is a textbook- grounded format for representing either nucleotide sequences or amino acid sequences, in which nucleotides or amino acids are represented using single- letter canons. The format also allows for Sequence names and commentary to antecede the sequences It was first described by DavidJ. Lipman and WilliamR. Pearson in 1985. FASTA is sequence alignment tool which is used to search parallels between sequences of DNA and proteins. FASTA can not remove low complexity regions before aligning

the sequences as it's possible with BLAST. BLAST(The Basic Local Alignment Search Tool). The Basic Alignment Search Tool was developed by Altschul et al., 1990 for fast sensitive database hunt to find analogous sequence. There are two types of blast for protein and nucleotide

Blast Blast is used to search homologous protein and nucleotide sequence.

The common procedure for any BLAST Algorithm. These are the ways given below.

Step-1 : In the first step of BLAST Algorithm elect the program. And choose Nucleotide BLAST for show the alignment of nucleotide to nucleotide, and when choose Protein BLAST to show the alignment of protein to protein. And also when we choose the blastx also show alignment the of restated nucleotide to protein, and tblastn for show the alignment of the protein to restated nucleotide.

Step-2 : Enter a query sequence of protein containing sequence gain from GenBank.

Step-3 : After the selection of query sequence elect the protein database to search.

Step-4 : Elect the algorithm and the parameters of the algorithm for the hunt.

Step-5 : Run the BLAST program.

Visual Molecular Dyanamic(VMD)

VMD is a molecular visualization program for displaying, amping, and assaying large biomolecular systems using 3- D plates and erected- in scripting. It may be used to view more general motes, as VMD can read standard Protein Data Bank (PDB) lines and display the contained structure. VMD is developed substantially as a tool to view and dissect the results of molecular dynamics simulations.

Result and Discussion

GenBank:

Job Title

AAB30058.2 keratin, partial [Homo sapiens]

RID

MFRD0HWP016

Search expires on 10-14 17:42 pm [Download All](#)

Program

BLASTP [Citation](#)

Database

pdb [See details](#)

Query ID

Icl|Query_30914

Description

AAB30058.2 keratin, partial [Homo sapiens]

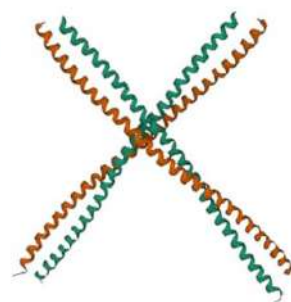
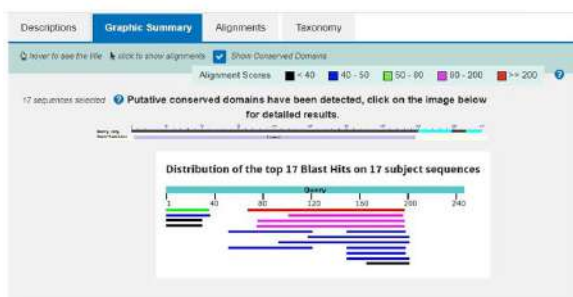
Molecule type

amino acid

Query Length

244

Descriptions	Graphic Summary	Alignments	Taxonomy
Sequences producing significant alignments			
Download Select columns Show 100			
select all 17 sequences selected			
Description	Scientific Name	Max Score	Total Score
✓ Heterocomplex of coil 2B domains of human intermediate filament proteins	Homo sapiens	216	216
✓ Chain A Keratin type I cytoskeletal 14 [Homo sapiens]	Homo sapiens	155	155
✓ Crystal structure of the heterocomplex between coil 2B domains of human	Homo sapiens	138	138
✓ Crystal structure of the heterocomplex between coil 2B domains of wild type	Homo sapiens	134	134
✓ Crystal structure of the heterocomplex between human keratin 1 coil 1B co	Homo sapiens	52.0	52.0
✓ Crystal structure of a vimentin fragment [Homo sapiens]	Homo sapiens	49.7	49.7
✓ Human keratin coil 2B [Homo sapiens]	Homo sapiens	48.9	48.9
✓ Chain A Capact assembly scaffolding protein Prelamin A/C [synthetic cons	synthetic cons	49.3	49.3
✓ Structure of F347K mutant of human Lamin [Homo sapiens]	Homo sapiens	46.6	46.6
✓ Structure of R335V mutant of human Lamin [Homo sapiens]	Homo sapiens	46.6	46.6
✓ Structure of Coil 2b of human keratin [Homo sapiens]	Homo sapiens	46.6	46.6
✓ Crystal structure of stabilized vimentin coil 2 fragment [Homo sapiens]	Homo sapiens	45.8	45.8
✓ Crystal Structure of Human Lamin B1 Coil 2 Segment [Homo sapiens]	Homo sapiens	44.7	44.7
✓ Crystal Structure of Vimentin (fragment 144-251) from Homo sapiens	Homo sapiens	40.0	40.0
✓ Tameic crystal structure of vimentin coil 1B fragment [Homo sapiens]	Homo sapiens	38.1	38.1



Discussion

The integration of sequence extraction and 3D structure visualization unveils crucial aspects of keratin proteins' role in cancer biology. Understanding the structural alterations and variations in keratin sequences associated with different cancer types provides a foundation for identifying biomarkers or therapeutic targets. Moreover, by visualizing the 3D structures, researchers gain insights into potential drug-binding pockets or sites within keratin molecules, aiding in the design of targeted therapies.

Conclusions

The combined approach of sequence extraction and 3D structure visualization of keratin proteins in the context of cancer offers a promising avenue for understanding cancer biology at the molecular level and advancing targeted therapeutic interventions.

Keywords: GenBank, Uniport, FastA, Nucleotide, Database, Alignment.

References

1. Coulombe, Pierre A., and Chang-Hun Lee. "Defining keratin protein functions in skin epithelia: epidermolysis bullosa simplex and its aftermath." *Journal of investigative dermatology* 132.3 (2012): 763-775.
2. Bragulla, Hermann H., and Dominique G. Homberger. "Structure and functions of keratin proteins in simple, stratified, keratinized and cornified epithelia." *Journal of anatomy* 214.4 (2009): 516-559.
3. Nafeey, Soufi, et al. "Branching of keratin intermediate filaments." *Journal of Structural Biology* 194.3 (2016): 415-422.
4. Nafeey, S., Martin, I., Felder, T., Walther, P., & Felder, E. (2016). Branching of keratin intermediate filaments. *Journal of Structural Biology*, 194(3), 415-422.
5. Anker, P., Fésús, L., Kiss, N., Noll, J., Becker, K., Kuroli, E., ... & Medvecz, M. (2021). Visualization of keratin with diffuse reflectance and autofluorescence imaging and nonlinear optical microscopy in a rare keratinopathic ichthyosis. *Sensors*, 21(4), 1105.



Removal of Chloride from Ground Water sample by Brick Powder as a Low-Cost Adsorbent: A Common Study

Kunal Sharma, Vishal Singh

Department of Science, St. Edmund's School, Jaipur, Rajasthan (India)

Corresponding E-mail: vishal@edmunds.in

Abstract

Chlorides can corrode metals and affect the taste of food products. Therefore, water that is used in industry or processed for any use has a recommended maximum chloride level. Chlorides can contaminate fresh water streams and lakes. Fish and aquatic communities cannot survive in high levels of chloride increase. The presence of chloride in ground water causes many health problems in human beings. Low-cost brick powder as an adsorbent is used to reduce chloride contamination from ground water. The investigation was carried out on the adsorption of chloride ion to analyse effect of various parameters like pH, contact time, adsorbent dose and initial concentration. Adsorption study was conducted to analyse the adsorption of chloride in ground water. The experimental studies show that maximum removal of chloride in ground water by using brick powder adsorbent is 56 % at optimum conditions.

□□□

Advanced and Innovative Nano-Systems for Anticancer targeted Drug Delivery

Mansi Prajapati and Hansa Tanwar

Alankar Mahila P.G Mahavidyalaya, Jaipur

Corresponding Email: prajapatimansi478@gmail.com & hansatanwar73@gmail.com

Abstract

The encapsulation of therapeutic agents into nano-based drug delivery systems for cancer treatment has received considerable attention in recent years. The unique properties of nanoparticles allow cancer-specific drug delivery by inherent passive targeting phenomena and adopting active targeting strategies. It improves the pharmacokinetics and bioavailability of the loaded drugs, leading to enhanced therapeutic efficacy and safety compared to conventional treatment modalities. The construction of nanosized drug delivery systems possesses tremendous potential due to their ability to improve the solubility of poorly soluble drugs and to reduce metabolism by

dissolving them in their hydrophobic and hydrophilic compartments. This study highlights the various nanocarriers and compounds that can be used for selective tumor targeting and the inherent difficulties in cancer therapy.

Methodology

The nanocarrier system is designed to target tumors through two different mechanisms of tumor targeting: nanocarriers that are capable of passive targeting, and nanocarriers that are equipped with ligands for active targeting. In passive targeting nanocarriers accumulate in tumors due to their small size and the leakiness of the tumor blood vessels. In active targeting, ligands attached to the surface of the nanocarriers bind specifically to receptors on the surface of the tumor cells, which results in the accumulation of the nanocarriers in the tumor and increased therapeutic efficacy. Typical nano-based delivery vehicles include liposome, micelle, dendrimer, nanogel, and nanoemulsions, while novel nanocarriers also contain biomimetic reconstituted high-density lipoprotein (rHDL) exosome and the hybrid nanoparticle, which come from the mixture of nanomaterials. Nanomedicine holds the advantages of passive targeting ability due to an enhanced permeability and retention (EPR) effect, a large surface-to-volume ratio for drug loading, and a tunable size compared to conventional chemotherapy.

Result and Discussion

Nanotechnology has the potential to significantly alter the way cancer is treated. This review has shed light on the remarkable potential of nanotechnology in the realm of targeted cancer therapy. It is evident from the discussion that nanoscale targeting techniques, propelled by advancements in protein engineering and material science, hold the promise of transforming the landscape of cancer diagnosis and treatment. Nanotechnology offers the potential for tailoring treatments to individual patients taking into account the unique molecular characteristics of their tumors. This promises not only increased efficacy but also reduced side effects, thereby enhancing the quality of life for cancer patients. It requires ongoing commitment, collaboration, and innovation from the scientific and medical communities to serve in cancer treatment. The potential to improve cancer detection and treatment through nanotechnology is tantalizing, however with perseverance and sustained investment in research, we can unlock the full potential of nanotechnology in the fight against cancer. The future holds the promise of more effective, targeted and less invasive treatments that will significantly improve the lives of cancer patients.

Conclusion

One of the primary future directions in nanotechnology in cancer therapy is the refinement and optimization of nanocarriers. These are tiny particles or structures designed to deliver drugs or therapeutic agents directly to cancer cells while sparing healthy tissue. Researchers are exploring various strategies to improve the design and functionality of nanocarriers. This includes enhancing their stability in the bloodstream, increasing drug-loading capacities, and fine-tuning their target

capabilities. Advances in material science and nanofabrication are enabling the creation of nanocarriers with precisely controlled properties, such as size, shape, and surface chemistry, which can influence their behavior within the body. Moreover, the development of nanocarriers is gaining momentum. These nanocarriers not only deliver drugs but also incorporate additional features, such as imaging agents or immune-stimulating molecules. This multifunctionality allows for simultaneous diagnosis, monitoring, and treatment of cancer, making therapy more personalized and precise. Furthermore, the development of nanocarriers with enhanced biocompatibility and reduced immunogenicity is essential for their widespread clinical adoption. Research efforts should focus on materials that minimize adverse reactions and toxicity, ensuring the safety of nanotechnology-based cancer therapies.

Keywords : Nanotechnology, encapsulation strategy, targeted drug delivery, cancer therapy, chemotherapeutics.

□□□

Robotics in surgical oncology: precision procedure enabled by industrial invocations

Manisha Shekhawat

Department of Nursing, Biyani institute of science and management, India

Corresponding Email: mishashekhawat27@gmail.com

Abstract

Robotic surgical oncology represents a paradigm shift in cancer treatment, leveraging cutting-edge innovations in robotics to enhance precision procedures. Industry advancements have fuelled the development of sophisticated robotic systems, enabling surgeons to perform minimally invasive surgeries with unparalleled accuracy. These systems integrate advanced imaging, AI-driven assistance, and teleoperation capabilities, revolutionizing the way oncological procedures are conducted. The abstract background of this field highlights a synergy between medical expertise and technological progress, ultimately improving patient outcomes and paving the way for further breakthroughs in the intersection of robotics and oncology.

Methodology

The methodology of robotic surgical oncology involves the seamless integration of advanced technologies and precise procedural techniques. Industry innovations play a pivotal role enabling this precision by providing state-of-the-art robotic system. Surgeons utilities these systems gor minimal invasive procedures, leveraging high resolution imaging , robotic arms and AI asset decision support. The procedures begins with meticulous patient specific planning followed by assets navigation during surgery. Surgeons remotely control robotic instruments with enhanced

dexterity, enhancing the precision of tumour resections and promoting fast recovery. The abstract methodology underscore a synergistic relationship between surgical expertise and technological advancements, offering a transformatinal approach on oncological care .

Result

The results of implementing robotic surgical oncology reveal a significant advancement in precision procedures and Patient outcomes showcase reduced morbidity, shorter hospital stays, and accelerated postoperative recovery.

The discussion emphasizes the impact of technological advancements on clinical outcomes, addressing challenges, and exploring future avenues for innovation. Overall, the results underscore the transformative potential of robotic surgical oncology in reshaping the landscape of cancer treatment through precision-driven approaches fuelled by industry innovations.

Conclusion

In conclusion, robotic surgical oncology stands a transformative frontier in cancer treatment. The success of robotic oncology highlights a promising future where innovation converges with medical practices for the benefit of patients and the advancement of healthcare as a whole .

Keywords : Robotic surgical oncology, Industry innovation, Minimal invasive surgery, Clinical transformation



A Study to Assess the Various Factors and Hazards Related to Mobile phone Addiction Among the adolescents of different schools in Jaipur

Meecal Nobel¹, Urvashi Kumar¹

¹*Department of Nursing, Biyani Institute of Science & management, Jaipur-302039, Rajasthan*
Corresponding Email:Meecal.nobel@gmail.com

Abstract

India has the second largest mobile phone market worldwide. The number of adolescent in India is the target of these companies by introducing various applications. Therefore, there is a significant difference in the use of cell phones and smartphones between the elderly and the young. The use of wireless internet and technology is focused on youth and entertainment. However, other reasons for attracting wireless internet and technology are like buttons and a small screen that often create eye strain. Online shopping apps are the main reason for the increase in consumers in the number of

young people. Initially mobile services were limited in large cities, but over time, they have finally reached rural areas. The objectives of the study were to identify the various factors leading to addiction and over use of mobile/smartphone; to identify the various physical hazards and psychological hazards leading to addiction and over use of mobile/smartphone

Methodology

The study was conducted in one government and one private school in Jaipur. The sample size was 100 adolescents (50 from government schools and 50 from private schools). The tool consists of a structured questionnaire. Content validity of the tool was established by giving to 9 experts from different fields and reliability was calculated by split half method. The adolescents who participated in the study were given structured questionnaire. Same day, it was collected back.

Results

Half of the participants were from private school i.e. 50% (50) and half of them were from government school i.e. 50% (50). Majority of the respondents selected for the study were studying in class 10th i.e. 27.6%, More no. of male adolescents i.e. 55% .Majority of the adolescents i.e. 42%. Most of them 77% were Hindus. Regarding occupation of father, 42% were working as private employee .Most of the adolescents participated in this study 31 % reported social circle/friends as the source of information about phone , Most of the participants of this study, 91% were using smartphone. ‘t’ value computed and found significant at 0.05 level of significance were in the area of the scores of physical hazards and psychological hazards related to mobile phone addiction between private school and government school; for the scores of psychological hazards related to mobile phone addiction between male and female; the scores of physical hazards related to mobile phone addiction between secondary class and higher secondary class. ‘t’ value computed and found non-significant at 0.05 level of significance were in the area of the scores of physical hazards related to mobile phone addiction between male and female.

Conclusion

The study concluded that there is a difference of physical hazards related to mobile phone addiction among adolescents between government and private school; secondary and higher secondary class. While no difference is found between male and female: simple mobile phone users and smartphone users. Difference was found of psychological hazards related to mobile phone addiction among adolescents between government and private school; and male and female. While no difference is found between secondary and higher secondary class: simple mobile phone users and smartphone users.

Keywords: Adolescents, mobile phones, physical, psychological, hazards



Revolutionizing Chemistry: Sustainable Green Innovations

Nawraj Darjee, Vedant Khandelwal, Vansh Minglani, Vishal Singh

Department of Science, St. Edmund's School, Jaipur, Rajasthan (India)

E-mail: vishal@edmunds.in

Abstract

The design of chemical products and processes that reduce or eliminate the generation of hazardous substances and protect our health are significant goals of green chemistry. It is likely a scientifically based natural evolution of pollution prevention initiatives. It leads to a cleaner, more sustainable, economically beneficial and other positive social impacts. This area of chemistry is a rapidly developing field providing the sustainable development of future science and technology. We are able to develop chemical processes and earth-friendly products that will prevent pollution in the first place. We can create alternatives to hazardous substances which are used as source materials and environmentally benign synthetic protocols to deliver life-saving medicines. The designing of chemical processes to reduce waste and reduce demand of depleting resources must be fulfilled by using the green chemistry.

Keywords: Hazardous, Sustainable, Social impacts, Alternatives



Replacement of Organic Solvent by Water

**Payal Sharma, Sunishka Chhatrawal, Pooja Khandelwal,
Neetu Khandelwal**

Department of Science, Biyani Girls College, Jaipur, India

Abstract :

Under some circumstances, the removal of organic hydrocarbons from water by stripping them with air bubbles can be enhanced significantly using solvent sublation. In solvent sublation, part of solvent concentration in nongaseous from within the Gibbs layer of using bubbles is interception and removed by an immiscible solvent floating on the surface of water undergoing purification. In the present investigation of air stripping conducted with and without solvent sublation, concentration profiles along a column were measured as a function of time. The effects of solute volatility and solvent hydrocarbons were investigated quantitatively. The solutes studied in this work were toluene and o-dichlorobenzene and the sublation solvents used were mineral oil, 1-octanol, and 2-octanol. In the removal of toluene from water, sublation with 1-2-octanol as solvents gave better results than sublation with mineral oil as a solvent.

Keywords: Hydrolytes Carbo, sublation



New Era of Teaching learning via Hybrid and Blended Mode

Neetu Kachhwaha

University of Rajasthan, Jaipur, India

Corresponding Email: deneetu2011@gmail.com

Abstract

Blackboard teaching is the most ancient and traditional method of teaching so far. Although some of the international and now national schools and colleges tried to create other modes of teaching and learning but after the emergence of corona the education system has compelled to do the changes instantly from the traditional method based learning to hybrid and blended mode. This sudden change caused problems in the education system to both the teaching and learning groups. To know about the consequences a small group (20) of instructors from the public authority schools were taken as test and gotten some information about the new changes, versatility and plausibility of these procedures under ICT with the understudies by taking their views in the form of Q and A. Practically all the employees valued the public authority strategies and adaptability in an teaching as well as learning and furthermore given ideas to consolidate a portion of the gaming applications in the review discussion and prospectus to make the understudies more thought and learn by means of edutainment mode.

Keywords: hybrid learning, blended learning, ICT, gaming application, education



Indoor Plants and their Role in Reducing Air Pollution

Neetu Rawat¹, Kanchan Sharma¹

¹Department of Science, Biyani Girls College, Jaipur, India

Corresponding Email-neeturawat013@gmail.com

Abstract

Gardening is a hobby of growing and cultivating plants. This habit relieves us from stress and gives relaxation to the mind. Gardening is generally of two types. One is indoor gardening while the other is outdoor gardening. Indoor gardening refers to growing of plants in indoor spaces such as homes or offices. Outdoor gardening is growing plants outside, in the open air. There are different plant varieties which absorb various pollutants from the indoor. The addition of indoor plants has been shown to greatly decrease the amount of VOCs in indoor air, thus, reducing the health risks to the people exposed to them. In the present environment we need plants more than ever because of the flu season, the coronavirus pandemic, and the widespread anxieties for our health. Indoor Plants

have many benefits. Physically, they contribute to cleaner, healthier air for us to breathe, thus improving our well-being and comfort. They make our surroundings more pleasant, and they make us feel calmer. Interior plants have been associated with reduced stress, increased pain tolerance, and improved productivity in people. According to a NASA experiment these plants absorb some pollutants like benzene, xylene, carbon mono oxide and as such indoor plants belonging to different family will be selected for study.

Methodology

The morphological and anatomical study of some selected indoor plants will be study. For anatomical study the following procedure will use. Sections will fix in FAA (Formalin aceto-alcohol) solution for 24 hours The fixed materials will be preserved in 70% alcohol now the sample is passed through a dehydrating series. After this the sections will cut by microtome technique and stained through safranin and fast green and then observe under microscope.

Result and Discussion

The aspects of morphological characters like type of phyllotaxy, nodal anatomy, vascular tissues in some indoor plants will be studied. External morphological and anatomical characters will be studied in indoor plants belonging to different families with some interesting similarities. These indoor plants played an important role in air pollution also. These indoor plants remove some airborne toxins. This study will be based on growth influencing factors like sunlight, temperature, water, soil. The main objective is the comparative study of five indoor plants under the growth influencing factors (Sunlight, Water, Ventilation and Soil) by Microtome technique. We will also study their impact on air pollution reduction in the households. The morphological and anatomical characters will be observed based on growth influencing factors.

Conclusion

Morphological study is useful in the visual identification of plants. Morphological and anatomical characters are the end products of the interaction of the process of plant development with the environment. The primary objective of these studies will to enlist the indoor plants under variation of growth influencing factors. The detailed anatomical and histological studies enable a better understanding of special functions of entire plants. Morphological studies also used in taxonomic studies of plants These plants also reduce indoor Air pollution as they absorb variety of air pollutants. This study will also focus on the benefits of the indoor plants and their usefulness in reducing the Air pollution.

Keywords: Indoor plants, Air pollution, Pollutants, Morphology.



Digital Therapeutics: Redefining Supportive Care and Rehabilitation in Cancer

Nisha Rathore

Department of Nursing, Biyani Institute of Science and Management, India

Corresponding Email: nisharathore21072003@gmail.com

Abstract

Digital therapeutics have emerged as a groundbreaking approach in the field of supportive care and rehabilitation for cancer patients. The integration of digital therapeutics into cancer care pathways has shown promise in addressing the complex physical, psychological and social needs of cancer patients. Digital therapeutics are evidence based devices aimed at interacting the patients, and offer potential benefits for the patients with cancer. Digital therapeutics can help implement behavioural modifications and empower patients through education, lifestyle support, and remote symptom monitoring. With current developments in oncology including increased availability of oral drugs and reduced availability of healthcare professionals, these solutions offer an innovative approach to optimize healthcare resource utilization.

Methodology

Through the utilizations of mobile applications, wearable devices and virtual reality platforms, digital therapeutics offer personalized interventions tailored to the unique needs of cancer patient. These interventions encompasses various domains including symptom management, physical activity, stress, reduction, and cognitive and social support. One key area where digital therapeutics have shown management of cancer related symptoms. Mobile applications equipped with symptom tracking tools and algorithms provide real – time monitoring of symptom progression, allowing for timely interventions and personalized support. Patients may use the Digital Therapeutics solution to identify their symptoms, determine when they should contact their care team, and learn more about their condition. Currently, there are several digital therapeutics that are developed.

Result and discussion

In total, 30 patients with cancer undergoing active therapy were enrolled and 29 registered in the app. Overall 97 percentage of participants were active in 3 of 4 weeks and completed pre and post program questionnaires. Users interacted with the app on average 7.7 times per day of the 28 participants who completed the satisfaction questionnaire, 25 were likely to recommend the program, 23 said the program helped them deal with the disease and 24 said it helped them remember their medication. In most studies digital intervention have resulted in positive outcome in patient reported symptoms.

Conclusions

There is growing evidence that digital therapeutics provide benefits to patients related to clinical and health economic endpoints. These digital solutions can be integrated into routine supportive care in oncology practice to provide improved patient- centered care. Future endeavors could focus on the use of valid, standardized outcome measure, maintenance of the design and delivery of supportive digital health interventions. In the future years, oncology will undergo substantial changes, with new IT and health-care technology enhancing the potential to customise cancer therapies to unique individual patient profiles and provide more personalised cancer care. Given that some components of healthcare will likely never be totally replaced by technology, digital therapeutics is likely to be used in tandem with other treatments to improve patient outcomes.

Keywords: Digital therapeutics, oncology, integrated, remote symptom, patient reported outcomes.



Advancements and Challenges in Ceramic Matrix Composites: A Comprehensive Review

Param Budania, Anshul, Chandramani Goswami^{1*}

¹Mechanical Engineering Department, School of Engineering and Technology, JECRC University Jaipur, India

Abstract

Ceramic Matrix Composites (CMCs), also commonly known as ceramics, possess properties akin to glass or crystals, incorporating attributes from both. These materials, distinct in their non-metallic and non-organic nature, are characterized by their formation through the application of heat, lack of chemical reactivity, and inherent hardness. Widely employed in the military, defense, and aerospace sectors, ceramic materials like Alumina, ZrO₂, SiC, and Si₃N₄ enjoy broad applications and enhanced qualities. Notably, they boast significant compressive strength, fracture toughness, hardness, and outstanding refractoriness, rendering them indispensable for enduring harsh environmental conditions.

Despite these advantageous characteristics, conventional machining methods such as milling, turning, and drilling prove less effective when applied to ceramics. This inefficiency arises from the need for substantial cutting pressures, resulting in tool wear. The root cause lies in the low shear strength and high brittleness exhibited by ceramic materials. While these features offer advantages in challenging conditions, traditional machining techniques often yield surface damage, edge chipping, and tool wear. Non-traditional methods like Abrasive Jet Machining (AJM) and Laser machining, while enhancing dimensional precision, present suboptimal surface quality marked by severe pitting and hole formation.

This research article delves into alternative machining methods, focusing on Ultrasonic Impact Grinding and Laser Beam Machining, and scrutinizes their respective outcomes. Non-traditional machining techniques exhibit superiority compared to conventional procedures, showcasing a higher rate of material removal and superior surface polish. Moreover, this study outlines potential avenues for further investigation, emphasizing the dynamic nature of ceramic materials and machining methodologies to address the demands of forthcoming technological advancements.

Keywords: Ceramic Matrix Composites (CMCs), Aerospace and Defense Applications, Non-traditional Machining, Ultrasonic Impact Grinding, Laser Beam Machining, Technological Advancements in Ceramic Materials



Regenerative Oncology

Pareek Prashansa

Biyani Girls College, Jaipur, India

Corresponding Email: prashansa960@gmail.com

Abstract

Regenerative Oncology is a state-of-the-art field that combines oncology and regenerative medicine. Its focus is on developing novel tissue engineering techniques for the replacement and repair of cancer-affected organs. Often requiring the removal or damage of important tissues, cancer treatment presents a number of obstacles that this multidisciplinary area seeks to overcome. Significant tissue damage can result from cancer therapies such as radiation therapy, chemotherapy, and surgery, which can impact the shape and functionality of important organs. It represents a viable approach by utilizing tissue engineering techniques to rectify the damage and impairment of tissues caused by cancer therapies. Designing successful solutions for organ replacement and repair requires a thorough grasp of biomaterials, tissue regeneration, and cancer biology. This work used a multidisciplinary strategy that brought together the fields of biomaterial sciences, tissue engineering, and cancer biology. Gene therapy plays a crucial role in addressing genetic mutations associated with cancer and enhancing the regenerative capacity of engineered tissues. Targeted genetic modifications are employed to control cell growth, inhibit tumorigenesis, and ensure the safety of regenerated organs. Advanced 3D printing technologies in conjunction with biomimetic scaffolds were utilized to fabricate customized constructs that resemble the natural tissue architecture. The ability of stem cells—whether they were obtained externally or internally—to promote tissue regeneration was essential. Effective immunomodulation is essential to prevent graft rejection. Strategies such as immune-evasive biomaterials and immunosuppressive agents are incorporated to create an environment conducive to the integration of regenerated tissues into the

host, ensuring sustained functionality. It focuses on the translational potential of regenerative oncology, addressing challenges and opportunities. Ethical considerations, long-term safety, and the scalability of personalized regenerative approaches and collaborations between oncologists, tissue engineers, and bioethicists are emphasized to navigate the complexities of implementing regenerative strategies in clinical settings. The role of regenerative oncology in minimizing cancer recurrence through targeted tissue regeneration is also explored. A promising new field that could completely change the course of cancer treatment is called regenerative oncology. Repairing damaged tissues from cancer treatments may be possible with the combination of cutting-edge biomaterials, regenerative techniques, and patient-specific data. To realize the full potential of regenerative oncology, interdisciplinary collaboration and persistent research attempts are crucial, even though challenges still exist. The findings demonstrate the viability and effectiveness of regenerative approaches, providing groundwork for additional research and potential integration with traditional cancer treatment. With regenerative oncology, oncological care is moving toward a more holistic and regenerative approach, offering promise in the search for tailored and efficient ways to heal the collateral damage caused by current cancer treatments.

Keywords: Regenerative Oncology, Gene Therapy, Radiation Therapy, Immunosuppressive, Chemotherapy.



Hemiptera Fauna at Tal Chhapar Wildlife Sanctuary

Pritika Jangir

Department of Botany, University of Rajasthan, Jaipur

Corresponding Email: pj7665259300@gmail.com

Abstract

Rajasthan has a high biological diversity due to its unique biogeographic location, diverse climatic conditions, and enormous eco- and geo-diversity. The Tal Chhapar wildlife sanctuary is located in the Churu district of Rajasthan. Tal Chhapar Wildlife Sanctuary is a vital and unique grassland ecosystem in India. Insecta are essential to diversity. It is the most populous Class in the Animalia Kingdom. The insect has infiltrated nearly every available habitat, and it may be capable of withstanding the widest range of climatic extremes of any taxon. Hemiptera is an insect classification that includes real bugs. Hemiptera are plentiful throughout the year, but particularly in the spring, rainy season, and autumn. Hemiptera are plant-eating insects with sucking mouthparts. Heteroptera and Homoptera were suborders of the Order Hemiptera. The structure of the wings was primarily responsible for this distinction. Heteropteran bugs have forewings that are clearly divided into two regions, a tough and leathery basal area and a membranous tip, and membranous hind

wings; all four wings fold flat over their backs when not needed for flight. Homopteran bugs with toughened or membranous forewings (but not both) and all four wings held tent-like over the body when at rest. Tal Chhapar Wildlife Sanctuary was used for Hemiptera research. During the study, Hemiptera families Pentatomidae, Dinidoridae, Reduviidae, and Cydnidae were observed at the Sanctuary.

Keywords: Diversity, Hemiptera, Wildlife, Ecosystem.

□□□

Advancing Cancer Care through Futuristic Technologies in Industry Tissue Engineering and Regenerative Medicine

**Priya Kudiwal, Parul Shekhawat, Yogita Jangid, Asma Khan and
Monika Saini**

Biyani Girls College, Jaipur, India

Corresponding Email: priyakudiwal09@gmail.com

Abstract

With all the progress in cancer biology and treatment, the pathophysiology of the cancer is still not thoroughly known, and its treatments are limited. The advent of tissue engineering and regenerative medicine has revolutionized the treatment of various disorders, including genetic diseases, neurological and neurodegenerative diseases, organ dysfunction, and cancers. Tissue engineering helps develop promising in vitro and in vivo models, such as spheroids, organoids, and organ-on-a-chip for studying cancer biology and evaluating the safety and effectiveness of novel antitumor drugs. Moreover, drug delivery systems that use scaffolds and stem cells enable sustained and localized release of antitumor drugs. Scaffolds and stem cells could also be utilized in cancer immunotherapy and healing the wounds caused by the resection of tumors. Advancements in tissue engineering and regenerative medicine may provide therapeutic approaches to treat tumors effectively. This chapter will discuss different aspects of tissue engineering and their application in developing novel therapeutic approaches for cancer treatment.

1. **Biopsy (donor-tissue extraction)** : cells are extracted either from fluid tissue or from solid tissue by the use of centrifugation to remove the extracellular matrix, finally cells are free floating and extracted again by use of apheresis.
2. **Cell isolation and cultivation (manipulation with cells)** : it is safest to isolate autologous cells or to use mesenchyme stem cells from bone marrow. Isolated cells are cultivated to selective cell differentiation.
3. **Scaffolds, seeding, cultivation** : seeding of cells leads to cell-matrix interaction with scaffolds

to grow into 3-D tissue and eventually replace a biodegradable, biocompatible and brittle nature scaffolds which functionalized with biomolecules.

4. **Implantation** : implanted in the body where cell recreate their intended tissue functions as blood vessels attacks themselves to the new tissue, the scaffolds dissolves.
5. **Detection** : the newly grown tissue eventually blends in with its surroundings.

Keywords: Regenerative medicine, tissue engineering, scaffolds, immune modulation, biomolecules.



Peregrine Solitons of the Higher-Order, Inhomogeneous, Coupled, Discrete, and Nonlocal Nonlinear Schrödinger Equations

Pooja Kumari

Department of Physics, Singhania University

Corresponding Email: poojakalgania@gmail.com

Abstract

This study reviews the Peregrine solitons appearing under the framework of a class of nonlinear Schrödinger equations describing the diverse nonlinear systems. The historical perspectives include the various analytical techniques developed for constructing the Peregrine soliton solutions, followed by the derivation of the general breather solution of the fundamental nonlinear Schrödinger equation through Darboux transformation. Subsequently, we collect all forms of nonlinear Schrödinger equations, involving systematically the effects of higher-order nonlinearity, inhomogeneity, external potentials, coupling, discontinuity, nonlocality, higher dimensionality, and nonlinear saturation in which Peregrine soliton solutions have been reported.

Keywords:-Peregrine solitons and Equations



Huge use of X-rays in medical Science

Rajesh Kumar Rajput, Dhruvashri Shekhawat

Apex University, Jaipur, India

Corresponding Email: barrodrajesh707@gmail.com

Abstract

Rontgen in 1895 discovered the x-rays, when was studying the phenomenon of discharge of electricity through rarefied gases. He found that when the pressure in the discharge tube is reduced to 0.001 mm of mercury and electric discharge is passed between cathode and anode, the glass wall behind cathode begins to glow with greenish yellow color. During his experiment he also observed that fluorescent screen placed close to discharge tube continued to fluorescent close to the discharge tube continued to fluorescent even if the discharge tube was completely covered with a black paper. Although the intensity of fluorescence was reduced by interposing various thickness of different substance between screen and tube but it could not be cut off entirely. When plate of iron was placed it casts a shadow on the screen showing that certain radiation are coming out from the discharge tube. After performing a series of experiment Rontgen concluded that when a beam of fast-moving electrons strikes a solid target, invisible high penetrating radiation is produced. Because of their unknown nature Rontgen called these Radiation as X-Ray.

Keywords: Radiation, Charge, X-RAY, Wave, Experiment



Environmental Sustainability and Ethical Disposal in Cancer Tech Development

Rajni, Akshita Mishra, Maya Bunkar, Neha Sharma and Anisha Sharma

Biyani Girls College Jaipur, India

Corresponding Email: rajni0107yadav@gmail.com

Abstract

In the development of cancer technology, environmental sustainability and ethical disposal entail taking the effects of technology use, manufacture, and disposal into account. This entails limiting resource consumption, handling electronic trash (e-waste) ethically, and guaranteeing moral behaviour throughout the lifecycle of the product. Using environmentally friendly materials,

conserving energy, and using appropriate disposal techniques can all help advance cancer technology in a more sustainable way.

Methodology

1. **Materials Selection:** Choose eco-friendly and recyclable materials for device components. Avoid hazardous substances in manufacturing.
2. **Energy Efficiency:** Design devices with energy-efficient components to reduce overall energy consumption. Explore renewable energy sources for powering devices.
3. **Waste Reduction:** Minimize waste during production by optimizing manufacturing processes. Explore opportunities for reusing or repurposing components.
4. **Ethical Disposal:** Develop a clear plan for the ethical disposal of devices, considering recycling, refurbishing, or safe disposal methods. Educate users on proper disposal practices and provide accessible recycling options.

Result and Discussion

The integration of environmental sustainability and ethical disposal in cancer tech development is crucial for responsible innovation. By adopting eco-friendly materials and manufacturing processes, we reduce the environmental impact of device production. Ethical disposal ensures proper handling of electronic waste, minimizing harm to ecosystems. These practices contribute to a more sustainable healthcare industry, aligning technological advancements with environmental and ethical considerations.

Conclusion

Integrating environmental sustainability and ethical disposal practices in cancer tech development is crucial for fostering a responsible and long-lasting impact. By prioritizing eco-friendly materials, minimizing electronic waste, and ensuring ethical disposal of obsolete technologies, the healthcare industry can contribute to a healthier planet while advancing cancer research and treatment. This commitment aligns with global efforts toward a more sustainable future and underscores the responsibility of technological advancements in improving both.

Keywords: environmental, sustainability, technology, eco-friendly, waste reduction



An Interventional study to assess the effectiveness of laughter therapy in the reduction of stress among geriatric people in selected old age homes of Jaipur, Rajasthan, India

Rakesh Kumar Yadav¹, Vijay Choudhary²

¹*Institute of Medical Technology & Nursing Education, Jaipur, Rajasthan*

²*Department of Nursing, Biyani Institute of Science & management, Jaipur-302039, Rajasthan*

Corresponding Email: rj02rkskumaryadav@gmail.com

Abstract

Aging is a natural process. Old age is an inevitable one. Old age is a crucial phase where physiological, psychological and sociocultural changes make elderly to develop stress. Our pre historic ancestors probably had a Life span of 40 years. Stress is the one of the leading factor that brings psychological problems in our life. The aims of study was to evaluate of stress level among geriatric persons. To evaluate the effectiveness of laughter therapy on stress among geriatric people. To find out the association between the effectiveness of pre-test level of stress and selected demographic variables such as Age, religion, marital status, educational status, occupation before coming in old age home, financial support.

Methodology

The research approach adopted for the study was evaluative approach and the research design adopted was pre-experimental, one group pre-test – post-test design. The sample consisting of 60 elderly peoples. They were selected by Non-probability Convenient Sampling techniques. The study was conducted at Jeevan Jyoti old age home, Chaksu, Jaipur. DAS scale was used for assess stress level.

Results

The study findings revealed that (16) 26.6% respondents were belongs to the age group of 60-65 years, (16) 26.6% was found in the age group of between above 70-75 years , (15) 25.0% was found in the age group of above 75 years ,(13) 21.6% Respondents were belongs to the age group of between above 65-70 years. The maximum participant in the research study from the Age of the senior citizens (in years) group of 60-65 years & above 70-75 years. Religion wise distribution showed that (51) 85.0% respondents were Hindus. (20) 33.3% Respondents were belongs to the group widow. (16) 26.6% respondents were unmarried, (16) 26.6% respondents were married, (8) 13.3% respondents were belongs to the divorced. (26) 43.3% Respondents were graduates & post graduates. (14) 23.3% respondents were belong to the group of illiterate, (12) 20.0% respondents

were belongs to the group of secondary & senior secondary and (8) 13.3% respondents were belongs to the group of primary education. Majority of respondents (22) 36.6% respondents were government employees, (20) 33.3% respondents were private employees, (16) 26.6% respondents were self employed, and (02) 3.33% Respondents were belong to other jobs. Financial support wise distributions of elderly peoples (60) 100.0% all senior citizens were receiving retirement pension or old age pension. Pre test stress level revealed that in pre-test 60.0% were extremely severe, 26.6% were severe, 6.6% were moderate, 3.3% were mild and 3.3% were normal. In post-test the 56.6% were normal, 20.0% were mild, 18.3% were moderate, 3.3% severe and 1.6% were extremely severe. Mean & S.D of Pre test was 32.85 ± 7.18 , and Post test was Mean & S.D. was 13.81 ± 6.97 on DAS scale. The chi square value of demographical variable religion was found significant.

Conclusions : This study concluded that laughter therapy is effective in reduction of stress level among elderly peoples.

Keywords: Level of stress, elderly people, reduction, laughter therapy.



Deep Learning Algorithms for Predicting Patient Waiting Times in Emergency Department in Healthcare Queue System

Rakesh Kumar Mishra and Geetanjali Sharma

Dept. of Mathematics & Statistics, Banasthali Vidyapith, Rajasthan (India)

Corresponding Email: geetanjali.bu@gmail.com

Abstract

Many hospitals use the amount of time patients spend in queue as a gauge for overcrowding in the emergency room (ER). Many emergency rooms have lengthy wait times, which make it more difficult to adequately treat patients and raises overall expenses. In queuing system applications, cutting-edge methods like deep learning (DL) and machine learning have become crucial. In order to forecast patient waiting times in a system, this research will use deep learning (DL) techniques for historical queuing variables, either in addition to or instead of queuing theory (QT). Four optimization algorithms—SGD, Adam, RMSprop, and AdaGrad—were used. To determine which model has the lowest mean absolute error (MAE), the algorithms were compared. For further comparisons, a conventional mathematical simulation was employed. The findings demonstrated that the DL model may be used to estimate patients' waiting times using the SGD algorithm, with the lowest MAE of 10.80 minutes (24% error reduction) activated. In order to better priorities patients waiting in queue, this study makes a theoretical contribution to the field of patient waiting time prediction using alternative methodologies by establishing the highest performing model. This

study also makes a useful addition by utilizing actual data from emergency rooms. In addition, we suggested models that, compared to a conventional mathematical approach, produced more accurate predictions of patients' waiting times. Our method can be readily applied to the healthcare industry's queue system by utilizing electronic health records (EHR) data. Since over 50% of patients who are admitted to hospitals do so through the emergency rooms (ER), most hospitals suffer from extreme patient overcrowding. Since most ER departments in hospitals have lengthy patient wait times, they are an important component of healthcare facilities. Queuing is risky in an environment like the healthcare industry since waiting around may be costly for medical staff and uncomfortable for patients. Additionally, it could have an impact on a patient's life or health. One conventional method is queuing theory (QT). Mathematical method that has been applied for many years to the analysis of queuing systems. However, due to the methodology's limitations—such as the unrealistic assumptions about the time distribution needed to do queuing analysis—the typical QT approach might not be enough in real-world applications. As a result, alternative methods are thought to greatly increase ER efficiency, such as deep learning (DL) algorithms. Another type of machine learning technique is deep learning algorithms. Furthermore, new studies revealed that the approach used to estimate ER patient wait times has a limited degree of accuracy. In addition, DL algorithms have even higher accuracy and can minimize human error as compared to conventional methods. The purpose of this research was to provide a new and improved model for predicting wait times as well as a crucial tool for responding quickly in the event that emergency rooms report lengthy wait times. Due to significant error rates in earlier research, this goal was prompted. Compared to earlier research on this subject, the unique model used in this study minimizes error prediction.

Keywords: Customer, Queue, EHR, Optimization Algorithm, Phase type Queuing Model.



Sustainability: Pollution Prevention

Rakshita Jangid, Santosh Rathore and Pooja Khandelwal

Department of Science, Biyani Girls College, Jaipur, India

Abstract

This paper is based on the pollution prevention practice that can lead to important economic savings, materialized in benefits and resource preservation. There are some techniques for preventing pollution from happening there will always be the necessity of efficiency in use, because globalization is increasing and by consuming resources without putting them back leads to scarcity of lead, labor, raw materials and capital. The impact of processes and products on the environment demands eco- efficient pathways to prevent and reduce pollution quantity and quality. Pollution prevention programs offer sustainable alternatives that express. Precaution in usage of new and

more toxic substances and efficiency where the level of pollution must not pass a defined level. Economic analysis is considered as the most used method to determine how scarce resources should be allocated. There are sectors that may choose the cost benefit analysis because it is easy to implement and choose the best environmental project a more complete analysis involve performances analysis steps that contains a forecast of possible risk of factor that can influence the environment and the costs that may appear in the near future, or in the occurrence of unexpected events .Ecoefficiency has extended its converses from been concerned with making resource savings and preventing pollution in manufacturing sector, towards innovation and competitiveness in all types of companies. It was emphasized that based on ecoefficiency for pollution prevention analysis, companies can reengineer or redesigned their processes to reduce consumption of resources, avoid the risk and reduce pollution, saving costs.

Keyword: Pollution, Materialized, Globalization, Sustainable



Studies of Endangered Medicinal Plants

Rashmi Sharma

SPCGCA, Ajmer, India

Corresponding Emails: sharmarashmigca@gmail.com

Abstract

0.7 million plants species are there out of which more than 40% are Endangered, due to habitat loss, anthropogenic activities, house construction, Road construction, Industrialization, water, air and land pollution, Global warming, Climate Change. If there is 30 % decrease in population means these are Vulnerable to Extinction, If 50 % decrease in population means these are Endangered, If more than 90% decrease in Population means these are Critically Endangered. Dracena, Zelkova sicula, Z. abelicea, Helichrysum gossypinum, H. melitense, Sorbus whiteana, S. lobani, S. pauca, S. maravica, S. milensis, S. thayensis, S. cuculifera, Arabis kennedyae, Polygala urartu, P. simisica, Sicilian fir Abies nebrodensis, Picea omorica, Calandula marilima, Ribes sardoum, Saponaria jagelli, Salix canarensis, Sideritis discolor, Rhamnus integrifolia, Radula jonessi, Pyrus anatolica Artemisia granatensis, Centaurea corensis, Apium bermejoi, Astragalus cavanillesii, Juniperus brevifolia, J. cedrus, Aquilegia barbericina, BNetula celliberica, B. klokovii, Anchusa crispa, Cedrus brevifolia, Sideroxylon marginatum, Silene marizii, Ochyraea tatrensis, Naufraga balearica, Narcissus graditanus, N. lusitanicus N. nevadensis, Limonium strictissimum, Delphinium iris, Salvia herbanica, Cineraria, Delphinium caseyi, Centranthus amazonum, Carum foetidum, Centaurea akamantis, Allium iatrouinum, Apium bermejoi, Astragalus cavanillesii, Brimeura duvigneaudii, Anchusa

crispa, Bupleurum dianthifolium, Euphorbia handiensis, Centranthus, Senecio elodes, Salix herbanica, Cedrus brevifolia, Echium, Echinodium, Erysimum, Falsa sanicola, Petagnaea, Gradsteinia, Gyrocaryum, Medicago citrina, Salvia veneris, Delphinium iris, Ligusticum huteri, Limonium strictissimum, Lithodora nitida, Lonicera karataviensis, Biscutella rotgesii, Lysimachia minoricensis, Maltese centaury, Maltase clifforache, Euphorbia handiensis, Centranthus, Senecio elodes, Salix herbanica, Cedrus brevifolia, Echium, Echinodium, Erysimum, Falsa sanicola, Petagnaea, Gradsteinia, Gyrocaryum, Medicago citrina, Salvia veneris, Delphinium iris, Ligusticum huteri, Limonium strictissimum, Lithodora nitida, Lonicera karataviensis, Biscutella rotgesii, Lysimachia minoricensis, Arabis kennedyae, S. eminentoides, S. whiteaena, S. herbipolitana, S. leptophylla, S. rhodanthera, S. marizii, S. orphanidis, S. barrandienica, S. cuculifera, S. thayensis, S. milensis, S. moravica, S. pauca, S. portae bohemicarum, S. spectans, S. tobani, S. parviloba, Atraphaxis muschketowi, Sibiraea tianschanica, Picea omorica, Scapania sphaerifera, Ribes sardoum, Narcissus gaditanus, N. lusitanicus, N. nevadensis, Naufraga, S. scannelliana, Artemisia granatensis, Lonicera karataviensis, Salvia veneris, Lamyropsis microcephala, Delphinium iris, Limonium, Lithodora, Echinodium setigerum, E. spinosum, Echium acanthocarpum, E. callithyrsum, E. gentianoides, E. handienae, E. portosanctense, Erysimum kykkoticum, S. evansii, Salvia herbanica, Spiraeanthus schrenkianus, Maltese centaury, Maltase clifforache, are some Endangered medicinal plants. We should conserve Endangered medicinal plants.

Keywords: Endangered medicinal plants, Global warming, Climate Change

□□□

Environmental Sustainability & Development

Rekha Vijay¹, Poonam Hariyani^{1*} Barkha Shrivastava²

¹JECRC University, Jaipur (Rajasthan); ²JECRC College, Jaipur (Rajasthan)

Corresponding Email: rekhavijay.chem@jecrc.ac.in

Abstract

Promoting sustainable development is the main goal of environmental sustainability. Sustainability in one area may be a prerequisite for sustainability in another. It is possible to map sustainability criteria to illustrate intricate cross-domain relationships like social, economic and environmental level. We need to make it simpler to identify the steps that must be taken to achieve environmental sustainability by facilitating communication between all parties concerned in the matter. In order to extend perspective, businesses that are nearly solely financially focused frequently adopt a triple

bottom line strategy. However, companies that are narrowly focused on any other single bottom line such as environmental or social are able to use it in order to grow.

Keywords: Environmental, Social, Sustainability, Economic.

Introduction

Environmental sustainability is a key concern for society having the responsibility of preserving natural resources and protect global ecosystems in order to foster health and well-being both now and in the future. Environmental sustainability standards differ significantly depending on the economic, social, and environmental circumstances of a given area. Due to increasing agricultural and industry brought on by the rapid population development, there are now greater greenhouse gas emissions, unsustainable energy consumption, and deforestation. Sustainability of the environment is vital given the quantity of food, energy, and manufactured goods we use on a daily basis. Environmental sustainability is important as the preservation of natural resources is essential to society's survival since it depends on them for its resources. The planet's natural resources are limited, and so is its ability to recover from harmful activities and absorb pollutants. It becomes crucial to strike a balance between a society's growing population and consumption demands and its limited supply of resources. Long-term cost reduction or maintenance is possible with sustainable practices that guarantee the availability of material resources by efficient waste management, sustainable agriculture and forestry, construction, renewable energy sources *etc.*

Being the largest contributors and in a position to have a substantial impact, businesses are expected to take the lead in the field of environmental sustainability. With our growing population, a fully sustainable earth is unattainable unless we create and widely use renewable technology. People will be able to go about their regular lives without putting the environment in risk or making the climate worse. Everybody needs to adapt their way of life and learn how to live more sustainably.

Environmental Sustainability can be achieved by organizations like EPA that regulate and implement the laws to different business, individuals, institutions, state and local Governments to create the accountability. The roadmap to a brighter and more sustainable future for all is found in the prescribed 17 Sustainable Development Goals by UN. These objectives tackle worldwide issues related to clean water and sanitation, climate change, no poverty, industry and innovations, economic growth, use of clean energy at affordable rate, peace and justice *etc.*



Impact of Educational Program on Knowledge Regarding “Home Management of Side Effects of Chemotherapy” among Caregivers of Cancer patients in selected Hospitals of Jaipur, Rajasthan

Remya Renjan, Laxmi Pharaswal

Department of Nursing, Biyani Institute of Science & Management, Jaipur-302039, Rajasthan,

Corresponding Email:nursing.remya@biyanicolleges.org

Abstract

Cancer is most fatal disease. It is the second leading cause of mortality worldwide .As chemotherapy is one of the important treatment for cancer which targets all the rapidly dividing cell of human body consequently the side effects emerge after taking chemotherapy. The caregivers of the cancer patients play a significant role in their health-care wellness. These side effects bring physical and psychological impacts on the life of the patient and family members. The side effects of chemotherapy are very important to be managed at home by the caregivers. Since, it is significant to create awareness about chemotherapy among parents or caregivers. The most effective way of giving information to the caregivers was by giving a Educational program and enhancing their knowledge regarding home management and its side effects of chemotherapy.

Methodology

A quantitative research approach was used. The preexperimental research was conducted on sixty caregivers of patients receiving chemotherapy. The research design used was one group pre-test and post-test design. The demographic variables analysed for the study were age, gender, occupation, education, income, marital status and previous source of knowledge. The study was conducted by using non -probability purposive sampling technique on a sample of 60 caregivers by structured knowledge questionnaire to collect the data regarding home management and its side effects in terms of knowledge among caregivers of patients receiving chemotherapy. The data was gathered after obtaining formal written consent from the respondents and distributing participant information sheets to each subject.

Results

Majority of respondents (41 %) were in the age group of 49-60 years ,60 % were males and 41 % had primary level of education. 38% of them were doing jobs in private sector. Most of them were married (79%).71 % of respondents had income of Rs.10000 and 60 % of them had no previous knowledge regarding home management of side effects of Chemotherapy .The pre- test and post-test knowledge scores of participants regarding home management of side effects of chemotherapy

revealed that before implementing educational programme, that is in pretest ,13.34%(8) subjects had poor knowledge, 75%(45) had average knowledge, and 11.66%(7) had good knowledge scores, where after administration of educational programme, in posttest 4 (6.67%) subjects had poor knowledge, 65%(39) had average knowledge, and 28.33%(17) had good knowledge scores. The effectiveness of educational programme was assessed with paired t-test and it was revealed that there was a significant gain in the knowledge regarding home management of side effects of chemotherapy at 0.05 level of significance.

Conclusion

The study revealed that improving knowledge regarding home management of side effects of chemotherapy would improve the self-care practice in order to manage the side effects arising due to chemotherapy. The study concluded that administration of educational program was an effective teaching strategy to improve the knowledge regarding home management and its side effects in terms of knowledge among caregivers of patients receiving chemotherapy.

Keywords: Home Management, Side Effects, Chemotherapy, Care Givers, Cancer patients.



Integrating futuristic technologies in cancer case with homoeopathic principles: A comprehensive approach to personalized healing

Ruchika Singh

BHMS, Homoeopathic Medical College, Jaipur

Abstract:

This includes – making cancer case better using as new technologies and an old healing way called “homoeopathy the blend of high tech treatment like precision medicine, immunotherapy with the gentle way of treatments with homoeopathy. By mixing these approaches we aim to create a personalized and casing method to help people with cancer feel better. Introduction: Cancer is tough, but we have new ways to treat it like using special medicines, the body’s own defenses At the same time, blending it with gentle harmless healing with homoeopathy. Technological advancements in cancer cases: Cancer cases have evolved with precision medicine customizing treatment based on genetic data and the rise of immunotherapy. Improved early detection though liquid biopsies and advanced imaging technologies further enhance personalized care. Homoeopathic principles and practices: Homoeopathic is based on the principle of “Like cure like” where a substance causing symptoms in a healthy person is used in diluted form to treat similar symptoms in a sick individual. It flows the “LAW OF MINIMUM” doses, using highly diluted remedies. It is also based on holistic approach considering the patient’s mental emotional and

physical state and thus helps for the cure and betterment of the patient. Intersection of cancer technologies with homeopathic principles:- In current scenario of the medical sciences homoeopathy, the most popular system of therapy is recognized as one of the component of complementary and alternative medicine (CAM) across the world. Homoeopathy is considered to be the safe & cost-effective therapeutic modality. A number of human ailments ranging from common to serious have been treated with homoeopathy. Available data suggest that homoeopathy has potency not only to treat various type of cancer but also to reduce the side effects caused by standard therapeutic modalities like chemotherapy, radiotherapy or surgery.¹ Along with this, there are specific homeopathic remedies for various cancer that target the tumor and may reverse its growth, some of them acts as drainage remedies and assist in healing the patient by eliminative channels and strengthen cell detoxification. This approach fixes the cause of tumor rather than attacking the tumor directly. It stops the malignant growth, eventually absorbing and discarding it from the body. In advanced stages homoeopathy many not help to cure the cancer but can help along with the advanced 2 technology to ease pain & prolong life of patients ² . Challenges and Ethical consideration:- Homoeopathic cancer treatment contends with challenges such as scientific skepticism and possible delays in seeking conventional case. Ethically, informed consent is paramount, emphasizing patient awareness of homeopathy's experimental status while promoting its potential benefits within a patient centered framework.³⁻⁵ Conclusion: The safety & effectiveness of homoeopathy in providing relief to cancer patients, along with modern technology & minimizing side effects, lack sufficient evidence based studies. While some individuals use homoeopathic remedies to address side effects from treatment like radiotherapy and chemotherapy.

References:

1. YadavR.,Jee-B,RaoK.S.J:Exp.Ther,Onwl2019,Jaw;13(1):71-76 PHID – 3065308.
2. R.B.herberman, Influence of the host on tumor development,Springer; 2012. P.162.
3. GT Pack, AH Islami, Tumors of Liver,Springer;2012,P.83.
4. H.M. De Valren PA, GS Kwon Nonotechnology in Drug Delivery, USA :Springer; 2008, P. 519.
5. G.V.Sizemore Leadingedge cancer research,Nova Science Publishers, Inciloat, P. 65.



Changing Paradigms of Nanoparticles in Sustainable Farming

Sanjana Bhat

Jaipur National University, Jaipur, India

Corresponding Email: badgirlsanju@gmail.com

Abstract

Worldwide problems that the farming sector is currently dealing with involve climate change and environmental issues like emission of pesticides and synthetic fertilizers. These issues will only become worse in the face of rising populations and food shortages. Therefore, it is required to replace traditional methods of farming with contemporary approaches. The application of nanotechnology, particularly green technology, holds great potential for resolving these issues. Biosensors, insecticides, fertilizers, food packaging, and other areas of the agricultural business are only a few of the technologies that have gone through modifications and enhancements as a result of nanotechnology. Nanomaterials are regarded as appropriate carriers for anchoring fertilizers and pesticides due to their particular characteristics, which also make them beneficial in assisting monitored nutrient transfer and enhancing crop protection. In an effort to support the expanding application of nanoparticles across various fields, investigations in the context of nanotechnology have therefore switched towards ecologically benign and commercially viable 'green' synthesis during the past ten years. Instead of using residing synthetic approaches, green synthesis, which is a component of bio-inspired protocols, offers robust and sustainable approaches for the production of nanoparticles by a wide range of microorganisms. Microorganisms are discussed together with their benefits and drawbacks in comparison to other widely used techniques. The use of these nanoparticles in many agricultural sectors to ensure food security, improve crop output, and decrease the use of pesticides are discussed here. These developments in the manufacturing of metal nanoparticles via green synthesis by different microorganisms are taken into consideration. Furthermore, the method by which various microbes produce metal nanoparticles and their benefits and drawbacks in comparison to other widely used techniques are brought up.

Keywords: Nanoparticles, Sustainable Farming, Microorganisms, Agriculture

□□□

Antioxidant activity of some medicinal plants of family Rubiaceae

Sapana Khandelwal¹ and Varsha Sharma²

¹S.S. Jain Subodh PG Mahila Mahavidyalaya, Rambagh, Jaipur

²University of Rajasthan, Jaipur

Corresponding Email: drsapnakhandelwal@gmail.com

Abstract

Interest in medicinal plants is increasing because of the presence of bioactive compounds. These compounds have been reported to possess pharmacological properties which are associated with antioxidant activity. Therefore much attention is being paid on phytochemicals as new sources of natural antioxidants compounds.

Methodology

In present study, the two medicinal plants of family Rubiaceae (*Hamelia patens* and *Mitragyna parvifolia*) have been examined for their free radical scavenging activity. The methanolic crude extracts of root, stem and leaves of *H. patens* and *M. parvifolia* were screened for their free radical scavenging properties by DPPH (1,1-diphenyl-2-picryl hydrazyl) radical scavenging assay.

Result and discussion

Total antioxidant activity was found to be maximum in leaf followed by stem of *H. patens* (89.11 ± 1.14 and 88.05 ± 1.42 respectively) at concentration 100 mg/ml. Leaf, stem and root of *M. parvifolia* also showed good antioxidant activity at concentration 100 mg/ml.

Conclusion

The results of this analysis revealed the fact that these plants could be used as a viable source of natural antioxidants and might be exploited for functional foods and nutraceutical applications.

Keywords: antioxidant, scavenging activity, *Hamelia patens*, DPPH, *Mitragyna parvifolia*.



The emerging role of digital therapeutics in Cancer treatment

Sarthak Dewanda

*Engineering Scholar, Swami Keshvanand Institute of Technology, Management and Gramothan (Raj.)
sarthakdewanda1765@gmail.com*

Abstract:

Nowadays Digital therapeutics (DTx) is playing a very significant role in treatment of Cancer patients, especially in follow-up care of patients where cancer has responded to the first recommended treatment. In digital therapeutics interventions, high quality softwares are used. These softwares are developed after clinical investigations and are purely based on scientific experimentations and evidences. The world health-care industry is not only focussing on sound treatment and cure of the disease but is also working in improving the patient's physical, mental and behavioural conditions".

The present paper presents a review on some of the DTx products with the special reference to "Oncology treatment management". The aim of this research paper is to provide an update on how the DTx works, and what are the outcomes of DTx interventions. It was observed that DTx significantly help the patients recover from stress and anxiety due the disease. This results in better co-operation of the patients towards medication and treatment and ensures fast recovery. It can be concluded that introduction of DTx in oncological maintenance therapy has a promising future.

Keywords: digital therapeutics, cancer, treatment

□□□

Adsorption of methylene blue dye from wastewater by using *Murraya koenigii* leaves as bio-adsorbent

Saveena, Anita Mishra

Department of Science, Biyani Girls College Jaipur, India

Abstract

The removal of effluents is one of the active areas of pollution control research. These dyes may be either natural or synthetic in origin and used frequently due to their availability and range. Synthetic dyes such as methylene blue are mutagenic; and carcinogenic in nature causing skin allergy, nausea, skin irritation, and breathing difficulties and most of the dyes are not biodegradable toxic. Methylene Blue is an important dye which is extensively used in the colouring of paper, cottons, and wools and in preparing hair colourants. Methylene blue dye is cationic and more toxic in nature than anionic dye depriving it of harmful effects. This dye is widely used in industries like textile, printing and tanning. Bio-adsorbents can be made from a range of plant parts, including the leaf,

fruit, fruit peel, latex, stem, root or tuber, bark powder and seeds, and are easily available, cost-effective and eco-friendly.

Methodology

Activated bio-adsorbent was synthesised from the dried powdered leaves of *Murraya koenigii* (curry leaves) for the removal of methylene blue dye from wastewater. Two different solutions of methylene blue were used 10 ppm and 50 ppm. The efficiency of Methylene blue dye removal with synthesised bio-adsorbent was measured with different pH and adsorbent doses by using UV-Vis spectroscopy on wavelengths 661 nm.

Result

The present study shows that it is possible to utilise *Murraya koenigii* leaves biomass as a biosorbent for removing methylene blue dye from wastewater solution. The decrease in pH of the solution improved the removal efficiency of methylene blue using the adsorbent of *Murraya koenigii*-activated bio-adsorbent. The maximum removal efficiency for 10 ppm and 50 ppm solutions of methylene blue were 0.86 and 89.4 % respectively at pH 4 . Methylene blue concentration dramatically decreased after contacting for 60 minutes with the adsorbent.

Conclusion

In this study, it was found that at high pH this adsorbent has shown high affinity towards methylene blue dye. The standard increasing graph was obtained with the increase in bio-adsorbent doses. This was also confirmed by a significant colour change in the solution. The chemical composition of the bio-adsorbent has shown that the plant-based bio-adsorbent can be used to treat wastewater in industries.

Keywords: Bio-adsorbent, Methylene blue dye, *Murraya koenigii*, Absorbance, Optical density.



Optimisation of AGVs path layout in flexible manufacturing system using 0–1 linear integer programming

Sawan Kumar Yadav

Department of Mechanical Engineering, Singhania University

Abstract

The use of AGVs has grown enormously since their introduction. The number of areas of application and variation in types has increased significantly. Flow path design is an important factor in the design of automated guided vehicle systems (AGVS). In this paper, the problem of optimal flow path layout design of automated guided vehicles in the flexible manufacturing system is discussed. The problem is analysed and formulated as 0–1 linear integer programming model with

the objective of minimising the total distance travelled by individual loaded AGV. An illustrative example of a layout consisting of four manufacturing cells with 16 nodes and 19 arcs is discussed to demonstrate the approach. In this approach, only the movement of loaded vehicles with the unidirectional flow is considered. A general linear optimisation computer software package, named LINGO 14 is used to find out the optimal flow path for the layout.

Keywords: Automated guided vehicle, AGV, flow path layout and linear integer programming.



The Microbial Fuel Cell: Advanced Waste Bioremediation with Renewable Energy

Shrishti Kajla, Vishnu Sharma

Department of Biotechnology, Biyani Girls College, Jaipur

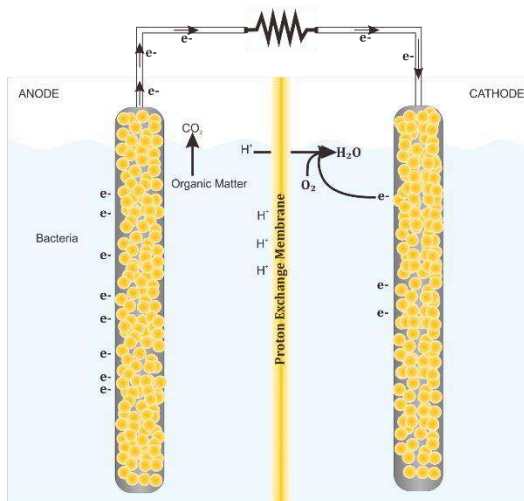
Abstract

The microbial fuel cell is a bioelectrochemical fuel cell system that operates by harnessing electrons generated by the microbial oxidation of reduced molecules, hence producing electric current. Microbial fuel cells facilitate the conversion of enzyme catalytic energy into electrical energy via an electrochemical mechanism. The electrons generated by bacteria during the oxidation of the substrate in the anode compartment, which serves as the negative terminal, are sent to the cathode compartment, acting as the positive terminal, via a conductive medium. Within the cathode, the electrons undergo a process of combination with oxygen, while the protons disperse via a membrane specifically designed for proton exchange.

Microbial fuel cells (MFCs) provide considerable promise in the generation of bioelectricity via the use of organic waste as a feedstock. This phenomenon has novel prospects for the use of renewable energy derived from biodegradable molecules that have undergone reduction. Multiple exoelectrogenic bacterial species have been identified as participants in electricity generation through microbial fuel cells (MFC). These species include *Bacillus firmus*, *Shewanella profunda*, *Bacillus isronensis*, *Brevundimonas bullata*, *Pseudomonas putida*, *Planococcus citreus*, *Micrococcus endophyticus*, *Acinetobacter tandoii*, *Bacillus safensis*, and *Shewanella xiamenensis*, which are considered dominant microbial strains in this process.

The energy produced by microbial fuel cells (MFCs) may be effectively used in power production systems that need low power output. The use of wastewater or organic components as a substrate for energy production presents itself as a viable and perhaps superior alternative to conventional

sources of energy. By monitoring biochemical oxygen demand (BOD) and toxicity in water, microbial fuel cells can function as an early warning system for food safety and security. However, they have few drawbacks as compared to other technologies, including limited power output, sluggish startup, and high cost.



Keywords: Bioremediation, Biomass, Energy, Exoelectrogenic Bacteria, Microbial Fuel Cell



Studies on insecticidal properties of non-leguminous plants of Thar Desert

Shriya Sharma¹, Deepali Lall² and Kamlesh Rawat³

¹Research Scholar, S.D. Government College, Beawar Rajasthan, India.

²guide: Department of Zoology, S.D. Government College, Beawar Rajasthan, India.

³Co-guide: Department of Zoology, S.D. Government College, Beawar Rajasthan, India.

Abstract

Papilio demoleus, commonly known as the lime butterfly, poses a significant threat to citrus crops due to the extensive damage caused by its larvae. Citrus is a woody, evergreen perennial plant cultivated for its non-climacteric unique berry like fruit. Traditional insecticides have been employed to control *P. demoleus* populations, but their adverse effects on human health and the

environment have led to the search for alternative, eco-friendly solutions. The purpose of the proposed investigation is to check the efficacy of *Euphorbia royleana*, *Lantana camara*, and *Cascabela thevetia*. Subsequently, the physical characterizations i.e. The biological toxicity test using spray application method. Acetone extract was also observed as to be most effective in a leaf disc assay. It showed potent activity. The suspension that sprayed onto the leaf disc area was led to dry and the powder shaped suspension residues were attached on the leaf surface, then the 3rd and 4th instar *P. demoleus* were exposed on it. Through laboratory bioassays and analysis of bioactive compounds, this study evaluates the efficacy and mechanisms of action of these plant extracts as potential natural insecticides. The findings contribute to the development of sustainable pest management strategies for the lime butterfly. Current investigations are related to evaluating bio-pesticide effect mainly consumption of pesticide properties of plant extracts of citrus plant, *Murraya koenigii* (curry tree) and *Cicer arietinum* (chick pea).

It has been established that use of synthetic organic pesticides, particularly the chlorinated hydrocarbons lead to serious environmental pollution (water, air and soil) affecting human health and causing death of non-target organisms (animals, plants and fishes). Scientist found that a number of plants possess pesticidal activity. Plant extracts and essential oils are safe, eco-friendly and more compatible with environmental components compared to synthetic pesticides. So they come under "Green pesticides" category. Now increasing trend in use to botanicals with more than 2400 bioactive plant species identified for their insecticidal and anti-pathogenic properties. Three different methods will also be used to conclude the results which are CONTACT METHOD, FEEDING METHOD and TOPICAL METHOD. Students "t" test will be used to compare different variables. To inspect the fatal concentration in 50% (LC 50) the toxicity and mortality rate for individual insect stages vary, standard error will be used. Report and structure were also added which would help in demonstrating efficiency and mortality.

Keywords: Plant extract, *Papilio demoleus*, Citrus, Pesticide, Soxhlet apparatus, leaf extract, Acetone extract, Aqueous extract, *Euphorbia royleana*, *Lantana camara*, *Cascabela thevetia*, Oil extract, Heating mental.



Curcumin as a Potent Antidepressant Drug: Curcumin contains pharmacological properties which is extracted from Turmeric plays a vital role in curing depression

Simran Rajawat, Shruti Chamria and Sweta Khokhar

Biyani Girls College Jaipur, India

Abstract

Turmeric is a common spice which is widely used in India as a remedy. Turmeric originates from the root of *Curcuma longa*. It contains a chemical called curcumin, which has medicinal properties. This chemical helps in reducing swelling. Curcumin is the main component which gives the yellow color to turmeric. *Curcuma longa*, exhibits a wide range of pharmacological properties and has been considered a potent antidepressant drug with diverse mechanisms including monoaminergic imbalances (associated with serotonin, dopamine, noradrenaline and glutamate), neurotransmitters, neuro progression, the hypothalamic-pituitary-adrenal (HPA) axis disturbances, dysregulated inflammation and immune pathways, oxidative and nitrosamine stress and mitochondrial disturbances. Turmeric plants construct curcumin which is a biologically active compound. Depression is a common, chronic, recurrent and psychiatric disorder that seriously affects the quality of life and increases the risk of mortality.

As mental health is topic of concern so there is need of antidepressants. Effect of curcumin has been explored by doing trials on humans and animals. Preclinical work has been reported potent role of curcumin in autism spectrum disorder, post-traumatic stress disorder. Curcuminoids extracted from plant *Curcuma longa* mainly have three active components, namely curcumin, desmethoxycurcumin and bisdemethoxycurcumin. Among them the principal active therapeutic compound is curcumin. Besides being used as a food supplements curcumin has also displayed widespread biological and pharmacological features such as anti-inflammatory action, anti-carcinogenic and anti-microbial properties antioxidant and neuroprotective properties.

Methodology

Curcumin can be extracted from turmeric plant by using various traditional method such as Sonication, Soxhlet extraction, maceration, and solvent extraction and also by modern extraction technologies like ultrasound, microwaves, enzymes, and supercritical liquids. Extraction can be done by grinding raw material into powder then wash it with suitable solvent.

Result and Discussion

Curcumin is a polyphenol with anti-inflammatory properties and the ability to increase the number of antioxidants that the body produces. Extraction can be done by grinding raw material into powder then wash it with suitable solvent.

Conclusion

Chemical present in plants like curcumin plays a vital role in curing depression and several diseases. Curcumin extracted from turmeric act as antidepressant.

Keywords: Curcumin, *Curcuma longa*, neurotransmitters, pharmacological, antidepressant, serotonin, dopamine, noradrenaline, dysregulated inflammation.

□□□

***In-silico* drug-drug and drug target predication of Doxorubicin and Cyclophosphamide with HER2 protein involved in Breast Cancer**

Sugandha Kumari, Ritu Jangid

Department of Science, Biyani Girls College Jaipur, India

Abstract

Cancer, a complex array of diseases characterized by abnormal cellular growth, manifests in various organs. In India, breast cancer stands as one of the prevalent malignancies, originating within milk ducts and exhibiting heterogeneous features. Understanding the diverse clinical and molecular subtypes of breast cancer is imperative for unravelling intricate cellular signalling pathways, cross-talk mechanisms, and factors influencing proliferation, survival, migration, and invasion. This knowledge facilitates the identification of new molecular drug targets. Particularly, the breast cancer subtype characterized by overexpression and amplification of human growth factor 2 (HER2) presents clinical aggressiveness, but prognosis has markedly improved with the introduction of anti-HER2 targeted therapy.

Methodology

Molecular docking is employed to model atomic-level interactions between small molecules and proteins by using the software Autodock Vina to predict the binding of small molecules and drug candidates to receptors. SWISS ADME is applied in drug discovery and medicinal chemistry contexts. Drug Lipinski's rule of five aids in predicting the likelihood of oral bioavailability for biologically active molecules.

Result

Both Doxorubicin and Cyclophosphamide exhibit optimal interactions with various receptors of the HER2 protein.

Conclusion

The predicted drug-target interactions of Doxorubicin and Cyclophosphamide with HER2 demonstrate promising outcomes. Considering these findings, a combined formulation of these drugs could be considered for the treatment of breast cancer. This research contributes insights into potential therapeutic strategies, emphasizing the importance of targeting HER2 in breast cancer treatment.

Keywords: HER2 -protein, breast cancer, doxorubicin, cyclophosphamide, *in silico*

□□□

Some Transition Metal Complexes Synthesis, Characterization, and Biological Screening

Suman Dhayal and Purnima Nag

Department of Chemistry, Jaipur National University, Jaipur, India, 302017

Abstract

The complexes of type $[MCl_2L_2]$ were formed by the interaction of zinc, nickel, cobalt, and copper chlorides with hydrazone ligands, which were derived from the interaction of methyl aromatic analogues with benzil monoxime hydrazone. The ligands were synthesized using a more environmentally friendly method, utilizing EtOH/AcOH instead of MeOH and concentrated H_2SO_4 . The newly synthesized complexes were characterized using elemental analysis, 1H -NMR, and IR spectroscopy. The spectra of the complexes were compared with that of the free ligands. The results of biological screening indicated that all of these compounds are biologically active, with the metal complexes exhibiting the best activity when compared to the ligands.

Keywords: benzil monoxime hydrazone, biological activity.

□□□

Unraveling the Tapestry of Cancer: A Comprehensive Exploration of Molecular Insights, Therapeutic Innovations, and Future Perspectives

Sunita Gangwani, Monika Saini

Biyani Girls College, Jaipur, India

Abstract

Cancer, characterized by uncontrolled cell growth and invasion, remains a major global health concern. Its complexity arises from a myriad of genetic and molecular alterations that drive tumorigenesis and progression. This study embarks on a journey to decipher the intricate molecular tapestry of cancer, with the overarching goal of shedding light on its underlying mechanisms and exploring novel therapeutic avenues. A nuanced understanding of cancer biology is essential for the development of effective and targeted treatments, personalized for the diverse manifestations of this heterogeneous disease.

Methodology

A multifaceted and integrative approach was adopted to unravel the complexities of cancer. The study commenced with an extensive review of current literature, providing a foundation in cancer biology. To delve deeper, advanced molecular techniques were employed, including genomic profiling, high-throughput sequencing, and bioinformatics analyses. These methodologies were applied across diverse cancer types, integrating data from clinical studies and cancer databases to ensure a holistic perspective. The synthesis of this information aimed to capture the dynamic interplay between genetic mutations, epigenetic modifications, and the intricate tumor microenvironment.

Results

The exploration uncovered the astounding heterogeneity intrinsic to cancer, with distinct genomic landscapes characterizing different types and subtypes. The identification of driver mutations and activation of oncogenic signaling pathways provided key insights into the initiation and progression of various cancers. Additionally, the tumor microenvironment emerged as a critical player, influencing disease aggressiveness and treatment response. Novel biomarkers with prognostic and predictive value were pinpointed, opening avenues for precision medicine approaches. The study also delved into the burgeoning field of immunotherapy, revealing the complex interplay between the immune system and cancer cells.

Discussion

The discussion section navigates through the implications of the identified molecular alterations, placing them within the broader context of cancer biology. The intricacies of the crosstalk between genetic mutations, epigenetic changes, and the dynamic tumor microenvironment are elucidated. Challenges in targeted therapies, such as the development of resistance, are examined alongside potential strategies to overcome these obstacles. The paradigm shift brought about by immunotherapy is explored in depth, discussing its successes, limitations, and the potential for combination therapies to enhance treatment efficacy.

Conclusion

In conclusion, this study contributes significantly to our understanding of the complex and dynamic nature of cancer. The identified molecular signatures and therapeutic targets pave the way for personalized and targeted treatment strategies, moving beyond the one-size-fits-all approach. The integration of immunotherapy represents a transformative milestone in cancer therapeutics, offering new hope for durable responses. Despite the challenges, the insights gained from this study lay the groundwork for future research endeavors and the continual evolution of innovative approaches to combat this formidable disease.

Keywords: Cancer heterogeneity, Genomic profiling, Precision medicine, Immunotherapy, Tumor microenvironment



Knowledge and Attitude Regarding Blood Donation among Undergraduate Students at selected College, Jaipur, Rajasthan

Surbhi Sharma, Priya Chauhan and Sheela

Department of Nursing, Biyani Institute of Science & management, Jaipur-302039, Rajasthan

Abstract

Blood is an important part of human body .Blood maintains the vitality and physiology of human body organs. Blood transfusion is the process of transfusing whole blood or its any component in a receiver which is obtained from a compatible donor. The indications for blood transfusion include restoration of oxygen level, replenishing the loss of any of the blood component (Plasma, RBC or Platelets etc.) Voluntary blood donors are the only source of blood in current scenario. The demand for blood transfusion is high so there is an urge to make people aware regarding blood donation to

meet the blood supply. Young students can be the active source as a blood donor so they need to be educated. This study was aimed to assess the knowledge and attitude of under graduating students regarding blood donation.

Methodology

A quantitative research approach was adopted for this study. A descriptive cross sectional research design was selected .Non probability Convenient sampling was used .125 students participated in the study. The data was obtained using a demographic and structured questionnaire which has questions related to knowledge and attitude.

Result

Majority of students 88%(110)were in the age group of 18-20 years,64% (80)of them were doing B.Sc.,76%(95) were Hindus and 79%(99) had no previous information regarding blood donation.35.2%(44) participants had adequate knowledge whereas 64.8% (81) had inadequate knowledge about blood donation .Majority of them were unaware about the age of blood donation 86.4%(108) 89(71.2%) respondents did not know the weight for blood donation. The mean \pm SD knowledge score of the undergraduate students was 23.5 ± 4.5 .105(84%) students had positive attitude regarding blood donation and remaining 15 (12%) were having negative attitude regarding blood donation 5(4%) were neutral about blood donation. Approximately 100(80%) of the participants believed that is our moral responsibility to donate blood to save human kind and 88(88%) of them were willing to donate blood in future.

Conclusion

Age is an important factor to enhance the practice of blood donation. The study revealed a positive attitude of the under graduating students so Targeted strategies ought to be developed in order to increase the awareness of students about blood donation. Strategies to enhance blood donation should be made.

Keywords: Blood Donation, Undergraduate students, Knowledge, Attitude



Advancements in Graphene Semiconductor Technology: A Comprehensive Review

Vansh Khandelwal¹, Chandramani Goswami^{2*}

¹*Department of Electronics and Communication Engineering, School of Engineering and Technology, JECRC University, Jaipur, India*

²*Department of Mechanical Engineering, School of Engineering and Technology, JECRC University, Jaipur, India*

Abstract

Graphene, an intriguing carbon allotrope with a two-dimensional structure, has emerged as a material poised for significant transformation within the realm of semiconductor technology. This extensive literature review aims to meticulously examine the latest advancements, challenges, and potential applications of graphene in its capacity as a semiconductor. Leveraging its distinctive electronic characteristics, remarkable thermal conductivity, and robust mechanical qualities, graphene holds immense promise for transformative breakthroughs in the semiconductor sector. The article initiates with a comprehensive analysis of the inherent characteristics of graphene that position it as an exceptionally promising material for semiconductor applications. Noteworthy attributes encompass high carrier mobility, the absence of a bandgap, and remarkable thermal conductivity, setting it apart from conventional semiconductors. Various synthesis techniques, such as chemical vapor deposition (CVD), liquid-phase exfoliation, and chemical reduction, are explored in detail, underscoring their significance in tailoring graphene properties for specific applications.

The establishment of a bandgap stands as a pivotal element in graphene semiconductor research, crucial for enabling the utilization of transistors. The article meticulously examines different approaches, including chemical functionalization, strain engineering, and the development of graphene-based heterostructures. These methodologies play a paramount role in expanding the applicability of graphene in the realm of electronic devices. The study delves into the diverse applications of graphene semiconductors across a spectrum of electronic devices, including transistors, sensors, and memory devices. Graphene's remarkable electrical performance facilitates the development of high-speed and energy-efficient electronic components, laying the foundation for next-generation semiconductor devices.

Despite the favorable attributes of graphene, obstacles necessitate resolution for pragmatic deployment. The paper conducts a comprehensive analysis of challenges related to large-scale manufacturing uniformity, doping control, and integration compatibility with established semiconductor technologies. Detailed discussions on strategies to address these problems, including functionalization techniques and interface engineering, are provided. The paper further explores prospective applications of graphene semiconductors in emerging domains such as optoelectronics

and quantum computing, expanding beyond traditional electronic applications. The unique optical and quantum characteristics exhibited by graphene present novel opportunities for cutting-edge electronics with unparalleled performance.

The analysis concludes by providing an overview of potential future paths and research prospects within the field of graphene semiconductors. Emphasizing the importance of ongoing investigation into innovative synthesis techniques, meticulous manipulation of electrical characteristics, and the seamless incorporation of graphene into established semiconductor fabrication practices. In conclusion, this comprehensive scholarly article offers an in-depth analysis of the progress, challenges, and potential applications of graphene semiconductor technology. The work contributes to a more comprehensive understanding of graphene's impact on the future of semiconductor devices by examining its fundamental features, production techniques, bandgap engineering, and diverse applications.

Keywords: Graphene semiconductor, Two-dimensional structure, Electronic characteristics, Semiconductor applications, Bandgap engineering, Emerging applications



Pharmacological and Biochemical Investigations of Medicinal Plant *Tribulus terrestris*

Varsha Sharma¹, Poonam Meena² and Sapana Khandelwal³

^{1,2}*Department of Botany, University of Rajasthan, Jaipur*

³*S. S. Jain Subodh PG Mahila Mahavidyalaya, Jaipur*

Abstract

Medicinal plants have long been recognized for their therapeutic benefits as they are a rich source of bioactive compounds. Plants are a powerful source of phytomedicines. Plant metabolites can be derived chemically from any portion of the plant. Medicinal plants possess diverse therapeutic capabilities that are primarily attributed to the synthesis of their secondary products. The ongoing search for novel chemicals with the ability to combat germs that are resistant to many antibiotics is reflected in plant extracts. Plant extracts are a result of ongoing research into novel substances that may be able to combat germs that are resistant to many antibiotics. In this aspect, *Tribulus terrestris* an important plant of family Zygophyllaceae will be used for the phytochemical and biochemical investigations. This plant is used to treat a variety of diseases in different traditional medical systems. This plant has been known to possess many pharmaceutical properties such as antihelminthic, hepatoprotective, nephroprotective, wound healing, insecticidal, antitubercular,

anti-inflammatory, antioitrogenic, antimicrobial, antioxidant, anticancer, cardiovascular, hepatoprotective, anti-ulcer, diuretic, antiurolithiatic etc.

Methodology

The above selected plant will be evaluated for primary as well as secondary metabolites by using different qualitative and quantitative methods. Isolation of various primary and secondary metabolites will be carried out using various protocols like Lowery's method, Folch method, phenol sulphuric acid method, Singleton method, Fazel method and many more. Screening of plants for possible biochemical estimation will be done using crude extracts of different parts.

Result and Discussion

All of the studied extracts and fractions contain sugars, lipids, proteins, saponins, tannins, flavonoids, and alkaloids, according to the results of the phytochemical examination.

Conclusion

These results indicated the use of *Tribulus terrestris* to treat infections with emphasis on isolating and characterising the active principle responsible for antibacterial, antifungal and cytotoxic activities and its exploitation as therapeutic agents.

Keywords: Phytochemicals, antihelminthic, hepatoprotective, anti-inflammatory, secondary metabolites.



Elucidating the Anticancer efficacy of *Carica papaya* leaf extracts: A comprehensive study on their therapeutic potential in Breast cancer treatment

Vasundhara Kanwar and Ritu Jangid

Department of Science, Biyani Girls College Jaipur, India

Abstract

Cancer a leading cause of global mortality, demands innovative therapeutic approaches to mitigate its devastating impact. Breast cancer, specifically, affects millions annually, necessitating novel adjunct therapies to enhance efficacy and reduce side effects. *Carica papaya*, a traditionally revered medicinal plant, emerges as a promising candidate for such therapeutic intervention. This study delves into the potential anticancer activity of *Carica papaya* leaves, aiming to contribute valuable

insights into their application in breast cancer treatment. The prevalence and mortality rates of breast cancer underscore the urgency for novel treatments. Papaya leaf extracts, known for their nutritional richness and folk medicinal use, offer a compelling avenue for investigation. This research explores the antioxidative potential of papaya extracts, evaluating total polyphenol and flavonoid content, along with antioxidation capacity. Notably, the seeds and leaves exhibit superior antioxidative potential compared to skin and pulp fractions. In assessing the impact on breast cancer cell lines, methanol- and ethanol extracts demonstrate minimal effect, while water extracts of leaves and seeds exhibit modest cytotoxicity, particularly against estrogen receptor (ER)-negative cell lines. This implies the presence of bioactive compounds in papaya leaves, particularly in methanolic extracts, with the potential for development into anti-cancer agents targeting ER-negative breast cancer. The comprehensive medicinal value of *Carica papaya*, acknowledged throughout history, positions it as a noteworthy nutraceutical. As global cancer burdens escalate, the significance of exploring alternative therapies becomes paramount. This study, by shedding light on the anticancer properties of *Carica papaya* leaves, aims to serve as a foundation for further research and development in the pursuit of effective treatments for breast cancer.

Keywords: *Carica papaya* leaves, Anticancer, Breast cancer, Antioxidants, Polyphenols.



Awareness and attitude about basic life support among school teachers in Jaipur, Rajasthan: A cross-sectional study

Vidhi Sharma and Rakesh Sharma

Department of Nursing, Biyani Institute of Science & Management, Jaipur-302039, Rajasthan

Abstract

Cardiac arrest is one of the most common and emerging public health issues worldwide. It is the sudden cessation of cardiac activity in which the victim becomes unresponsive with no circulation and no breathing. Early Cardiopulmonary Resuscitation (CPR) may reverse the cardiac arrest. 33% of the client required Cardiopulmonary Resuscitation (CPR) before reaching to the hospital. Therefore, many countries have been made Basic Life support training mandatory for teachers and students and other public workers. Schools are one of the best and suitable place to teach Basic Life Support, and in order to evaluate the effectiveness and quality of teaching and learning, it is important to gauge teacher performance and skill development. This study sought to measure how well the awareness programme on basic life support training programme was working with school teachers. Particularly in remote areas where there is no immediate medical care, Children frequently require emergency assistance. There is an urge to answer questions such as when BLS should be

considered and how a school teacher should handle a cardiac arrest. Another question was that –“Who will teach BLS in Schools”? A good basic life support (BLS) knowledge and skills are required for a school teacher. There are multiple reasons why teachers are unable to provide BLS such as out-dated skills and knowledge. As a result, this study was conducted to determine existing knowledge, skill and attitude, skills BLS.

Methodology

A quantitative cross sectional study was conducted among school teachers. A total of 60 participants were selected using a non-probability purposive sampling technique to evaluate the effectiveness of awareness programme on knowledge and attitude of teachers regarding Basic Life Support. The pretest was assessed before the intervention and the post-test assessment was done on 5th day. The data was gathered after obtaining formal written consent from the respondents and distributing participant information sheets to each subject.

Result

On assessment, the majority of participants were female 55 (92%), married 30 (70%) and aged between 41-50 years 30(50%). Of the 30(50%) graduates, teaching experience varied from 6 to 10 years 22 (36%). Majority of teachers were Hindus 24(60%) and don't have previous knowledge 36(60%). There was a correlation between knowledge score and gender, experience, educational status and prior knowledge. Before the intervention the majority of participants had poor knowledge 32(53.33%). Posttest improved good knowledge 52(86.66%). Similarly, in pretest, most of the participants had a negative attitude 33(55%), moderate knowledge 8(13.33%), after intervention, most of them 44(73.33%) had good knowledge. The mean knowledge score of the respondents on pretest was 16.93 whereas the mean knowledge score of posttest was 22.6. There was a significant difference in the knowledge score of pretest and posttest at $p < 0.01$ level. Hence educational programme on Basic Life support provides pertinent information and was found effective.

Conclusion

Basic life support is the most effective intervention in prevention of complications due to cardiac deaths. For school teachers it is important get equipped with guidelines of performing measures of Basic Life Support i.e CPR. Most of the school teachers improved their knowledge and attitude after the intervention.

Keywords: Knowledge, Attitude, Basic Life Support, School Teachers, Cardio Pulmonary Resuscitation



Breast Cancer Transcriptional Regulatory Network Reprogramming by using the CRISPR/Cas9 system: An Ontogenetic Perspective

Vikas Pandey and Desh Deepak Singh

Amity Institute of Biotechnology, Amity University Rajasthan, Jaipur, India

Abstract

Breast cancer (BC) is the second most commonly diagnosed cancer in the world. BC develops due to deregulation of transcriptional profiles, substantial interpatient variations, genetic mutations, and deregulation of signaling pathways in breast cells.

Methodology

CRISPR/Cas9 recently received a profound attention due to its potential in biomedical and therapeutic applications. Here, we review *the role* of various molecular signalling pathways dysregulated in BC development such as PTEN/PI3K/AKT/mTOR as well as BRCA1/BRCA2/TP53/TERT and their interplay between the related gene networks in BC initiation, progression and development of resistance against available targeted therapeutic agents.

Result and Discussion

This study presents a comprehensive overview and functional interplay among PTEN, PI3K, AKT, mTOR, BRCA1/2, TP53, and TERT genes in BC [29,30] Various reports have shown that a number of genes can influence BC fate and disease states either due to their mutational status or their capacity to regulate the associated gene regulatory networks. Therefore, targeting genetic mutations and *gene* networks involved in complex signaling pathways associated with the BC, by CRISPR/Cas9 technique *could present a novel strategy* to design therapeutic rationale to treat BC.

Conclusions

We compiled the potential therapeutic application of CRISPR/Cas9 target for TNBC genes. Mainly, we discussed major target genes, which are actively involved in tumor progression and TNBC drug resistance mechanism.

Keywords: Triple-negative breast cancer, CRISPR/Cas9, tumorigenesis, transcription factor, anti-cancer drug resistance.



Structural Properties of Ni Thin Films deposited on to Self-assembled polystyrene nanosphere

Yogesh Kumar¹, Radhika Maheshwari¹ J. Tripathi³ and A. Sharma²

¹*Dept. of Science, Biyani Girls College, India*

²*Dept. of Physics, Manipal University Jaipur, India*

³*Dept. of Physics, ISLE, IPS Academy, Indore, India*

Abstract

In this paper we report the structural properties of Ni nanocaps prepared by using as a function of thickness. These films were deposited by Electron beam evaporation technique on PS (Polystyrene) nanospheres (800nm diameter) coated Si (100) substrate. For a comparative study, the film was also deposited on plane Si substrate. Grazing incident X-ray diffraction (GI-XRD). Roughness and thickness of thin films were calculated using X-ray reflectivity (XRR) measurement. XRR oscillations changes with film thickness and their amplitude decreases.

Keywords: GI-XRD; XRR; Polystyrene nanosphere.

□□□

Performance evaluation of CETP (Common Effluent Treatment Plant) of Bhiwadi and its impact on environment

Indu Rawat¹ and Dr. Rashmi Sharma²

¹*Research Scholar, S.P.C.G.C.A., Ajmer, India;* ²*Supervisor, S.P.C.G.C.A., Ajmer, India*

Abstract

CETP was promoted by the MoEF (Ministry of Environment and Forests) in 1984 for the purpose of waste-water treatment. There are 14 CETPs in Rajasthan. Rapid industrialization and the addition of domestic waste water in Bhiwadi have led to a significant increase in the volume of waste water discharged from the region which can be hazardous to the environment if not treated properly. 9 MLD CETP with modernization of the advanced technology and the plant will have treatment consisting of physical, chemical and biological conventional filtration and tertiary treatment units with sludge handling infrastructure. The permissible standard for various parameters are to be ensure by the industry before sending the effluent to the CETP. The latest technology ZLD (Zero

liquid discharge) CETP plant has been set up in Bhiwadi, polluted water will be recycled. Plant cost is 174 crores and is going to start in this year.

Keywords : CETP, Treatment, Plant, Parameters, Water



Anti-Cancerous Property of *Ocimum sanctum* : Higher concentration of Eugenol have been shown to have Anti-Cancerous Property

Sonakshi Das, Kratika Dadhich, Deepa Choudhary

Biyani Girls College, Jaipur, India

Abstract

In most cases, cancer develops due to abnormal cell growth and subsequent tumor formation. There are 30 natural compounds under clinical trials for the treatment of cancer. *Ocimum sanctum* commonly known as Tulsi or Holy Basil of the genus *Ocimum*, is one of the most widely available and effective medicinal plant in India and South East Asia. The Anti-cancer effect of Tulsi have earned the Title of “Queen of Herbs” in Ayurvedic Treatment. Herbal medicine, the backbone of traditional medicine in many countries have played an Important role in curing the diseases of humans since ancient times. Bioactive compounds of *Ocimum sanctum* responsible for its various-various medicinal properties and their effect at the molecular level needs to be investigated in more details. Scientific studies have shown it to possess anti-inflammatory, analgesic, antipyretic, anti-diabetic, hepatoprotective, hypolipidemic, anti-stress and immunomodulatory activities. Preclinical studies have shown that Tulsi and some of its phytochemical eugenol, rosmarinic acid, apigenin, myricetin, luteolin, β -sitosterol, and carnolic acid prevented chemical induced skin, liver, oral, lung cancer and to mediate these effects by increasing the antioxidant activity, altering the gene expressions inducing apoptosis and inhibiting angiogenesis and metastasis. *Ocimum sanctum* has a variety of biological/pharmacological activities such as Antibacterial, antiviral, anti-fungal, antiprotozoal, anti-allergic, antihypertensive, cardio protective, central nervous system depressant, memory enhancer antihypercholesterolaemic, hepatoprotective, anti-diabetic, anti-asthmatic, anti-thyroidic, antioxidant, anticancer, chemopreventive, radioprotective, immunomodulatory, antifertility, antiulcer, anticataract, antileucodermal and anticoagulant activities.

Methodology:

The aqueous extracts of Tulsi and its flavonoids, orion, and vicenin are shown to protect mice against γ - radiations induced sickness and mortality and to selectivity protect the normal issues against the tumoricidal effects of radiations. Leaves and flowering tops are used for extracting essential oils. Since Ayurvedic Times, various parts such as leaves, roots, seeds and whole plant recommended for treatment of a spectrum of diseases. Aqueous extracts of Tulsi plant by using methods like Hypo-distillation by using Clevenger type apparatus, sonication extraction method, steam distillation and ultra-sonic extractions.

Result and Discussions:

The aqueous extract of *Ocimum sanctum* leaves exhibited significant cytotoxic effect against Cancer cell line. This will not only kill the cancerous cell from the body but also detox the body from toxins and tumor cells and it also has anti-fungal property.

Conclusion:

Tulsi is referred to as the “Elixir of Life” based on various nutraceutical and pharmaceutical activities of tulsi as a whole or its parts, specially its leaves, against a wide range of diseases. The two main natural sources of eugenol are clove and cinnamon, but commercial level extraction of eugenol is quite expensive and requires lengthy cultivation times; hence, tulsi can be an affordable alternative that would be used in place of cinnamon and clove.

Keywords : *Ocimum Sanctum*, Eugenol, Anti-cancer, Tulsi, Cancer.

References:

1. Pharmacological evaluation of *Ocimum sanctum* N Bano, A Ahmed, M Tanveer, GM Khan, MT Ansari J Bioequiv Availab 9 (3), 387-92, 2017
2. Pharmacological activities of *Ocimum sanctum* (tulsi): A review Govind Pandey, S Madhuri Int J Pharm Sci Rev Res 5(1), 61-66, 2010
3. *Ocimum sanctum* Linn.(Tulsi) : an ethnomedicinal plant for the prevention and treatment of cancer Piyali Bhattacharyya, Anupam Bishayee Anti-cancer drugs 24 (7), 659-666, 2013
4. An Update on the Therapeutic Anticancer Potential of *Ocimum sanctum* L.: “Elixir of Life” Mohammad Raghiful Hassan, Bader Saud Alotaibi, Ziyad Mohammed Althafar, Molecules 28 (3), 1193, 2023
5. *Ocimum sanctum*: a review on pharmacological properties M Siva, KR Shanmugam, B Shanmugam, SG Venkata, S Ravi, RK Sathyavelu, K Mallikarjuna Int. J. Basic Clin. Pharmacol 5, 558-565, 2013



Green synthesis of Nanoparticles by different methods

Kavita Rajpurohit

Research scholar, Jaipur national University, Jaipur

Introduction:

Nanomaterials are building blocks for numerous nanotechnological devices. Some decades ago NMs word would have puzzled scientists regardless of the fact that in the nature NMs always existed. The term “nanomaterials” indicates particles having sizes in the range 1 to 100 nm, with at least one in out of three dimensions. The chemical and physical properties of molecules or atoms change in NMs state, than corresponding materials in bulk. NMs possess higher surface area and also exhibit quantum effects due to its very small size. Therefore, the unique properties of NMs cannot be predicted by comparing it with the bulk material.

Nanoparticles exist in the natural world and are also created as a result of human activities. Because of their submicroscopic size, they have unique material characteristics, and manufactured nanoparticles may find practical applications in a variety of areas, including medicine, engineering, catalysis, and environmental remediation.

Green synthesis of nanoparticles refers to the synthesis of different metal nanoparticles using bioactive agents such as plant materials, microorganisms, and various biowastes including vegetable waste, fruit peel waste, eggshell, agricultural waste, and so on.

Nanoparticles can be classified into any of various types, according to their size, shape, and material properties.

Classification of nanoparticles:

1. Carbon based nanoparticles: Due to the unique catenation property, carbon can form covalent bonds with other carbons in different hybridization states such as Sp , Sp^2 , and Sp^3 in order to form a variety of structures of small molecules and longer chains. Carbon-based nanoparticles are found in morphological forms such as ellipsoids, hollow tubes, or spheres. Graphene (Gr), carbon nanotubes (CNTs), Fullerenes (C_{60}), carbon nanofibers, carbon black are the different categories of carbon-based nanomaterials.

2. Inorganic based nanoparticles: These nanomaterials include metal-based nanoparticles, metal oxide/hydroxide nanoparticles, and transition metal chalcogenide (TMC) nanoparticles. These nanomaterials can be synthesized into metals like Ag, Au, Fe nanoparticles, and metal oxides such as ZnO , TiO_2 , and Fe_3O_4 , CeO_2 .

3. Organic based nanoparticles: These nanoparticles are made mostly from organic matter, aside from inorganic-based or carbon-based nanomaterials. The use of noncovalent interactions for self-assembling and molecular designing helps to transform the organic nanomaterials into coveted structures such as micelles, dendrimers, ferritin, micelles, compact polymers, and liposomes nanoparticles. These types of nanomaterials are usually biodegradable and nontoxic, and, therefore, considered environmentally friendly materials.

4. Composite nanoparticles:

Composite nanoparticles are defined as the nanomaterials with composite structure which are constituted by two or more components of nanoscale with special physical and chemical properties. Nanorods and nanofibers are the examples of **Composite nanoparticles**.

Industrial Uses of nanoparticles:

Nanomaterials can be utilized in the agriculture and food industries as nanoformulations for crop improvement, in crop protection for the identification of diseases, nanodevices for the genetic manipulation of plants, plant disease diagnostics, etc.

Nanoencapsulation displays the advantage of more efficient use and safer handling of pesticides, fertilizers, and vaccines with less exposure to the environment that guarantees eco-protection.

It can be applied to all aspects of the food sector including agriculture, food processing, food packaging, and supplements.

Introduction of nanotechnology in food packaging sector has significantly addressed the food quality, safety and stability concerns.

Additionally, nanotechnology has been explored for controlled release of preservatives/antimicrobials, extending the product shelf life within the package. The promising reports for nanotechnology interventions in food packaging have established this as an independent priority research area. Nanoparticles based food packages offer improved barrier and mechanical properties, along with food preservation and have gained welcoming response from market and end users.

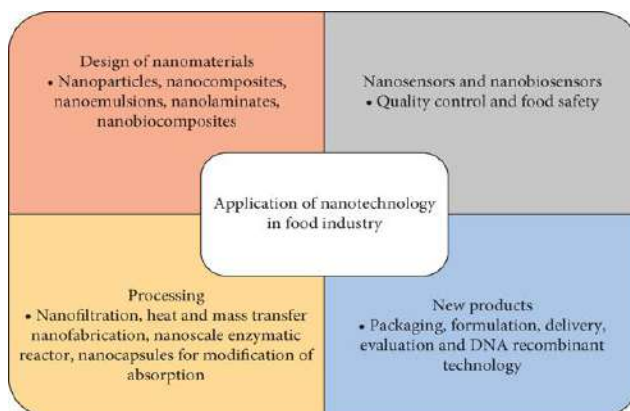


Fig 1. Application of nanotechnology in food industry

Nanoparticles have many uses in industrial level but this work will be focused on preparation of food packaging material by the use of nanoparticles.

Literature Review:

Green synthesis of magnesium oxide nanoparticles and its applications by S. Abinaya, Helen P *et al.* in 2020 who came to the conclusion that Green synthesis approaches are gaining the attention of researchers and they follow a less hazardous process to obtain nanoparticles [11].

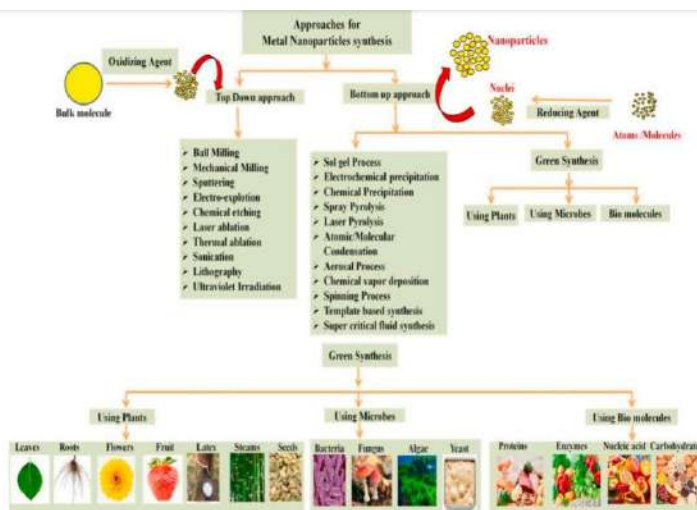


Fig. 2. Flow chart showing synthesis of metal oxide nanoparticles by using various sources

Green synthesis of ZnO nanoparticles from *Syzygium Cumini* leaves extract with robust photocatalysis applications was given by Hamad Sadiq, Farooq Sher *et al.* in 2021 who came to the conclusion that for better upcoming nanotechnology, biosynthesis and green synthetic method should be used for the synthesis of nanoparticles by saving the environment to avoid the use of dangerous chemical reducing agents and organic solvents.



Fig 3 : Preparation scheme of ZnO Nanoparticles from *Syzygium cumini* leaves

Preparation, properties, and biomedical applications of bimetallic nanoparticles was reported by Hamid Tayefi Nasrabadi *et al.* in 2016. They concluded that Au – Ag NPs are prepared by *S. mahogany Jacq* Leaves. One of the biological synthesis methods for Au–Ag NPs is by using the leaf

extract of *S. mahogani* Jacq. The role of the leaf extract is reduction and stabilization of Au and Ag for the quick arrangement of stable metal NPs with different compositions, shapes, sizes, and also with high monodispersities. Au/Ag BMNPs produced by this technique have prospect for biomedical applications in the future.

Metal Oxide Nanostructures: Synthesis, Properties, and Applications by Lin-Hua Xu, Dnyaneshwar S. Patil, *et al.* in 2015 who came to the conclusion that antimicrobial effectiveness of metal oxide nanoparticles is highly dependent on morphology as a result of the synthesis method. Solution casting and electrospinning are innovative methods applied to synthesize metal oxide incorporated biopolymer films for active packaging with improved mechanical and barrier properties combined with active components (antimicrobial, ethylene scavenging).

Green synthesis of metals and their oxide nanoparticles: application for environmental remediation by Jagpreet Singh, Tanushree Dutta *et al.* in 2018 came to the conclusion that green synthesis is regarded as an important tool to reduce the destructive effects associated with the traditional methods of synthesis for NPs commonly utilized in laboratory and industry.

Metal based nanoparticles, sensor, and their multifaceted application in food packaging by Antul Kumar, Anuj Choudhary *et al.* in 2021 reported that M-NPs helps in the improvement of properties including freshness indicators, mechanical properties during food packaging.

Green synthesis of silver nanoparticles from *Tectona grandis* seed extract: characterization and mechanism of antimicrobial action on different microorganism by Akhil Rautela, Jyoti Rani *et al.* in 2019 who observed that the method proved to be very simple, cost-efficient, and convenient.

Green synthesis of silver nanoparticles and characterization of their inhibitory effects on AGEs formation using biophysical techniques by Jalaluddin M. Ashraf *et al.* in 2016 reported the inhibitory effects of AgNPs (silver nanoparticles) in AGEs formation.

Biogenic synthesis of bimetallic (Zn - Cu) nanoparticles by leaf extract of citrus limon and evaluation of its antibiofilm activity against *E. coli*. by Tooba, Vikas Shrivastava *et al.* in 2021 who came to the conclusion that synthesized bimetallic Zn-Cu nanoparticles using the greener route i.e. dry leaves powder of Citrus limon as it is environment-friendly, cost-effective, has a high surface area to volume ratio and hence superior over monometallic nanoparticles synthesized via physical or chemical approach [13].

Synthesis of Zinc Oxide nanoparticles by ecofriendly routes: Adsorbent for copper removal from wastewater by Julia de, Carla Bitten court *et al.* in 2020 synthesized Zinc Oxide nanoparticles by two simple routes using Aloe vera (green synthesis, route I) or Cassava starch (gelatinization, route II) [12].

Green synthesis of bimetallic ZnO-CuO nanoparticles and their cytotoxicity properties were discussed by Yan Cao, Hayder *et al.* in 2018. They reported that these NPs contained polygonal ZnO with hexagonal phase and spherical CuO NPs with monoclinic phase. The anticancer activity of the prepared bimetallic NPs was evaluated against lung and human melanoma cell lines based on MTT assay [7].

Visible light responsive, self activated bionano composite films with sustained antimicrobial activity for food packaging was identified and discussed by Yongsheng Ni, Shuo Shi, *et al.* in 2021. They concluded that the research on a new type of low-cost, less-loss and adjustable sustained antibacterial activity food packaging films with self-activation ability and great industrialization potentiality is of great scientific and technological interest. Herein, a novel chitosan/negatively charged graphitic carbon nitride self-activation bionano composite films was prepared by one-step electrostatic self-assembly. This film can effectively extend the shelf life of tangerines to 24 days. This work can provide a new pathway for the preparation of low-cost packaging films with excellent visible light responsive property and sustainable antibacterial activity [3].

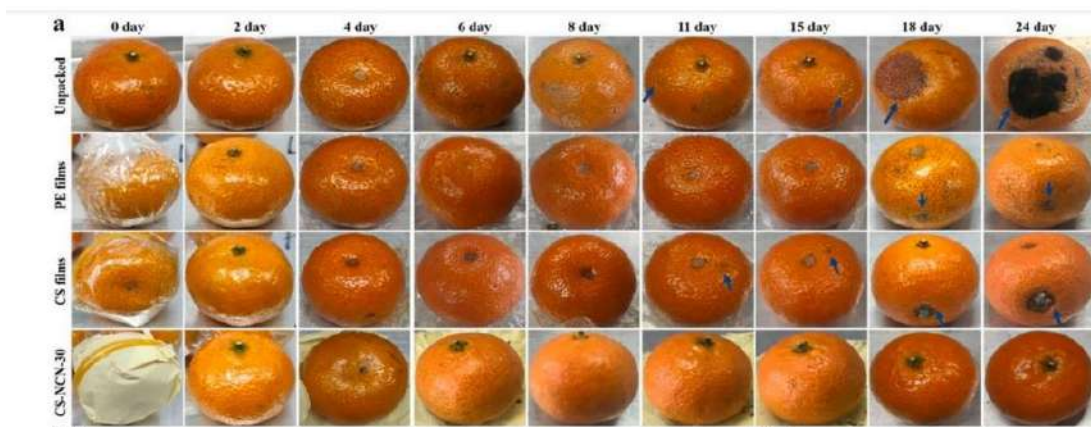


Fig 4: Experimental results for tangerine at different times with various treatment: unpacked, PE films, CS films and CS-NCN-30

Metal oxide nanoparticles for safe active and intelligent food packaging were reported by Maria Vesna Nikolic, Zorka *et al.* in 2019; who came to the conclusion that Bacterial contamination continues to be a crucial food safety issue. Smart packaging incorporates both active and intelligent components. Intrinsic antibacterial activity, oxygen and ethylene scavenging (active) and the sensing (intelligent) properties of metal oxide nanoparticles are in research focus for application in smart food packaging, especially bio-nanocomposite films. zinc oxide and titanium oxide are metal oxide most commonly used as antimicrobial agents especially in active food packaging [5].

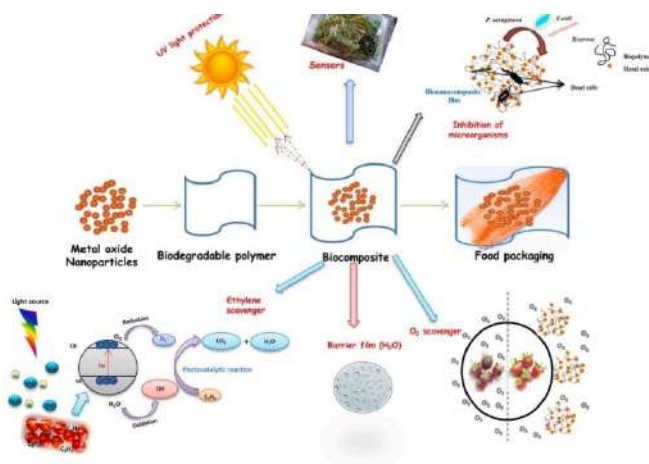


Fig 5: Schematic representation of the preparation of smart food packaging using metal oxide NPs as coating or incorporated in a biodegradable polymer and its application in the inhibition of microorganism, UV light protection, barrier, Oxygen and ethylene scavenging and sensing.

Enhanced structural, electrical, mechanical properties and antibacterial activity of Cs/PEO doped mixed nanoparticles (Ag/TiO₂) for food packaging applications was reported by M.M. Abutalib *et al.* in 2020 who came to the conclusion that the method is eco-friendly, cheap, and can produce Ag NPs at room temperature. The solution casting technique was used for preparing polymer blend doped with Ag/TiO₂ NPs films. A higher amorphicity of the doped polymer blend films was observed through the XRD analysis. The surface plasmon resonance of green synthesized silver nanoparticles (at 430 nm) was proved via UV–Vis spectral studies and the average size of the particle was substantiated by TEM analysis [1].

Steps of formation of Nanoparticles -

1. Synthesis of plant extract
2. Synthesis of metallic nanoparticles
3. Characterization of NPs
4. Synthesis of biodegradable film with metal based nanoparticles
5. Characterization of biodegradable-NPs film
6. Measurement of shelf life of fruit:

1. Preparation of plant part (leaves, root, stem, flower) extract :

Fresh plant part (leaves, root, stem, flower etc.) will be weighed and will be washed with distilled water. Plant part (leaves, root, stem, flower etc.) will ground in mortar and will be mixed with distilled water and then will be boiled. The solution will be filtered using Whatman filter paper and clear aqueous extract will be obtained.

2. Synthesis of metallic nanoparticles:

A stock solution of metal salt having specified molar concentration will be prepared. The plant extract will be added to the boiled salt solution. The reaction mixture will be kept at 95 °C and stirred for 1 h and finally store at room temperature. After 24 h, the mixture will be centrifuged to separate the produced nanoparticles from the supernatant. The as-produced nano-particles will be dried in an oven at 80 °C and store for further use.

3. Characterization:

Characterization of nanoparticles will be carried out by following techniques:

(a) SEM analysis:

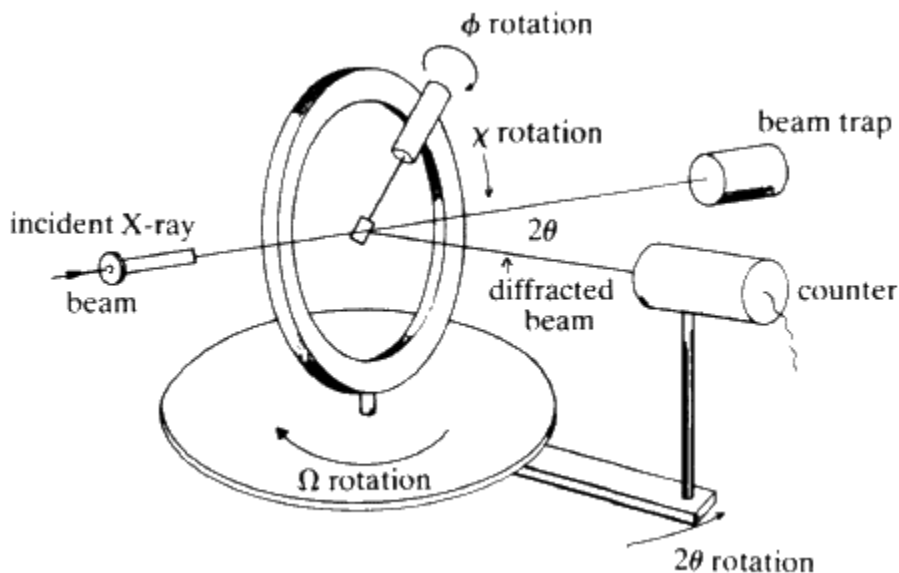


Fig 6 : diagram of SEM analysis

A scanning electron microscope (SEM) projects and scans a focused stream of electrons over a surface to create an image. The electrons in the beam interact with the sample, thereby producing various signals that can be used to obtain information about the surface's topography and composition.

The SEM images justify the structural and morphological behavior of the metallic nanoparticles. It was observed that the bimetallic copper–silver particles have semi-spherical agglomerated clusters (Zaleska-Medynska et al. 2016).

(b) XRD Analysis:

The X-ray diffraction patterns of the metallic nanoparticles consist of sharp peaks which indicated the crystallinity of the produced particles (Ibrahim 2015).

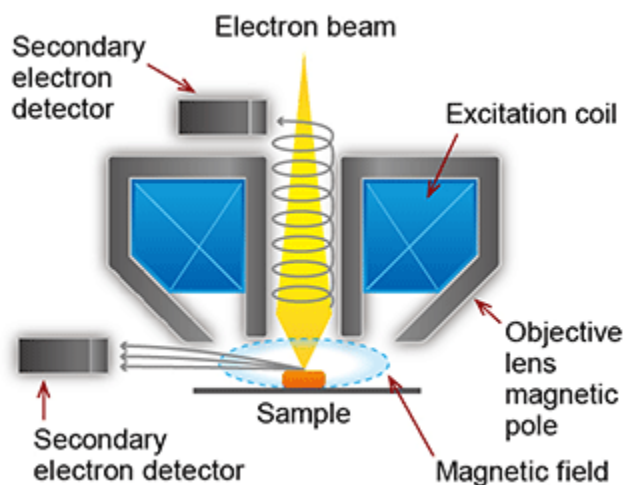


Fig 7 : Diagram of XRD analysis

(c) UV - Vis analysis:

UV-Vis spectroscopy is an analytical technique that measures the amount of discrete wavelengths of UV or visible light that are absorbed by or transmitted through a sample in comparison to a reference or blank sample.

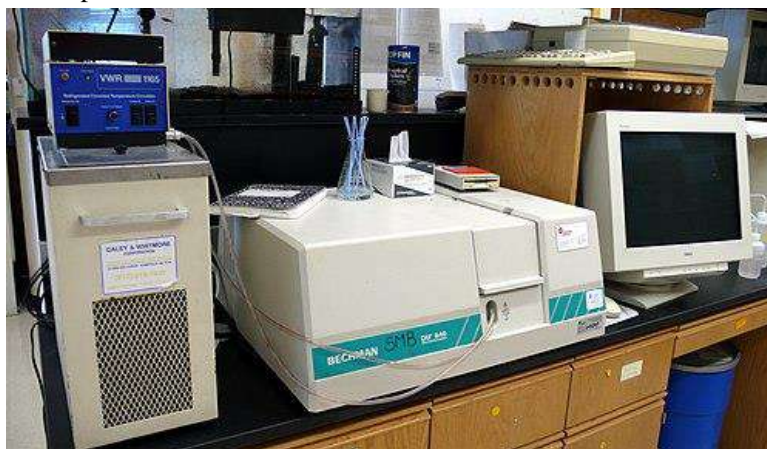


Fig 8 : UV-VIS spectroscopy instrument

(d) Atomic Force Microscopy (AFM): Atomic force microscopy is a scanning probe microscopy technique that can be used to probe and visualize the surface (and several other force-related quantities) of nanometer-sized or even atomic-sized objects. A sharp tip at the end of a cantilever is rastered across the surface of a sample, and the forces the cantilever experiences during the

measurement as a result of the interaction of the tip with the sample are recorded with the help of a laser beam reflected off the tip of the cantilever onto a photodiode array.

(e) Small-Angle X-Ray Scattering (SAXS) :

Small-angle X-ray scattering is a very versatile method for the characterization of nanomaterials. The sample is illuminated with X-rays and the scattered irradiation is registered by a detector at small angles, usually between 0.1° and 5° . Based on the intensity distribution of the scattered X-ray photons that are passing through the sample, information about particle size, size distribution, morphology, crystallinity, molecular weight, and agglomeration can be obtained.

(f) Dynamic Light Scattering (DLS):

Dynamic light scattering estimates the particle size from the Brownian diffusion of the particles in solution. DLS size estimation is based on the determination of the free diffusion coefficient of suspended particles. A laser is transmitted through a measurement cell containing the particle suspension, and the random thermal motion of the particles causes time-dependent fluctuations of the intensity of the scattered light.

4. Synthesis of biodegradable film with metal based nanoparticles:

For the preparation of film two methods are available:

1. Electrospinning process
2. Solvent casting process

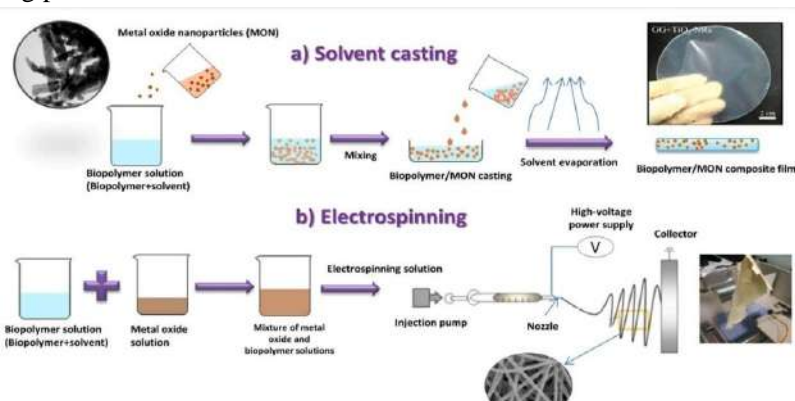


Fig 9 : Schematic diagram of solvent casting process and Electro-spinning process

But in this work we will use the solvent casting process because it is low cost process.

5. Characterization of biodegradable-NPs film

(a). FTIR analysis of bio nanocomposite films:

The pure CS films exhibited typical characteristic bands in the range of $3100\text{--}3500\text{ cm}^{-1}$, which was assigned to the characteristic O–H and N–H stretching vibrations of CS. But the peak intensity at the same range of its bionanocomposite films decrease because large number of hydroxyl groups in CS engaged in forming hydrogen bonds. There is a typical --NH_3^+ bending vibration (amide II) at 1620 cm^{-1} (Wu et al., 2019). Similarly, the peaks at 1637 , 1571 , 1404 , 1318 and 1238 cm^{-1} are

the characteristic stretching vibrations of C–N heterocycles and the peak at 814 cm^{-1} is the typical stretching vibration of triazine units of NCN (Sun et al., 2017). The characteristic peaks of CS (–NH₃ + peak at 1620 cm^{-1}) and NCN (–COO–peak of NCN at 1072 cm^{-1}) appeared in the all-prepared bio-nanocomposite (Wang et al., 2019), which demonstrated the successful fabrication of CS/NCN bionanocomposite films. The intensity of the two characteristic peaks in CS/NCN bionanocomposite films becomes weaker after adding the NCN. The above changes indicate that hydrogen bonds and electrostatic interactions appear in the CS/NCN bio-nanocomposite films (Tavares, Souza, Goncalves, & Rocha, 2021).

(b). XRD and thermal properties of bionanocomposite films:

The XRD patterns was used to confirm the successful fabrication of the bionanocomposite films. all spectra show the amorphous characteristic absorption peaks of CS at the range of 37° – 45° . The characteristic peaks of NCN can also be found at 17.5° and 27.37° (JCPDS 87–1526) in the spectrum of bionanocomposite films (Raha&Ahmaruzzaman, 2020), which demonstrate the successful fabrication of the CS-NCN. The intensity of characteristic absorption peak in XRD spectrum enhanced as the increase content of NCN from 20% to 40%. However, the enhancement of peak intensity was not obvious from CS-NCN-30 to CS-NCN-40, which also reflected that 30% may be the most appropriate addition.

6. Measurement of shelf life of fruit:

We will have different types of fruit and check their shelf life by biopolymer NPs film. Tangerine fruit at different times with various treatments: unpacked, PE films, CS films and CS-NCN-30. (Yongsheng Ni, Shuo Shi , Min Li , Liang Zhang 2021)

References:

1. M.M. Abutalib, A. Rajeh (2021). Enhanced structural, electrical, mechanical properties and antibacterial activity of Cs/PEO doped mixed nanoparticles (Ag/TiO₂) for food packaging applications Food Chemistry, 144(2), 145–156.
2. Cao, Y., Gu, W., Zhang, J., Chu, Y., Ye, X., Hu, Y., & Chen, J. (2013). Effects of chitosan, aqueous extract of ginger, onion and garlic on quality and shelf life of stewed-pork during refrigerated storage. Food Chemistry, 141(3), 1655–1660.
3. Yongsheng Ni, Shuo Shi, (2021). Visible light responsive, selfactivated bionanocomposite films with sustained antimicrobial activity for food packaging Food Packaging and Shelf Life, 26, 100551.
4. Hosseini, S. F., Rezaei, M., Zandi, M., & Farahmandghavi, F. (2016). Development of bioactive fish gelatin/chitosan nanoparticles composite films with antimicrobial properties. Food Chemistry, 194, 1266–1274.
5. Maria Vesna Nikolic, Zorka (2019). Metal oxide nanoparticles for safe active and intelligent food packaging 247, 124–132.
6. Li, Y. Q., Han, Q., Feng, J. L., Tian, W. L., & Mo, H. Z. (2014). Antibacterial characteristics and mechanisms of -poly-lysine against Escherichia coli and Staphylococcus aureus. Food Control, 43, 22–27.

7. Yan Cao, Hayder (2018) Green synthesis of bimetallic Zn-Cu nanoparticles and their cytotoxicity properties 87, 858–868.
8. Hamad Sadiq, Farooq Sher (2021) Green synthesis of ZnO nanoparticles from Syzygium Cumini leaves extract with robust photocatalysis applications International Journal of Biological Macromolecules, 129, 78–83.
9. Lin, W., Ni, Y., Liu, D., Yao, Y., & Pang, J. (2019b). Robust microfluidic construction of konjacglucomannan-based micro-films for active food packaging. International Journal of Biological Macromolecules, 137, 982–991.
10. Lin, W., Ni, Y., & Pang, J. (2019c). Microfluidic spinning of poly (methyl methacrylate)/ konjacglucomannan active food packaging films based on hydrophilic/hydrophobic strategy. Carbohydrate Polymers, 222, 114986. [carbpol.2019.114986](#).
11. S. Abinaya, Helen P. Kavitha (2021). Preparation of gelatin films incorporated with tea polyphenol nanoparticles for enhancing controlled-release antioxidant properties. Sustainable Chemistry and Pharmacy, 63(15), 3987–3995.
12. Julia de O. primo, Carla Bittencourt (2020) Synthesis of Zinc Oxide nanoparticles by ecofriendly routes: Adsorbent for copper removal from wastewater. Frontiers, 382, 122990.
13. Tooba, Vikas Shrivastava (2021). Biogenic synthesis of bimetallic (Zn - Cu) nanoparticles by leaf extract of citrus limon and evaluation of its antibiofilm activity against E. coli. 52, 732–740.
14. Min, T., Zhu, Z., Sun, X., Yuan, Z., Zha, J., & Wen, Y. (2019). Highly efficient antifogging and antibacterial food packaging film fabricated by novel quaternary ammonium chitosan composite. Biomedical and Pharmacology Journal, 14, 334–376.
15. Mohammadi, H., Kamkar, A., & Misaghi, A. (2018). Nanocomposite films based on CMC, okra mucilage and ZnO nanoparticles: Physico mechanical and antibacterial properties. Carbohydrate Polymers, 181, 351–357.
16. Mujtaba, M., Salaberria, A. M., Andres, M. A., Kaya, M., Gunyakti, A., & Labidi, J. (2017). Utilization of flax (*Linum usitatissimum*) cellulose nanocrystals as reinforcing material for chitosan films. International Journal of Biological Macromolecules, 104(PtA), 944–952.
17. Ni, Y., Lin, W., Mu, R.-J., Wu, C., Wang, L., Wu, D., ... Pang, J. (2018). Robust microfluidic construction of hybrid microfibers based on konjacglucomannan and their drug release performance. RSC Advances, 8(47), 26432–26439.
18. Ni, Y., Lin, W., Mu, R., Wu, C., Lin, Z., Chen, S.u., & Pang, J. (2019a). Facile fabrication of novel konjacglucomannan films with antibacterial properties via microfluidic spinning strategy. Carbohydrate Polymers, 208, 469–476.
19. Ni, Y., Lin, W., Mu, R.-J., Wang, L., Zhang, X., Wu, C., & Pang, J. (2019). Microfluidic fabrication of robust konjacglucomannan-based microfiber scaffolds with high antioxidant performance. Journal of Sol-Gel Science and Technology, 90(2), 214–220.
20. Ni, Y., Wang, R., Zhang, W., Shi, S., Zhu, W., Liu, M., ... Wang, J. (2021). Graphitic carbon nitride (g-C₃N₄)-based nanostructured materials for photodynamic inactivation: Synthesis, efficacy and mechanism. Chemical Engineering Journal, 404, Article 126528.

21. Pacheco, N., Naal-Ek, M. G., Ayora-Talavera, T., Shirai, K., Rom'an-Guerrero, A., Fabela-Moron, M. F., & Cuevas-Bernardino, J. C. (2019). Effect of bio-chemical chitosan and gallic acid into rheology and physicochemical properties of ternary edible films. *International Journal of Biological Macromolecules*, 125, 149–158.
22. Raha, S., & Ahmaruzzaman, M. (2020). Facile fabrication of g-C₃N₄ supported Fe₃O₄ nanoparticles/ZnO nanorods: A superlative visible light responsive architecture for express degradation of pantoprazole. *Chemical Engineering Journal*, 387, 123766.
23. Roy, S., & Rhim, J.-W. (2020b). Preparation of bioactive functional poly(lactic acid)/ curcumin composite film for food packaging application. *International Journal of Biological Macromolecules*, 162, 1780–1789.
24. Severo, C., Anjos, I., Souza, V. G. L., Canejo, J. P., Bronze, M. R., Fernando, A. L., ... Ribeiro, I. A. C. (2021). Development of cranberry extracts films for the enhancement of food packaging antimicrobial properties. *Food Packaging and Shelf Life*, 28, 100646.
25. Soni, B., Hassan, E. B., Schilling, M. W., & Mahmoud, B. (2016). Transparent bionanocomposite films based on chitosan and TEMPO-oxidized cellulose nanofibers with enhanced mechanical and barrier properties. *Carbohydrate Polymers*, 151, 779–789.
26. Sun, L., Du, T., Hu, C., Chen, J., Lu, J., Lu, Z., & Han, H. (2017). Antibacterial activity of graphene oxide/g-C₃N₄ composite through photocatalytic disinfection under visible light. *ACS Sustainable Chemistry & Engineering*, 5(10), 8693–8701.
27. Tavares, L., Souza, H. K. S., Gonçalves, M. P., & Rocha, C. M. R. (2021). Physicochemical and microstructural properties of composite edible film obtained by complex coacervation between chitosan and whey protein isolate. *Food Hydrocolloids*, 113, 106471.
28. Vilela, C., Pinto, R. J. B., Coelho, J., Domingues, M. R. M., Daina, S., Sadocco, P., ... Freire, C. S. R. (2017). Bioactive chitosan/ellagic acid films with UV-light protection for active food packaging. *Food Hydrocolloids*, 73, 120–128.
29. Wang, L., Dong, Y., Men, H., Tong, J., & Zhou, J. (2013). Preparation and characterization of active films based on chitosan incorporated tea polyphenols. *Food Hydrocolloids*, 32(1), 35–41.
30. Wang, R., Zhang, B., Liang, Z., He, Y., Wang, Z., Ma, X., ... Wang, J. (2019). Insights into rapid photodynamic inactivation mechanism of *Staphylococcus aureus* via rational design of multifunctional nitrogen-rich carbon-coated bismuth/cobalt nanoparticles. *Applied Catalysis B: Environmental*, 241, 167–177.
31. Wang, X., Maeda, K., Thomas, A., Takanabe, K., Xin, G., Carlsson, J. M., ... Antonietti, M. (2009). A metal-free polymeric photocatalyst for hydrogen production from water under visible light. *Nature Materials*, 8, 76–80.
32. Wang, X., Yong, H., Gao, L. i., Li, L., Jin, M., & Liu, J. (2019). Preparation and characterization of antioxidant and pH-sensitive films based on chitosan and black soybean seed coat extract. *Food Hydrocolloids*, 89, 56–66.

33. Wang, Z., Yao, X., Wang, R., Ji, Y., Yue, T., Sun, J., ... Zhang, D. (2019). Label-free strip sensor based on surface positively charged nitrogen-rich carbon nanoparticles for rapid detection of *Salmonella enteritidis*. *Biosensors and Bioelectronics*, 132, 360–367.
34. Wu, C., Sun, J., Zheng, P., Kang, X., Chen, M., Li, Y., ... Pang, J. (2019). Preparation of an intelligent film based on chitosan/oxidized chitin nanocrystals incorporating black rice bran anthocyanins for seafood spoilage monitoring. *Carbohydrate Polymers*, 222, 115006.



Synthesis and Characterizaion of silver nanoparticles using tea leaf extractand evaluation of their stability and antibacterial activity

Vishnu Kumar Khandelwal

JECRC University, Jaipur, Rajasthan, India

Corresponding Email: vishnusmec1974@gmail.com

Abstract

Using tea leaf extract, a straight forward, economical, and ecologically beneficial process for producing silver nanoparticles (AgNPs) has been established. We have investigated the effects of temperature, time, and dosage of tea extract on AgNP production. Silver nitrate and tea extract were used to create the AgNPs, and the reaction was allowed to run for two hours at room temperature. Transmission electron microscopy (TEM), X-ray diffraction (XRD), Fourier transform infrared spectroscopy (FT-IR), thermogravimetric analyzer, and zeta potential analyzer were used to evaluate the produced AgNPs. The synthesised AgNPs ranged in size from 20 to 90 nm and were almost spherical. The tea extract served as the reducing and capping agents on the AgNPs' surface, according to FT-IR spectrum analysis. Additionally, the analysis of the time-dependent release of silver ions from the tea extract-synthesised AgNPs demonstrated good stability. Furthermore, the growth curve and the Kirby-Bauer disk diffusion method were used to assess the antibacterial activity of AgNPs. When compared to *Escherichia coli*, the AgNPs made from tea extract had reduced antibacterial action because of their bigger size and decreased release of silver ions.

Methodology:

Synthesis of AgNPs by tea extract

The AgNP syn- thesis was reduced by using an extract from tea leaves. 100 mL of ultrapure water in a 250 mL Erlenmeyer flask was filled with 16 g of dried green tea leaves (Richun Tea Company, Fujian). After boiling for five minutes, the mixer was cooled, filtered, and the filtrate was kept as the stock solution at 4°C for one week. When tea extract was examined using a TOC analyzer (TOC-VCPH, Shimadzu, Japan), the total organic carbon (TOC) content was about 20 g/L.

Result and Discussion

Effect of the tea extract dosage

At 25°C, the effects of the tea extract's initial concentrations on the productivity of AgNPs were investigated. The working solution was the tea extract stock solution, which had been diluted to 1%, 5%, 10%, 25%, 50%, and 100% (v/v), with corresponding TOCs of 1.0, 2.0, 5.0, 10.1, and 20.2 g/L. The solution began to take on its characteristic brown color, which signaled the formation of AgNPs (SI Fig. S1). The total and silver ion concentrations were examined in order to comprehend the formation of AgNPs.

Temperature effect on AgNP synthesis

Using 5% (v/v) tea extract, the effects of temperature on the formation of AgNPs were investigated at 25, 40, and 55°C. A prior study using *Pulicaria glutinosa* extract to synthesize AgNP revealed that a higher temperature increased AgNP production [21]. Our findings demonstrated that the production efficiencies of AgNPs were unaffected significantly by temperature increases (data not shown). This discrepancy may have resulted from the fact that the production efficiencies in the current study were already 99.7% (w/w) at 25 °C and had little room for improvement.

Conclusion

This study outlined an easy and environmentally friendly method of synchronizing AgNPs using tea extract. AgNPs were described using TGA, TEM, XRD, and FT-IR. The functional groups from the tea extract were capped on the surface of the synthesized AgNPs, which had a crystalline structure and ranged in size from 20 to 90 nm. Conditions like the tea extract dosage and reaction temperature had an impact on the rate of AgNP formation and the efficiency of production. Because the functional groups from the tea extract are capped on the AgNPs, the silver ion release from the AgNPs made from tea extract was less than that of the PVA-coated, uncoated, and commercial AgNPs. This indicates good stability. However, the biosynthesized AgNPs demonstrated only a minor antibacterial activity against *E. coli* because of their larger size and decreased release of silver ions.

Keywords: Transmission electron microscopy (TEM), X-ray diffraction (XRD), Fourier transform infrared spectroscopy (FT-IR), thermogravimetric analyzer, and zeta potential analyzer.

□□□

Striving for a Greener Future: Environmental Sustainability and Ethical Disposal in Cancer Tech Development

Shikha Mathur

*Assistant Professor, Department of Zoology,
Government College, Kekri*

Abstract

Environmental sustainability and ethical disposal are crucial considerations in the development of cancer technologies. As the field of cancer treatment and diagnosis advances, it is imperative to prioritize sustainable practices and responsible waste management to minimize adverse environmental impacts and uphold ethical standards. Environmental sustainability entails reducing the environmental footprint of cancer tech development. This includes minimizing the use of harmful chemicals and materials, and adopting energy-efficient manufacturing processes. By selecting environmentally friendly materials and exploring eco-friendly alternatives, researchers can contribute to the reduction of resource depletion and pollution associated with cancer tech production. Furthermore, ethical disposal plays a significant role in ensuring responsible end-of-life management for cancer technologies. Many cancers treatment and diagnostic devices contain hazardous substances, such as heavy metals and radioactive materials, which can pose risks to human health and the environment if not disposed of properly. Developers should incorporate design principles that facilitate the safe and proper disposal of these devices, including clear instructions for handling and recycling. Implementing sustainable and ethical practices in cancer tech development also involves considering the entire lifecycle of these technologies. This encompasses responsible sourcing of raw materials, reducing waste generation during manufacturing, and promoting the recycling and proper disposal of devices after their useful life. Collaboration among manufacturers, healthcare providers, and regulatory bodies is crucial to establish and enforce guidelines and regulations that prioritize sustainability and ethical disposal. By integrating environmental sustainability and ethical disposal practices into cancer tech development, various benefits can be achieved. Firstly, the reduction of environmental impacts minimizes harm to ecosystems, human health, and future generations. Secondly, responsible disposal prevents the release of hazardous materials into the environment, thereby protecting communities and ecosystems. Lastly, promoting sustainable practices in the cancer tech industry can lead to innovation and cost-saving opportunities, fostering a more sustainable and responsible healthcare system. In conclusion, environmental sustainability and ethical disposal are essential considerations in the development of cancer technologies. By prioritizing these principles, researchers and manufacturers can minimize the environmental impact of cancer tech production and ensure responsible end-of-life management. Integrating sustainable practices into cancer tech development is not only ethically responsible but also contributes to a healthier future for the planet and its inhabitants.

□□□

New sighting of Asian Woolly necked stork, *Ciconia episcopus* at wetland of Kekri District of Rajasthan

Umesh Dutt

Associate Professor, Department of Zoology

S. D. Government College Beawar

Abstract

Woolly necked Stork *Ciconia episcopus* is a tropical species which has its distribution range in south Asia and southeast Asia with a stronghold of its population in India, Sri Lanka, Nepal, Myanmar, Thailand, and Indonesia. It inhabits a wide range of habitat from wetlands, rivers, ponds, tanks, mudflats, and agricultural fields. Despite its population having a strong presence in India, little is known about their habitat preferences, nesting, and foraging behavior. This paper reports observations about the Asian Woolly necked stork, *Ciconia episcopus* at wetland of Kekri District of Rajasthan. There are no published records of this species from Kekri.

Keywords: Woolly necked Stork, flock size, habitat

Introduction:

Appearance: The woolly-necked stork is a medium-sized stork at 75–92 cm tall. The iris is deep crimson or wine-red. The stork is glistening black overall with a black "skull cap", a downy white neck which gives it its name. The lower belly and under-tail coverts are white, standing out from the rest of the dark coloured plumage. Feathers on the fore-neck are iridescent with a coppery-purple tinge. These feathers are elongated and can be erected during displays. The tail is deeply forked and is white, usually covered by the black long under tail coverts. It has long red legs and a heavy, blackish bill, though some specimens have largely dark-red bills with only the basal one-third being black. Sexes are alike. Juvenile birds are duller versions of the adult with a feathered forehead that is sometimes streaked black-and-white. The African birds are described as having the edges of the black cap diffused or with a jagged border compared to a sharp and clean border in the Asian birds. Sexes are identical, though males are thought to be larger. When the wings are opened either during displays or for flight, a narrow band of very bright unfeathered skin is visible along the underside of the forearm. This band has been variously described as being "neon, orange-red", "like a red-gold jewel", and "almost glowing" when seen at close range.

Distribution:



Fig. woolly-necked stork two individuals basking in agriculture fields

It is a widespread tropical species which breeds in Asia, from India to Indonesia, and across much of western, eastern and south-central Africa. It is a resident breeder building nests on trees located

on agricultural fields or wetlands, on natural cliffs, and on cell phone towers. They use a variety of freshwater wetlands including seasonal and perennial reservoirs and marshes, crop lands, irrigation canals and rivers, but are mostly seen in agricultural areas and in wetlands outside protected areas across south Asia and Myanmar. They are attracted to fires in grasslands and crop fields where they capture insects trying to escape the fire. They use ponds and marshes inside forests in both Africa and Asia, especially in south-east Asia where they use grassy and marshy areas in clearings in several forest types. In India, they are an uncommon species in coastal habitats. They use coastal areas in Africa also, with birds in Sulawesi observed to be eating sea snakes, and birds on the Kenya coast foraging in coral reefs and mudflats. In an agricultural landscape in north India, woolly-necked storks preferred fallow fields during the summer and monsoon seasons, and natural freshwater wetlands during the winter. Here, irrigation canals were preferentially used during winters when water levels were low, and birds avoided crop fields in all seasons. Assisted by construction of new irrigation canals, this species is spreading to arid areas like the Thar Desert in Rajasthan, India. Across south Asia, woolly-necked storks largely use agricultural landscapes with more numbers seen using unprotected wetlands relative to the amount of wetlands on the landscape, and a majority of individuals use agricultural crops.

Study area: Kekri is a city in Kekri district of the Indian state of Rajasthan. It is situated at a distance of about 78 km from the city of Ajmer. Kekri was made a district on March 17 2023, this city used to come in Ajmer district earlier. This place is situated in Ajmer, Rajasthan, India, its geographical coordinates are 25° 58' 0" North, 75° 9' 0" East and its original name (with diacritics) is Kekri. Site of interested is known as Bhimaravas Village Latitude 25.855789⁰ Longitudes 75.037056⁰. To know the status of migration birds under Kakri in winter season random field visit is planned. During one such random field survey on 31 October 2023 at about 11:10 hrs Mr. Surya Prakash Jat bird's watcher spotted woolly-necked storks near Bhimaravas Village in agricultural area of Kekri district. It was identified and confirmed by using Grimmett *et al.* (1999); Kumar *et al.* (2005) Kazmierczak and Perlo (2006) and Manakandan *et al.* (2011).

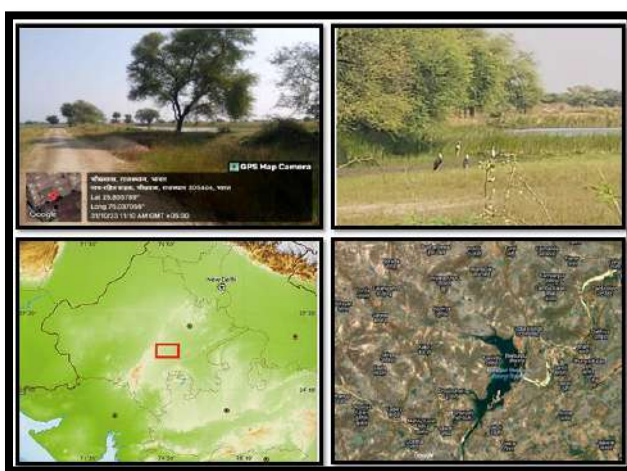


Fig. Map and Satellite image of Kekri and study site.

Conclusion: The main objective of present study is that we must pay attention to the environmental conservation and data collection of those areas in the field of biodiversity, where no research work

has been done so far from the scientific point of view, so the animal species diversity that is being known should be put to practical use and for detail research work. It is necessary to study on behavioral and statistics and other dimensions for new report species.

Reference

1. Grimmett, R., Inskipp, C. and Inskipp, T. (1999): Pocket guide to the birds of the Indian subcontinent. Oxford University Press. Pp 120-121.
2. Kazmierczak, K. and Perlo, B. V. (2006): A field guide to the birds of India (Sri Lanka, Pakistan, Nepal, Bhutan, Bangladesh and the Maldives). Om Book Services. Pp 120-121.
3. Kumar, A., Sati, J.P., Tak, P.C. and Alfred, J.R.B. (2005): Handbook of Indian wetland birds and their conservation. Director Zoological Survey India. Pp 167-170.
4. Manakandan, R., Daniel, J.C. and Bhopale, N. (2011): Birds of the Indian subcontinent (a field guide). Bombay Natural History Society. Oxford University Press. Pp 112-114.





BIYANI

GROUP OF COLLEGES

- Approved by Govt. of Raj., AICTE, INC, NCTE, BCI, PCI
- Affiliated to UOR, RTU, RUHS, DBRALU, RISU, JRRSU & DSRRAU



VISION
YOUTH EMPOWERMENT



MISSION
PROFESSIONAL &
TECHNICAL EDUCATION

- Biyani Girls College
- Biyani Institute of Science & Management for Girls
- Biyani School of Nursing & Paramedical Sciences
- Biyani Girls B.Ed. College
- Biyani Institute of Skill Development
- Biyani Institute of Yoga & Naturopathy (PGDYT)
- Biyani College of Science & Management (Co-Ed.)
- Biyani Veterinary Medicine & Animal Science School (AHDP)
- Biyani Law College (Co-Ed.)
- Biyani Institute of Physical Education
- Biyani Institute of Architecture & Design
- Biyani Institute of Pharmaceutical Sciences
- Biyani Ayurvedic Medical College & Hospital
- Biyani Private Industrial Training Institute (ITI)



R-4, Sector No. 3, Vidhyadhar Nagar, Jaipur - 302039, Rajasthan, India

Phone : +91-141-2338591-95 ▪ e-mail : acad@biyanicolleges.org ▪ bicon@biyanicolleges.org

Web.: www.biyanicolleges.org ▪ www.biyaniconference.com

Day-1

Department of Science, Nursing and Pharmacy

Advancing Cancer Care through Futuristic Technologies in Industry

Date : November 26, 2023 (ISBN : 978-93-83343-41-6)

Day-2

Department of Commerce & Management and Information Technology

Nexus of Tech and Business for Shaping Emerging Industries

Date : November 27, 2023

Day-3

Department of Humanities, Education

Cultivating Changemakers : Education-Driven Ventures

Date : November 28, 2023

Day-4

Department of Law

Captivating Global Legal Excellence

Date : November 30, 2023

BIYANI GROUP OF COLLEGES

Sector-3, Vidhyadhar Nagar, Jaipur-302039, Rajasthan, INDIA

Tel. : +91-141-2338591-95 ■ Fax : +91-141-2338007

■ www.biyanicolleges.org; E-mail : bicon@biyanicolleges.org

In Collaboration with our partner institutes in Japan :



Academic Partners :



Industry Partners :



18th Anniversary India-Japan Fest
BICON 2023



**Biyani International Conference
on**

Nurturing Academic Entrepreneurs with Industrial Partnerships

26th–30th November, 2023



ISBN: 978-93-83343-42-3

**Department of Commerce & Management and Information Technology
Nexus of Tech and Business for Shaping Emerging Industries**

Organised & Sponsored by :



BIYANI GROUP OF COLLEGES

*Approved by UGC, Govt. of Raj., AICTE, INC, RNC, PCI, NCTE, BCI,
Affiliated to UOR, RUHS, RTU, ALU, DSRRAU, RISU, JRRSU, ICSI, QCI
Sector No. 3, Vidhyadhar Nagar, Jaipur, Rajasthan (India)*



Minister for Foreign Affairs of Japan extends his deepest regards to **Biyani Group of Colleges** in recognition of its distinguished services in promoting mutual relationship between Japan and India.
 — **Fumio Kishida**, Minister for Foreign Affairs of Japan

The 18th Anniversary India-Japan Fest in Pinkcity of India

BICON-2023



NURTURING ACADEMIC ENTREPRENEURS WITH INDUSTRIAL PARTNERSHIPS



Proceeding of the Conference

DEPT. OF COMMERCE & MANAGEMENT AND INFORMATION TECHNOLOGY

Nexus of Tech and Business for Shaping Emerging Industries

ISBN: 978-93-83343-42-3



Organized by:
BIYANI GROUP OF COLLEGES
Jaipur, India

Copyright 2023

All rights reserved. Copyright of this proceeding belongs to the BICMLLP

Reprint Permission: No part of this proceeding may be reproduced or transmitted in any form without the prior written permission of the Editor. Abstracting or indexing of papers in this proceeding is permitted with credit to the source. Instructors are permitted to photocopy isolated articles for educational classroom use. For other forms of copying, reprint, or replication permission, write to the BICON at acad@biyanicolleges.org, c/o R-4, Sector-3, Vidhyadhar Nagar, Jaipur-302039, Rajasthan (India)

ISBN: 978-93-83343-42-3

Copies of this proceeding are available for purchase. Please contact BICON at acad@biyanicolleges.org, c/o R-4, Sector-3, Vidhyadhar Nagar, Jaipur-302039, Rajasthan (India) for ordering information.

Published by

Biyani Institute of Commerce & Management LLP

Jaipur (India)

All papers of the present proceeding were peer reviewed by no less than two independent reviewers. Acceptance was granted when both reviewers's recommendation were positive.

Reviewers:

- | | |
|----------------------|---------------------|
| • Dr. Pawan Patodiya | • Dr. Poonam Sharma |
| • Dr. Shikha Dugar | • Mr. Rahul Agarwal |

Editors:

- | | |
|------------------------|-----------------------|
| • Mr. Rajesh Jakhotiya | • Mr. Sachin Bagoria |
| • Mr. Saleem Ahmad | • Mr. Himanshu Mathur |

Designed by:

- | | |
|---------------------|-----------------------|
| • Mr. Nilesh Sharma | • Mr. Surendra Mathur |
|---------------------|-----------------------|

Welcome to India-Japan Fest in Pinkcity of India!

This year we are celebrating the 18th Anniversary of India-Japan Fest at Biyani Group of Colleges, Jaipur. Since, the first conference in 2006, it has become an annual feature of our institution and has continued to grow. The institution is leaving no stone unturned in encouraging the spirit of research and innovation and strengthening the bilateral academic relationship between India and Japan. Every year, this event receives an increasing number of participants from both the countries, India and Japan, and we continue to evolve, adapt, and develop new collaborative programs between various institutions in India and Japan.

Biyani Group of Colleges is organizing this mega event in collaboration with partner institutes from Japan including Japan Advanced Institute of Science and Technology, Akita Prefectural University, Saitama University, and Kyushu University.

The theme of BICON 2023 is Nurturing Academic Entrepreneurs with Industrial Partnerships guided by different departments including Science, Pharmacy, Nursing, Commerce & Management, Information Technology, Social Science, Law, and Education based on a multidisciplinary-to-interdisciplinary approach.

BICON2023 introduce new partner relationships and foster a symbiotic interaction with academic institutes in Japan and India including Kwansei Gakuin University in Japan; Jai Narain Vyas University, Jodhpur; Metro M.A.S Heart Care & Multi-speciality Hospital, Jaipur; Bhagwan Mahaveer Cancer Hospital & Research Centre, Jaipur; Apply Board; ICSI; ISDC; Rajyoga Education & Research Foundation, Mount Abu.

BICON2023 also introduce new partner relationships with Japanese industries including Kaiho Industry; Sugino Machine Ltd.; InPro Japan; Setolas Holdings Inc.; Innovation Door LLC; Photovoltaic Foundry Pte. Ltd.; and Indian industries including DOITC; iSTART; Pearson VUE; Jaipur Buzz; Paisa on Demand; Dainik Bhasker; ICT Academy; Doordarshan; MY FM; Sach Bedhadak; Jan TV; Somani Industries; Jaipur Rugs; Sidbi. These partnership fosters an all-encompassing approach to knowledge development and innovation by addressing real-world difficulties in addition to academic advancements. This creates impact that goes beyond the event itself and influences the direction of research and industry practices as long as academics and industry continue to engage.

BICON 2023 has decided to call for an Abstract to be published in the conference proceedings with ISBNs. The Organizing Committee is vitalizing with reviewing all abstracts to accommodate the growing number of paper submissions. In a rigorous and time-consuming

review process, the committee members worked hard to ensure the continued high quality of accepted abstract or paper. There are 56 invited talks (10 Japan + 46 India) in BICON 2023.

The months of planning, hard work and team effort by dedicated staff have culminated into the success of this event for which we would like to thank the management committee who trusted us to organize this conference and contributed significant funds to support the event. We would also like to thank the Organizing Committee and the reviewers for their excellent work in reviewing the abstracts as well as their valuable input and advice. We would also like to express our sincere thanks to all the dedicated BICON-Team members for their active role and support in all aspects of this conference from collecting abstracts, assisting in coordination, helping to plan the agenda, recruiting sponsors, and assisting in organizing the conference. I want to thank all the conveners of each symposium: Dr. Rambir Singh (Pharmacy), Ms. Jishu B. George (Nursing), Ms. Kanchan Sharma (Science), Dr. Poonam Sharma (Information Technology), Dr. Shikha Dugar (Commerce & Management), Dr. Shipra Gupta (Education), Ms. Malti Saxena (Humanities), Ms. Kusum Saini (Law) and Graphic designer Mr. Nilesh Sharma for editing the conference proceeding in the last running moments and beautifully designing the brochure and other conference materials.

Finally, we want to express our sincere thanks to all the invited speakers, offline and online, who have joined us from India, Japan, and other countries, for taking out time from their busy schedules to participate in this conference. It has been a great pleasure to interact with them and receive their interest in collaborating in the future.

The venue of this conference is located in Pink City Jaipur and we have tried to promote a sense of the local culture and various Indian Cuisine to the attendees during this conference. We hope that this conference is intellectually stimulating, enjoyable, professionally satisfying, and memorable for all the attendees.

With warmest regards,



Dr. Manish Biyani

Organizing Chair

- Director (Research & Development),
Biyani Group of Colleges, India
- Professor (Research), JAIST, Japan



Dr. Neha Pandey

Conference Convener

Principal,
Biyani Girls College, Jaipur

Prof. Alpana Kateja
Vice-Chancellor



University of Rajasthan
JLN Marg, Jaipur – 302004 (Raj.)
Phone: 0141-2707863, 2256501
Email: vc@uniraj.ac.in/ vcunorj@gmail.com



MESSAGE

I am indeed happy to know about efforts put in by Biyani Group of Colleges, Jaipur in organizing 18th Biyani International Conference (BICON-2023) during November 26-30, 2023.

The theme of the conference “Nurturing Academic Entrepreneurs with Industrial Partnerships” is relevant and pertinent in current scenario. Rajasthan has been benefitted from the special relationship between India and Japan. Since a long time, Rajasthan and Japan have collaborated in both education and industry, and this relationship will continue to grow in the future years.

I am confident that this conference would give an excellent forum to Academicians, Researchers and Industry Professional from India and Japan.

I wish the conference the very best.

A handwritten signature in black ink, which appears to read 'Alpana'.

(Prof. Alpana Kateja)

Jai Narain Vyas University, Jodhpur 342 011 India

PROF. KANHAIYA LAL SHRIVASTAVA

Ph.D., M.Tech. (Applied Geology), FGS (Bangalore)
FAGID (Brazil), FEEIU (Germany) FIAPG (Italy)

Vice Chancellor



Phone : 0291-2432947 (O)

Email : vcjnvu@gmail.com, vc@jnvu.edu.in

**Res. : Vice-Chancellor's Bungalow,
Residency Road, Jodhpur 342 011 India**



MESSAGE

I am glad to know that the 18th Biyani International Conference (BICON-2023) is being organised on November 26-30, 2023 on the theme "Nurturing Academic Entrepreneurs with Industrial Partnerships".

The theme of the conference will encourage collaboration between Industry and Academia by using futuristic pedagogies and practices in teaching, learning and assessment, as well as deeper engagement between higher education and the industrial ecosystem.

Academicians, industrialists, scientists, and research scholars will have the opportunity to exchange their expertise, build new strategies, and analyse recent advancements in their respective sectors at this four-day conference.

I am sure that the conference through its outcomes will strengthen the knowledge and foster both the Societies-Industry as well as Academia

I extend my best wishes for the BICON-2023 success.

(Prof. Kanhaiya Lal Shrivastava)

Resl. : 504 FF, Umaid Heritage, Umaid Palace Hill, Jodhpur - 342011 India, Mob.: +91-94141-32094, +91-94145-78924, Email: klsgeology@yahoo.co.in

'Excellence in Science and Technology' Awardee, ISCA/Gol

'Bharat Ratan APJ Abdul Kalam Gold Medal' Awardee

'Decree of Merit' Awardee, IBC, Cambridge U.K.

'Special Recognition' Awardee, Atlanta, USA

Chairman & Head (Former), Department of Geology

Jai Narain Vyas University, Jodhpur

President, Earth System Science, ISC Association (2015)

President, JNV University Teachers Assoc. (1997) (AIFUCTO)

Jai Narain Vyas University, Jodhpur 342 011 India

PROF. KANHAIYA LAL SHRIVASTAVA

Ph.D., M.Tech. (Applied Geology), FGS (Bangalore)
FAGID (Brazil), FEEIU (Germany) FIAPG (Italy)

Vice Chancellor



Phone : 0291-2432947 (O)

Email : vcjnvu@gmail.com, vc@jnvu.edu.in

Res. : Vice-Chancellor's Bungalow,

Residency Road, Jodhpur 342 011 India



MESSAGE

I am glad to know that the 18th Biyani International Conference (BICON-2023) is being organised on November 26-30, 2023 on the theme "Nurturing Academic Entrepreneurs with Industrial Partnerships".

The theme of the conference will encourage collaboration between Industry and Academia by using futuristic pedagogies and practices in teaching, learning and assessment, as well as deeper engagement between higher education and the industrial ecosystem.

Academicians, industrialists, scientists, and research scholars will have the opportunity to exchange their expertise, build new strategies, and analyse recent advancements in their respective sectors at this four-day conference.

I am sure that the conference through its outcomes will strengthen the knowledge and foster both the Societies-Industry as well as Academia

I extend my best wishes for the BICON-2023 success.

(Prof. Kanhaiya Lal Shrivastava)

Resi. : 504 FF, Umaid Heritage, Umaid Palace Hill, Jodhpur - 342011 India, Mob.: +91-94141-32094, +91-94145-78924, Email: klsgeology@yahoo.co.in

'Excellence in Science and Technology' Awardee, ISCA/Gol

'Bharat Ratan APJ Abdul Kalam Gold Medal' Awardee

'Decree of Merit' Awardee, IBC, Cambridge U.K.

'Special Recognition' Awardee, Atlanta, USA

Chairman & Head (Former), Department of Geology

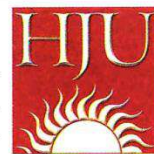
Jai Narain Vyas University, Jodhpur

President, Earth System Science, ISC Association (2015)

President, JNV University Teachers Assoc. (1997) (AIFUCTO)

Prof. Sudhi Rajiv
Vice-Chancellor

हरिदेव जोशी
पत्रकारिता और जनसंचार
विश्वविद्यालय



HARIDEV JOSHI UNIVERSITY
OF JOURNALISM AND
MASS COMMUNICATION

S.No. F()VC/HJU/2023/5671

Date: 30th November, 2023

Dr. Dhyan Singh Gothwal
Dean Administration
Biyani Group of Colleges
Vidhyadhar Nagar, Jaipur

Dear Mr.

I am happy and delighted to receive an invitation for the eighteenth India-Japan International Conference organized by Biyani Group of Colleges, Jaipur from the 26th to the 30th of November, 2023.

It shall provide an opportunity for interaction between two cultures by "Nurturing Academic Entrepreneurs with Industrial Partnerships". The subjects for discussions and deliberations are of great importance and would be addressed by eminent experts. It will improve the over all qualities and virtues in the youth - the future of India.

I wish the conference every success.

(Professor Sudhi Rajiv)

Vice Chancellor

Haridev Joshi University of Journalism
and Mass Communication, Jaipur &
Dr. Bhimrao Ambedkar Law University, Jaipur

राजीव गांधी विद्याभवन | Rajiv Gandhi Vidya Bhawan
सर्वपल्ली राधाकृष्णन शिक्षासंकुल, जवाहरलाल नेहरू मार्ग | Sarvepalli Radhakrishnan Shiksha Sanikul
जयपुर 302 017 (राजस्थान) | JLN Marg, Jaipur 302 017 (Rajasthan), India
+91 141 2710123 | registrar.hju@gmail.com | www.hju.ac.in

HJU, A UNIVERSITY ESTABLISHED BY AN ACT OF THE RAJ. STATE LEGISLATURE, IS A NATIONAL CENTRE FOR TEACHING, TRAINING AND RESEARCH IN JOURNALISM, MASS COMMUNICATION AND ALLIED FIELDS
पत्रकारिता, जनसंचार और संबंधित विषयों के शिक्षण, प्रशिक्षण और शोध के लिए राजस्थान विधानमंडल के अधिनियम द्वारा स्थापित राष्ट्रीय संस्थान



RAJASTHAN TECHNICAL UNIVERSITY, KOTA

राजस्थान तकनीकी विश्वविद्यालय, कोटा



Message

I am glad to know that Biyani Group of Colleges, Jaipur in organizing 18th Biyani International Conference (BICON-2023) on November 26-30, 2023.

The theme of the conference “Nurturing Academic Entrepreneurs with Industrial Partnerships” is very much relevant to budding engineers, managers and industrialists. The association of speakers from Japan in the conference is commendable. For a long time, Rajasthan and Japan have collaborated in both education and industry and such activities shall help growing this relationship in the future.

I am confident that this conference shall provide an excellent forum for the students, academicians and industrialists of both the countries to explore the Academia Industry Interface Model.

I wish the conference all the success.

Prof (Dr.) Dhirendra Mathur

Naveen Jain, IAS

नवीन जैन, आई.ए.एस.



Secretary to Government
School Education, Language, Library
And Panchayati Raj (Elementary Education),
Government of Rajasthan
शासन सचिव
स्कूल शिक्षा, भाषा, पुस्तकालय,
पंचायतीराज (प्रारम्भिक शिक्षा) विभाग
राजस्थान सरकार

D.O. No.: DS/Secy./School Edu./2023/ 313
Jaipur, Dated: 20-11-2023

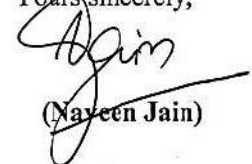
Message

I am elated to learn about the 18th India-Japan Bilateral conference on "Nurturing Academic Entrepreneurs with Industrial Partnership" from 26th to 30th November, 2023 at Biyani Girls College, Jaipur. I am optimistic about the results to be generated when leading academicians, industrialists, scientists and research scholars will assemble and disseminate their learnings.

I am hopeful that it will pave the way in providing an unparalleled platform for many ground breaking possibilities in the field of innovative ideas and prototypes.

My sincere and best wishes for the endeavour!

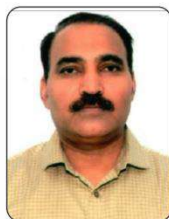
Yours sincerely,


(Naveen Jain)

Anand Kumar
I.A.S.



Principal Secretary
Government of Rajasthan
Department of Home, Home Guard, Jail,
RSIB, Transport, Chief Vigilance Commissioner,
& Chairman RSRTC



MESSAGE

I am happy and delighted for inviting me to the of 18th India-Japan International Conference organized by most prestigious and pioneer Biyani Group of Colleges, being held in Jaipur from 26th to 30th of November, 2023.

It shall provide an opportunity to participants to interact on topic "Nurturing Academic Entrepreneurs with Industrial Partnerships". Topics for discussions and deliberations during this conference are of great importance and would be addressed by eminent experts. It would overall improve the virtues and qualities in the youth - the future of India.

I wish the conference a grand success.


(Anand Kumar)

DR. VATHSALA MANI

Academician



It provides me an immense pleasure to find out that Biyani Group of Colleges is organizing an Indo-Japanese conference BICON-2023. The conference is going to enlighten so many young minds and feed them with knowledge and new experiences. Along with this the conference is going to establish even more cordial relationships With japan

I would like to congratulate the organizers for choosing such unique and appropriate themes. I would like to wish them all the best and they are going to perform a commendable task by organizing such an intellectual event Which is going to be remembered for it's academic contribution.



(Dr. Vathsala Mani)

FROM THE CONVENER'S DESK

It gives me great pleasure to extend to you all a warm welcome on behalf of Department of Science and Nursing, Biyani Girls' College. We are grateful to all the speakers, delegates, organizers and guests, who have accepted our invitation to participate in the BICON 2023.

It is an opportune time for you to renew contacts and discuss opportunities of mutual interest with delegates from both Japan and India bilaterally.

It is gratifying to note that the agenda of the Seminar covers a wide range of very interesting items relating to higher education frontiers in India and Japan, and resulting opportunities for both countries.

No matter how much we can do by ourselves on the national level, whether it be research or development, it is never enough. In a spirit of true cooperation, we in Asia, and particularly in Japan and India, are proud of nurturing past and present civilizations and cultures. We must join in an action-oriented effort to recognize and capitalize on the bilateral opportunities in the higher education sector in both countries.

The utter sincerity and dedication of the management, the teaching faculty, non-teaching staff and the students at Biyani Girls' College have brought this event to fruition. It is an outcome of the hard work and persistent efforts of all our colleagues. We hope that their efforts shine through, and all the delegates and participants have a fulfilling and rewarding experience here, that carries forward long after the event itself is over. Once again, a very warm welcome to you all.



Dr. Poonam Sharma
(Dept. of IT)
Convener



Dr. Shikha Dugar
(Dept. of Commerce & Management)
Convener

CORE COMMITTEE :

- Ms. Pushpa Biyani (Chief Patron)
- Prof. Sanjay Biyani (Director-Acad.)
- Prof. Neeta Maheshwari (Sr. Principal)
- Ms. Priyanka Biyani (Asst. Director)
- Dr. Radhika Biyani (Asst. Director)
- Dr. Neha Pandey (Principal)
- Dr. Sumedha Bajpai
- Dr. Dheeraj Chitara
- Dr. Rajeev Biyani (Chairman)
- Prof. Manish Biyani (Director-R&D)
- Dr. Sujata Biyani (Asst. Director)
- Dr. Madhu Biyani (Asst. Director)
- CA Abhishek Biyani (Asst. Director)
- Dr. Shilpa Bharagava
- Dr. Smriti Tiwari
- Mr. Virendra Kumar

ORGANIZING COMMITTEE :

- Dr. Pawan Patodiya
- Ms. Anju Bhatt
- Dr. Smriti Tiwari
- Dr. Punam Mittal
- Dr. Shiv Jhalani
- Ms. Aditi Pareek
- Ms. Kajal Kanwar
- Ms. Megha Daga
- Ms. Dilpreet Kaur
- Mr. Saleem Ahmad
- Mr. Rajesh Jakhotiya
- Mr. Lokesh Agarwal
- Mr. Rahul Agarwal
- Mr. Ashish Sharma
- Mr. Sachin Bagoria
- Mr. Kamlesh Kumar
- Ms. Neha Tiwari
- Mr. Himanshu Mathur
- Ms. Puneeta Sharma
- Ms. Smriti Verma
- Mr. Madan lal Bajiya
- Mr. Mohd Rafiq
- Mr. Sikander Tak
- Mr. Jhabarmal Saini

PROGRAMME AT A GLANCE

Date: November 27, 2023; Monday

Theme: Nexus of Tech and Business for Shaping Emerging Industries

Standard Time	Schedule
Inaugural & Japan Industry Session, 08:00 AM-11:15 AM	
08:00 AM - 09:00 AM	Registration
09:00 AM - 09:15 AM	Lighting of the Lamp by Dignitaries and Saraswati Vandana
09:15 AM - 09:25 AM	Welcome address by Organizing Chair- BICON-2023 Prof. Manish BIYANI Director (Research & Development), Biyani Group of Colleges, India
09:25 AM - 09:35 AM	Inaugural Address by Chief Guest Prof. (Dr.) K.L. SRIVASTAVA, VC, JNVU, Jodhpur, India
09:35 AM - 10:05 AM	Japan Industry Keynote Speaker-1 Mr. Kazuo YOSHIMURA (Mr. Tomio KOMORI) Photovoltaic Foundry Pte. Ltd., Singapore & InPro Japan Ltd., Japan
10:05 AM - 10:25 AM	Japan Industry Keynote Speaker-2 Mr. Takayuki KONDO (Mr. Yuki MIYAGAWA) Kaiho Industry Co. Ltd, Japan
10:25 AM - 10:45 AM	Japan Industry Keynote Speaker-3 Mr. Takahiro MASUDA (Ms. Seema DUA) SUGINO Machine India Pvt. Ltd, Haryana, India
10:45 AM - 10:50 AM	Address by Guest of Honour Prof. Dharendra MATHUR, Controller of Examination, RTU, Kota, India
10:50 AM - 11:05 AM	MOU Signing Ceremony with JNVU, Jodhpur
11:05AM - 11:10 AM	Vote of Thanks by Director (Acad.) Dr. Sanjay BIYANI Director (Acad.), Biyani Group of Colleges, Jaipur, Rajasthan, India
11:10 AM - 11:20 AM	Memento Distribution & Group Photo
11:20AM - 11:35AM	Hi-Tea Break

Invited Academic Talks, 11:35 AM – 01:05 PM Chair: Dr. Neha PANDEY and Dr. Nandini SHARMA	
11:35 AM - 11:55 AM	Academic Keynote Speaker-4 Prof. N.D. MATHUR Dean, School of Humanities and Social Sciences, JECRC, Jaipur, India Expert, Soft Skills Trainer, Academic Consultant
11:55 AM - 12:15 PM	Academic Guest Speaker-5 Prof. Bindu JAIN Dept. of Business Administration, University of Rajasthan, Jaipur, India
12:15 PM - 12:35 PM	Academic Guest Speaker-6 Prof. Mamta JAIN Dept. of Economic Administration and Financial Management University of Rajasthan, Jaipur, India
12:35 PM -12:55 PM	Academic Guest Speaker-7 Mr. Subhajit BHATTACHARYA Associate Vice President-Innovation Principal Accenture, Delhi, India
12:55 PM - 01:05 PM	Vote of Thanks, Memento Distribution & Group Photo Dr. Poonam SHARMA , Day Convener Biyani Girls Colleges, Jaipur, Rajasthan, India
01:05 PM -02:05 PM	Lunch Break
India Industry Session, 02:05 PM - 03:55 PM Chair: Dr. Smriti TIWARI	
02:05 PM - 02:20 PM	India Industry Guest Speaker-8 Mr. Dhawal SINGHAL , I-start Mentor DOIT&C, Dept of Information Technology & Communication, Jaipur, India
02:20 PM - 02:35 PM	India Industry Guest Speaker-9 Mr. Ashutosh MISHRA AGM-HR, Jaipur Rugs, Jaipur, India
02:35 PM - 02:50 PM	India Industry Guest Speaker-10 Mr. Rohit TODWAL Founder, Startbit IT Solutions Pvt. Ltd., India

02:50 PM - 03:05 PM	India Start Up/Entrepreneur Talk-11 Ms. Manika KARNAWAT Founder, Jaipur Buzz, India
03:05 PM – 03:25 PM	Q/A session
03:25 PM – 03:40 PM	MOU Signing Ceremony
03:40 PM – 03:45 PM	Vote of Thanks, Memento Distribution & Group Photo Dr. Shikha DUGAR, Day Convener Biyani Girls Colleges, Jaipur, Rajasthan, INDIA
03:45 PM - 03:55 PM	Tea Break
Oral Presentations, 03:55 PM - 05:35 PM Judge: Dr. Sumedha BAJPEYI & Dr. Pawan PATODIYA (C & M) Judge: Dr. Poonam SHARMA & Mr. Rahul AGARWAL (IT)	
03:55 PM - 05:15 PM	Total 8 Young Oral Presentations (10 min. to each paper with Q & A)
05:15 PM - 05:25 PM	Award Ceremony and Group Photo
05:25 PM - 05:35 PM	Closing Remarks and Adjourn for the Day

TABLE OF CONTENTS

INVITED LECTURES		
IL1	Solar Sharing - A game changer for local and global economy <i>Kazuo Yoshimura</i>	23
IL2	Mid-career recruitment of talented Indian IT engineers in Japan <i>Tomio Komori</i>	26
IL3	Car recycling system towards circular economy in India <i>Kondo Takayuki</i>	28
IL4	Car recycling system towards circular economy in India <i>Yuki Miyagawa</i>	29
IL5	Role of Technology in Start ups & Small Business <i>Takahiro Masuda</i>	31
IL6	Role of Technology in Start ups & Small Business <i>Seema Dua</i>	32
IL7	Industry Academia Partnership <i>N.D. Mathur</i>	34
IL8	Synergies in Action: Unveiling the Key Learnings from Successful Industry-Academia Partnerships <i>Bindu Jain</i>	36
IL9	Modern Technology and Its Impact on business Development <i>Mamta Jain</i>	38
IL10	Futuristic Technology DNA with Next Generation AI <i>Subhajit Bhattacharya</i>	40
IL11	Role of Technology in Start-ups and Small Business <i>Rohit Todwal</i>	43
IL12	Government Initiatives to support Start-ups <i>Dhawal Singhal</i>	45
IL13	Importance of Holistic Development of Employees <i>Ashutosh Mishra</i>	46
IL14	Digital India : A Key to Entrepreneurial Success <i>Manika Karnawat</i>	47
CONTRIBUTED PAPERS		
1.	Changing Dynamics of Women Entrepreneurship in India: its Problems and Prospects <i>Anupama Goyal</i>	48
2.	Digitalization : A Renaissance Of Entrepreneurial Progress <i>Varsha Dhabhai</i>	53

3.	Digital India: A key to Entrepreneurial Success <i>Parul Bhargava</i>	54
4.	Emerging Technologies: Stimulant for Start-ups and Small Businesses <i>Raju Agarwal</i>	55
5.	Skilling for Self-Employment <i>Supriya Agarwal</i>	56
6.	Why Technology Integration is vital for Holistic Development of Emerging Industry <i>Jyotsna Diwan Mehta</i>	57
7.	A study of Economic Development and Indian Environment <i>Yogesh and Sunil</i>	61
8.	Impact of Social Infrastructure on Economic Development <i>Takdeer Singh and Sunil</i>	68
9.	Social Entrepreneurship in India: Challenges and Opportunities <i>Kaneenika Jain</i>	75
10.	Journey of Innovation: Exploring the Dynamics of EdTech Evolution in India- A Comprehensive Review <i>Arshiya Goyal and Bindu Jain</i>	76
11.	New Vistas of Advertising <i>Kalpana Soni and Kajal Kanwar</i>	77
12.	The role of virtual reality in enhancing customer experiences for small businesses <i>Aditi Pareek</i>	78
13.	Role of Technology in Start-ups and Small business <i>Anushka Butolia</i>	80
14.	Digital India: A Key to Entrepreneurial Success <i>Dilpreet Kaur</i>	81
15.	Innovating and Thriving in the New Era of Entrepreneurship <i>Ayushi Agarwal</i>	83
16.	A study on Mudra loan – with special reference to Rajasthan State, India. <i>Rajesh Jakhota</i>	84
17.	Robotics & Artificial Intelligence (AI) collaborative Industry-Academia learning <i>Shikha Dugar and Nidhi Shukla</i>	84
18.	Women Entrepreneurship in India <i>Monika Kanwar and Sujata Biyani</i>	86
19.	Analysis of Risk and Return in Mutual Funds <i>Saleem Ahmad and Sanjay Biyani</i>	88

20.	Women Entrepreneurship Development through ICT <i>Shiv Jhalani and Rajeev Biyani</i>	89
21.	Enhancing skills through Skill development programmes boosts Employability in India: A case study of Rajasthan Skill & Livelihood development Corporation (RSLDC) <i>Smriti Tiwari and Abhishek Biyani</i>	90
22.	Skills For Self-Employment <i>Garima Jangir and Megha Daga</i>	92
23.	Emerging Horizons In Advertising: A Glimpse Into Innovative Frontiers <i>Khushi Jakhotiya</i>	93
24.	Synergy between Robotics and Artificial Intelligence <i>Punam Mittal</i>	95
25.	KKN-The Digital Platform Promoting Women Entrepreneurship- A Case Study <i>Sumedha Bajpai and Neha Pandey</i>	96
26.	Working Capital Management of diversified MSME clusters – Financial aspects and Banking <i>Mitesh Kumar Sharma and Pawan Patodiya</i>	98
27.	Leveraging the social media platforms for effective marketing and brand building for Startup <i>Payal Kanwar and Aditi Pareek</i>	100
28.	Recent merger and acquisitions in modern world <i>Bhavna Agarwal and Tanisha Sharma</i>	102
29.	Impact of financial discipline among MSME`s and future scope: Special reference to India economy <i>Durgesh Kumar and Neeta Maheshwari</i>	105
30.	Entrepreneurship and Technology -A Symbiotic Relationship Non-Empirical Approach <i>Siddhant Sangamnerkar and Bhavana Sangamnerkar</i>	107
31.	Exploring the Impact of Serverless Computing on Modern Software Development <i>Abraham Amal Raj B, Dharmveer Yadav and Ms. Shrutika Aggarwal</i>	109
32.	Data Science Techniques, Tools and Predictions <i>Anupama Goyal</i>	110
33.	Harnessing Artificial Intelligence for Human Learning and Behavior Change <i>Poonam Sharma and Purnima Sharma</i>	111
34.	Cloud Computing: Opportunities & Challenges to its Emerging need in the field of Information System <i>Sachin Bagoria and Aditya Biyani</i>	113

35.	The Role of Spatial Computing in Education <i>Disha Agarwal and Rahul Agarwal</i>	114
36.	Emerging Technologies and Trends in Data Science <i>Kirtika Vijay and Anju Bhatt</i>	116
37.	Virtual Reality (VR): A Computer-Generated Environment <i>Riya Kumawat and Madan Bajiya</i>	117
38.	Digital India: A Key to Entrepreneurial Success <i>Smriti Verma</i>	119
39.	Skilling for Self- Employment <i>Himanshu Mathur</i>	120
40.	Digital India: Fuelling Entrepreneurial Success <i>Neha Tiwari</i>	120
41.	Fostering Innovation: Industry-Academia Collaborations in Software Engineering <i>Puneeta Sharma</i>	122
42.	The Impact of Technology in Start-ups and Small Businesses <i>Kamlesh Kumar</i>	123
43.	Role of Technology in Start-ups and Small Business <i>Chitranshi Soni</i>	124
44.	Cyber Security and Network Security with Industry Collaboration <i>Diksha Bhatnagar</i>	125
45.	The Digital Twin Technology <i>Diksha Dixit</i>	126
46.	Emerging Technologies and Trends in Data Science <i>Yashika Jangid and Diksha Singathia</i>	127
47.	Future Impact of Technology in Human Behaviour <i>Mansi Kumawat</i>	128
48.	Recent Technology and Trends in Data Science <i>Priyanshi Rathore and Ashish Sharma</i>	129
49.	Fitness and Sports App: Ideas that can Boost Fitness Activities and Assist in Keeping Fit <i>Nikita Soni and Aakansha Jain</i>	130
50.	Industry–Academia Collaboration in Software Engineering <i>Kashish Khan</i>	131
51.	Cyber Security and Network Security with Industry Collaboration <i>Riya Agarwal and Khushi Vijay</i>	133

52.	Unleashing the power of quantum computing: A revolution in information processing <i>Shefali Pandey</i>	134
53.	Emerging Trends in Data Science <i>Vanshika Sharma</i>	135
54.	Robotics & Artificial Intelligence Collaborative Industry-Academia Learning: a Present Case and Future Visions. <i>Alshifa Hussain</i>	136
55.	Software Development's Transition to a Human-Centric Approach <i>Swati Kanwar</i>	137
56.	Analyse How IoT Technologies can be Leveraged to Create Smarter and More Sustainable Urban Environments <i>Amrata Saran and Garima Singnath</i>	138
57.	Impact of Environmental Accounting in Indian Automobile Industry <i>Rupali Bohara</i>	140
58.	Factors Influencing Worker Participation in India's Dairy Industry: A Case Study of Rajasthan <i>Bharti Sirohiya</i>	141

Invited Lecture 1

Solar Sharing - A game changer for local and global economy



Kazuo Yoshimura

Affiliation & Contact:

- Photovoltaic Foundry Pte. Ltd.
Block81 Ayer Rajah Crescent #02-48 Singapore 139968
Phone +65-9368-7720
Email: kazuo.yoshimura@pvfoundry.com
- KYCOM Asia Pte. Ltd.
5 Jalan Rumbia #12-06 The Imperial Singapore 239618
Phone +65-9368-7720
Email: kazuo.yoshimura@yahoo.com.sg

Research Interest:

Regional Economy Revitalization, Community Creation, Distributed Renewable Energy, Solar Sharing, Preventive Healthcare, Education especially Japanese language education

Education & Professional Career:

1975-1979	Bachelor Tokyo University (Economics)
1979-1982	Industrial & Commercial Banker at Industrial Bank of Japan
1983-1989	Senior Economist at Industrial Bank of Japan
1990-1996	Senior Investment Banker at Industrial Bank of Japan
1996-2000	Managing Director of Asian Infrastructure Development Company
2001-2009	CFO and Managing Director at Middleware Development Company

2010-present	Serial entrepreneur and investor focusing regional economy revitalization and community creation/ Managing Director of KYCOM Asia Pte. Ltd.
2020-present	Director of Impro Japan, Ltd
2020-present	Senior advisor of PvFoundry Pte. Ltd
2022-present	Senior advisor of Japan Research Institute
2023	CFO and Representative Director of Community Creation Company

Profile and Background:

Industry veteran in project financing with over 40 years of experience which he accumulated at notable financial institutions in various capacities including Industrial Bank of Japan (IBJ), Asian Infrastructure Development Company (AIDEC-a PE fund invested by GIC, JBIC and ADB with a mandate for PPP projects). As a senior investment banker in IBJ he led over 10 mega project financing deals including a US\$2.5 billion IPP project in Indonesia, US\$2 billion LNG project in Malaysia and over US\$1 billion oil refinery as well as petrochemical projects. In his 5-year tenure as Managing Director of AIDEC, he reviewed over 300 projects including power and energy, transportation, water supply, public housing and telecommunication sector across over 15 countries. He had successfully led the IPO of high-tech middleware development company at its peak market cap over US\$1 billion.

Abstract

Solar Sharing - A game changer for local and global economy

Kazuo Yoshimura

Senior Advisor of Photovoltaic Foundry Pte. Ltd and Japan Research Institute

Local and global economy is heading towards uncertainty and grave concern is common in people. We have to prepare to protect our family, community and country. Food and energy are most important for human beings however the self-sufficiency of food and energy are at critically low for safety. Japan's self-sufficiency for food is only 38% (calories base) and one for energy is merely 11%. Japan has no security for food and energy. How about India? How about other Asian nations?

Under modern capitalism economy the agriculture sector tends to decline because of its lower value-added and less newcomers join nor remain in this industry. Simply because agriculture is not profitable business. How we can make agriculture into a profitable business is ultimate and only solution.

Solar Sharing (known as Agri Photovoltaic in native English) was originally invented by Japanese Professor, Dr Akira Nagashima. Solar Sharing is the simultaneous use of areas of land for both solar panels and agriculture. As solar panels and crops share the sunlight, the design of Solar Sharing facilities may require trading off such objectives as

- Optimizing crop yield and quality and energy production
- To increase land productivity and economic profitability with minimal negative interactions and optimal positive interactions
- For example, in some cases crop yield increases due to the shade of solar panels mitigating negative impact by high temperatures and UV damage, at the same time crops reduce high temperature of solar panel which keeps solar panel power production performance better

Solar Sharing together with other distributed solar power generation emerges as game changer for sustainable local and global economy. One stone kill six birds in Japanese municipality so as in other Asian nations. It achieves 1) transforming agriculture as profitable industry, 2) increasing self-sufficiency food and energy through local production and local consumption, 3) maintaining lower electricity price and decarbonization, 4) stimulating regional economy for better corporate and household income as well as government revenue, 5) providing good investment and loan assets for local financial institutions and 6) increasing confidence and autonomy for local municipal government through successful experience.

Capitalism is facing great difficulties globally. Solar Sharing and distributed renewable energy is one of the effective ways to transform local and global economy and society for more sustainable, democratic, and humanistic manner.

Japan is often referred to as “the land of the rising sun” since ancient era. We are very happy to work together with India and other Asian nations for creating better world.

Keywords: Solar Sharing, distributed renewable energy, food and energy self sufficiency



Invited Lecture 2

Mid-Career recruitment of talented Indian IT engineers in Japan



Tomio Komori

Affiliation & Contact:

- INPRO Japan Ltd
2-1401, WADA-HIGASHI, FUKUI-shi, FUKUI-ken, Japan 918-8237
Phone +81-776-26-2101; Fax +81-776-27-8853
Email: tommyk@unico.co.jp

Research Interest:

Digital Transformation (DX) in the business fields including Retail distribution, factory and building solutions, sports facilities and healthcare service as well as personnel development of International IT professionals

Education & Professional Career:

- | | |
|---|--|
| 1976 | B.E. The University of Electro-Communications (Electronics) in Japan |
| 1980 | Joined The KOMORI Electric Company |
| 1984 | CEO of UNICO System Co. Ltd. |
| 1988-2018 | Launched The KOMORI United Group and founded four companies of various business fields, such as factory and building solutions, sports and training facilities and healthcare service. |
| 2019 | Founded INPRO Japan Ltd. for personnel business in India |
| Currently, the Chairman of the Fukui Prefecture System Industry Association | |

Abstract

Mid-career recruitment of talented Indian IT engineers in Japan

Tomio Komori

INPRO Japan

I serve as the chairman of INPRO Japan, which stands for India Project Japan. We established this business in December 2019 to dispatch Indian IT professionals to Fukui Prefecture and Japan as a whole. However, we had to go dormant soon after due to the COVID-19 pandemic.

It is said that Japan currently faces a shortage of about 400,000 IT professionals, and we believe the demand will continue to increase. We consider India's abundant and highly skilled IT talent to be the best for our business, and we feel it is necessary for Japan to utilize this resource. However, in Japan, communication is primarily in Japanese, and English is still not widely used. Therefore, we would like to strongly request the establishment of a Japanese language teaching department at Biyani University to deepen Indo-Japanese interactions [*1) An introduction article about an employee is attached as Appendix 1].

Another mission I would like to propose is the promotion of Internet 3. At the Internet Governance Forum (IGF) held from October 8-12, 2023, we introduced a technology developed by ConnectFree. This technology, which enables secure and peer-to-peer IPv6 connectivity without the need for the contract with Internet service provider. It would be particularly valuable for countries in the Global South, where IPv4 address is becoming scarce. ConnectFree is an advanced venture company, and our group companies have invested in and act as agents for it [*2) For a detailed explanation about Internet3 please refer to Appendix 2].

Keywords: Shortage of IT professionals, Japanese language education, Internet3, Secure and peer-to-peer IPv6 connectivity

□□□

Invited Lecture 3

Car recycling system towards circular economy in India



Kondo Takayuki

Affiliation & Contact:

- Kaiho Industry Co., Ltd
1-25, Higashikagatsumemachi, Kanazawa-shi, Ishikawa-ken, Japan
Phone +81-076-238-7754; Fax +81-076-237-1950
Email:soumu@kaiho.co.jp

Research Interest:

- Automobile recycling
- Export and sales of used auto parts

Education & Professional Career:

1996	Graduated from Kanazawa Technical College
1996	Joined Kaiho Industry Co., Ltd
2006	Executive Director of Kaiho Industry Co., Ltd
2009	Vice President of Kaiho Industry Co., Ltd
2015	Representative Director and President of Kaiho Industry Co., Ltd

Invited Lecture 4

Car recycling system towards circular economy in India



Yuki Miyagawa

Affiliation & Contact:

- Director, Abhishek K Kaiho Recyclers Pvt Ltd, India
- Chief, Business Development Division, Kaiho Industry Co., Ltd., Japan

Abstract

Car recycling system towards circular economy in India

Kondo Takayuki¹ and Yuki Miyagawa²

¹Kaiho Industry Co., Ltd.; ²Abhishek K Kaiho Recyclers Pvt Ltd, India

Kaiho Industry was founded in 1969 and grown from a small factory into a global company exporting used auto parts and engines to about 90 countries today. In 2017, Kaiho was approved as a member of Business Call to Action lead by UNDP as the first Japanese SMEs. In 2018, Kaiho won the Deputy-chief Award (by Foreign Minister) at the 2nd Japan SDGs Award organized by the Japanese Ministry of Foreign Affairs. In 2017, Kaiho Recyclers Alliance has been established and they organize network of automobile recycling companies throughout Japan and about 100 companies have joined them, aiming to create a “circular economy” and improve reuse and recycle of End-of-Life vehicles (ELVs) with all Japanese automobile recycling industry. Not only in Japan, Kaiho has set up joint venture company in India for car recycling business under the name of Abhishek K Kaiho Recyclers Pvt Ltd. Kaiho provides a comprehensive automobile recycling system comprising 3 components which are; 1. Factory equipment, 2. Quality control and 3. Recycling technology and Management know-how according to the local context. Kaiho aims to build a ELVs recycling value chain to properly recycle End-of life Vehicles (ELVs) which contributes to create local employment for future generation of India, reduce air pollution caused by old cars etc.

Keywords: Car recycling, End-of-Life Vehicle (ELVs), RVSF, used auto parts, scrap policy in India

□□□

Invited Lecture 5

Role of Technology in Start ups & Small Business



Takahiro Masuda

Affiliation & Contact:

- Sugino Machine India Private Limited
Unit No. 202, Second Floor, Time Tower, MG Road
Gurgaon – 122002, Haryana (INDIA)
Tel : 0124 – 4831900; Mobile : 7042265990
www.sugino.com

Education & Professional Career:

2002-2006 Nihon University (International Relationship)

Invited Lecture 6

Role of Technology in Start ups & Small Business



Seema Dua

Affiliation & Contact:

- Sugino Machine India Private Limited
Unit No. 202, Second Floor, Time Tower, MG Road
Gurgaon – 122002, Haryana (INDIA)
Tel : 0124 – 4831900; Mobile : 7042298942
www.sugino.com

Education & Professional Career:

B.Sc. (Allahabad University)
1997-1999 MBA in HR (IMS Ghaziabad)

Abstract

Role of Technology in Start ups & Small Business

Takahiro Masuda¹ and Seema Dua²

^{1, 2} SUGINO Machine India Pvt. Ltd, Haryana, India

“With its robust intervention, technology is pushing startups beyond traditional tactics and has become the most important factor in their success. Technology is critical to startups, levelling the playing field and making more resources available to new businesses than ever before. Because of its immense value, businesses are using it not just as an efficient solution but rather as an investment to scale their business and differentiate themselves. Here’s how technology is helping startups walk far, walk fast, and lead the pack.

Walking far- sustainability for scale and surroundings : In today’s business environment, success in sustainable business practices is critical. Some businesses have grown and established themselves in India and around the world with a healthy dose of technology. Often, innovation needs technology to be relevant for sustainable businesses to offer competitive prices to all of their customers.

In the long run, technology helps not just to sustain businesses but to maintain a steady level of growth. Sustainable enterprises also take environmental and social issues into account. The sustainable Startup technology applies to global firms like Infosys, Wipro, Tata Consultancy Services (TCS), and Microsoft, as well as small and medium-sized enterprises.

Walking Fast : Every part of business is becoming more and more reliant on technology, and businesses are finding it hard to keep up with the changes. As a result, we see startups, SMEs, and MSMEs gain a late mover advantage by starting from scratch with a completely new thought process, using technology as a force multiplier to build new business models, products, and customer experiences.

Leading the pack : Furthermore, the use of cutting-edge technology gives the company a competitive advantage, making it a better organisation than the rest of the market’s competitors. This enhances the brand’s overall reputation and perception among consumers, which is critical for expansion.

Aside from that, technology allows them to keep tabs on their competitors. It helps them keep an eye out for their moves and take the necessary precautions to adopt the latest market trends. Technology has transformed the way we do business by allowing small businesses to compete with larger organisations through various small startups.

Small businesses use a wide range of technology, from servers to mobile devices, to gain a competitive advantage in the marketplace. Small start-up business owners should consider incorporating technology into their planning process for streamlined integration and to allow for future expansion, allowing for sustainable business growth.

□□□

Invited Lecture 7

Industry Academia Partnership



N.D. Mathur

Affiliation & Contact:

- Dean, Jaipur School of Economics,
JECRC University, Jaipur (INDIA)
Email: dean.humanities@jecrcu.edu.in; M: +91 9414071144
C-129, Anand Bhawan, Mangal Marg, Bapu Nagar, Jaipur-302015

Research Interest:

- Globalization, Public sector management

Education & Professional Career:

- M.A. (Economics) Univ. Of Rajasthan, Jaipur, 1977
- M.Com (Economic Administration) Univ. Of Rajasthan, Jaipur 1979
- M.Phil.(Economics) Univ. Of Rajasthan, Jaipur 1982
- Ph.D. Topic “Price Policy in Public Enterprises” Univ. Of Rajasthan, Jaipur Awarded In 1988

Presently Professor N.D.Mathur is senior Professor in the department of Economics, Dean School of Humanities and Social Sciences and Jaipur School of Economics, at JECRC University Jaipur. Professor Mathur has been senior Professor in the department of Economics and former Director School of Humanities and Social Sciences, at Manipal University Jaipur. He had been a senior faculty member of the Department of Economic Administration and Financial Management, University of Rajasthan, Jaipur.

Professor Mathur is an inter-disciplinary expert in the field of economics, commerce, management, academic training, administrative training and coaching. He has around 45 years teaching experience in various colleges and Universities. Professor Mathur has published around 70 research papers to his credit in reputed research journals including SCOPUS indexed journals.. Thirty six students have been awarded Ph.D. degree and post-doctoral degree under his supervision. . He is a

prolific author and authored around 7 textbooks and 20 reference books / edited books in the field of Commerce/Management/ training. He is an expert academic trainer who imparts soft skill training to the trainers. He is an extensive visitor of various UGC HRD Centers of the country.

Abstract

Industry Academia Partnership

N.D. Mathur

Dean, Jaipur School of Economics, JECRC University, Jaipur

The term "industry-academia partnership" refers to a framework for cooperation between universities and businesses with the goal of maximizing each party's resources. The scope of the partnership extends to several activities, including collaborative projects in the realms of R&D, technology transfer, skill building, and joint events. Collaborations of this kind can have a positive effect on economic growth by, among other things, encouraging new ideas and innovations, speeding up the process of turning research into marketable products, reducing project costs, increasing efficiency, and fostering a more varied and talented work force.

In practice, these collaborations frequently take the form of combined research initiatives that meet the interests of both the academic community and the business world. Working together hastens the creation of innovative technologies and makes it simpler to use the findings of scientific study in practical settings. Academic institutions receive insights into industrial demands, which improves the relevance of their educational programs, while businesses gain access to academic resources, such as laboratories and expertise.

The partnership also includes opportunities for students to get experience and enhance their skills in the workplace through internships and placements. Collaborative activities like workshops and conferences provide a venue for networking and information sharing between academia and industry personnel.

Effective communication, common objectives, and a dedication to ongoing collaboration are the cornerstones of fruitful industry-academia collaborations. When governments, funding agencies, and organizations see the potential for collaboration in this way to spur innovation, economic growth, and the cultivation of a trained workforce to meet the industry's ever-evolving demands, they play a crucial role in creating an atmosphere that is favorable to it.

Keywords: technology transfer, academic resources, economic growth, industry-academic partnerships.



Invited Lecture 8

Synergies in Action: Unveiling the Key Learnings from Successful Industry-Academia Partnerships



Bindu Jain

Prof. Bindu Jain is a Professor at University of Rajasthan, Jaipur. She has led charge as the Vice principal of Maharani College for the last 7 years. She also serves as the Vice President of the Rajasthan University Teachers Association.

Abstract

Synergies in Action: Unveiling the Key Learnings from Successful Industry-Academia Partnerships

Bindu Jain

Professor, University of Rajasthan, Jaipur, India

In the landscape of Indian academia and industry, the dynamics of collaboration are undergoing a profound transformation. This research aimed at exploring the intricate tapestry of industry-academia partnerships, with a focus on understanding the synergies that propel successful collaborations. As India positions itself as a hub of innovation and economic growth, deciphering the nuances of these partnerships becomes crucial for sustainable development of education.

Purpose

The primary purpose of this study was to identify and analyze the key factors contributing to the success of industry-academia partnerships in the Indian context. By delving into diverse case studies, our goal was to extract practical insights and learnings that can inform and enhance future collaborations. Understanding the symbiotic relationships between academia and industry is pivotal for fostering an environment that nurtures innovation and educational growth.

Methodology

The author employed a multifaceted approach to comprehensively analyze industry-academia partnerships. Through extensive literature review and qualitative assessments of knowledge exchange, innovation initiatives, and overall impact, the researcher aimed at providing a nuanced understanding of collaborative dynamics and ever-evolving industry-academic relationships.

Conclusion

The findings of this study had shed light on the intricate web of successful industry-academia partnerships. From facilitating technology transfers to driving skill development initiatives, the research emphasizes on actionable insights for stakeholders seeking to optimize their collaborations. As India navigates its trajectory of innovation and educational growth, this study stands as a valuable guide, offering practical strategies for fostering and sustaining effective industry-academia synergies for future researchers, industry experts and educational practitioners.

In concluding this exploration of industry-academia partnerships in the Indian context, several key learnings have emerged. The identified factors contributing to successful collaborations underscore the importance of a well-defined knowledge exchange framework. Effective communication channels and collaborative platforms are pivotal in navigating the complex terrain of academia-industry relationships.

Furthermore, the study reveals that fostering innovation requires a strategic approach, encompassing technology transfers and interdisciplinary initiatives. The adaptability of academic institutions and industries to evolving trends and demands emerges as a critical determinant of success. Skill development initiatives play a central role, not only in bridging existing gaps but also in shaping a workforce equipped for the challenges of tomorrow. By incorporating these insights into future initiatives, stakeholders can not only optimize their partnerships but also contribute to the broader tapestry of innovation and economic progress in India.

Keywords : Synergies, Industry-Academia Partnerships, Knowledge Exchange, Collaborative Dynamics, Innovation.

□□□

Invited Lecture 9

Modern Technology and its Impact on business Development



Mamta Jain

- Professor, Department of Economic Administration and Financial Management, University of Rajasthan, Jaipur.
- 27 years of teaching and research experience of UG, PG, M.Phil, Ph.D. and Professional courses.

Education Qualification : M.Com., M.Phil., MBA (throughout First Class) and Ph.D.

Abstract

Modern Technology and its Impact on business Development

Dr. Mamta Jain

Professor, University of Rajasthan, Jaipur, India

Technology plays a pivotal role in modern business, driving innovation, improving operational efficiency, and enabling organizations to adapt to a rapidly changing business environment.

Technology advancements have had a profound impact on the business landscape, transforming the way organizations operate, interact with customers, and compete in the global market. Businesses have undergone a digital transformation, moving from traditional, paper-based processes to digital workflows. This has streamlined operations, reduced costs, and increased efficiency. Technology has facilitated global business expansion by breaking down geographical barriers. Companies can now easily connect with suppliers, partners, and customers worldwide through the internet, enabling global collaboration and trade. The rise of e-commerce has revolutionized the way businesses sell products and services. Online platforms allow for 24/7 sales, reaching a global customer base, and providing a convenient shopping experience. The abundance of data and advancements in data analytics have empowered businesses to make data-driven decisions. Companies can analyze

customer behaviour, market trends, and operational metrics to gain valuable insights. Cloud technology has changed the way businesses store, access, and manage data. It offers scalable and flexible solutions, reducing the need for physical infrastructure and allowing for remote access to resources. Mobile devices and applications have transformed how businesses operate. Mobile technology enables employees to work remotely, access information on the go, and interact with customers through mobile apps. Social media platforms have become essential for marketing, customer engagement, and brand building. Businesses leverage social media to connect with their audience, gather feedback, and promote products and services. Technology allows businesses to personalize customer experiences. Through data analysis, companies can tailor products, services, and marketing efforts to individual preferences, enhancing customer satisfaction and loyalty. Automation and AI have automated routine tasks, improving efficiency and reducing errors. AI applications, such as chatbots and virtual assistants, enhance customer service and support functions. Technology has improved supply chain management through real-time tracking, inventory optimization, and data-driven insights. This results in faster delivery times, reduced costs, and better overall efficiency. As businesses increasingly rely on technology, the need for robust cyber security measures has grown. The rise of cyber threats has led to increased investments in cyber security to protect sensitive data and maintain trust. Technology has driven rapid innovation and disrupted traditional business models. Companies that embrace innovation can gain a competitive edge, while those resistant to change may face challenges in staying relevant. In essence, technology has not only changed the way businesses operate internally but has also reshaped their relationships with customers, suppliers, and the broader market. Adaptation to these technological advancements has become a critical factor for success in today's business environment.

□□□

Invited Lecture 10

Futuristic Technology DNA with Next Generation AI



Subhajit Bhattacharya

Affiliation & Contact:

- Accenture
Gurugram, Haryana
Website: www.accenture.com

Research Interest:

Artificial Intelligence, Data Science and Analytics, Intelligent Systems, IoT, Entrepreneurship Management, Innovation

Education & Professional Career:

- Since 2021 Associate Vice President, Accenture
- 2018 – 2021 Senior Group Program Manager, Accenture
- 2015 – 2018 Program Manager – Innovation & Automation, Accenture
- 2012 – 2015 IT Project Manager, Accenture
- 2011 – 2012 IT Applications Manager, Bank of America
- 2007 – 2011 Senior Software Engineer & Technology Consultant, TATA Consultancy Services
- 2003 – 2004 Software Engineer, IBMBachelor Tokyo University (Economics)

Education:

- Executive Business Management (Dual specialization Marketing & HR), Indian Institute of Technology, Bombay
- Master of Business Administration (International Business), Indian Institute of Foreign Trade, New Delhi
- Master of Computer Applications, Vellore Institute of Technology, Vellore
- Bachelor of Computer Applications, National Institute of Technology (NIT), Patna

Major Publications:

Sr. No.	Publications	Publisher	Dated
1	Chapter: AI in Talent Management for Business Excellence Book: Industry 4.0 Technologies for Business Excellence	Taylor & Francis Group, Florida, USA	January'22
2	Smart Systems: Innovations in Computing	Springer, Singapore	March'21
3	Idea as a Project Framework	Project Management Institute, Pennsylvania, USA	August'17
4	Unified Resource Descriptor over KAAS Framework	Springer, Singapore	December'15
5	Project Management as a Service (PMaaS)	Project Management Institute (PMI), Pennsylvania, USA	September'14
6	Concept Prototyping over PMAAS Suite	Project Management Institute (PMI), Pennsylvania, USA	September'14
7	Management Information System - A Journey to Information Intelligence	SlideShare (https://www.slideshare.net/mariastellasolon/management-information-system-78403154)	July'17

Abstract

Futuristic Technology DNA with Next Generation AI

Subhajit Bhattacharya

Associate Vice President-Innovation Principal Accenture, Delhi, India

Today when the technology is playing a pivotal role globally, digital first has become the fundamental necessity for every organization to grow. While influencing across the industries, technology has become the prime neural system for exchanging and processing information at the lightning speed to accelerate market reach and quick business deliveries with quality, security, and privacy. Further advancement of Artificial Intelligence has remarkably induced the technology DNA to an extent that today we are moving towards the converged AI models. A revolutionary advantage we have got over a past decade post the advent of cloud technology is to adopt

everything-as-a-service technology paradigm, it has further given completely a new transition to a business model.

While we have been engaged with the data to train the models for machine learning and deep learning, we have witnessed another turn when the GenAI has emerged as a new generation AI which can generate several insightful, holistic, and creative information to answer end user queries in different ways of representation on the console, and thus it has given a birth to a new field of engineering called “Prompt Engineering”. Gen AI clubbed with advanced analytics models, can further produce efficient predictive scenarios helping the end users to take right suggested actions proactively. Leading software organizations are working to develop next generation semantic web technologies, which can replace the tabular search results with summarized search results alike wiki pages. Industries are using Internet of Things and block chain extensively for data transmission, automating data processing, enabling more security, privacy, and authenticity. Today organizations are using Industrial Intelligent of Things to further automate their industrial operations and processes at scale.

Technologies like immersive reality and Metaverse equipped with AI, NLP, and computer vision augmented with sensors, intelligent cameras (including camera enabled drones), remote monitoring devices (including satellites) etc., have significantly brought a new wave to the digital transformation.

Today we are exploring the potentials of data and quantum atoms to reach to the possibility of infinity to figure out the core meta structures of the knowledge cuboids. Quantum computing will likely to play a prominent role in this journey wherein several possibilities can be explored parallelly while considering every quantum of data to its atomic level for relational and referential knowledge mapping.

Keywords: Technology, Data Analytics, AI, GenAI, IoT, Immersive Reality, Quantum Computing, sustainable & green technologies.

□□□

Invited Lecture 11

Role of Technology in Start-ups and Small Business



Rohit Todwal

Founder, Startbit IT Solutions Pvt. Ltd., India

He is B.Com., MCA, Azure Certified Project Manager. He has more than 18 years of work experience. He started his career with NIIT Ltd. as faculty and moved to software development and after 3 years of job, he started his own software development company in 2008 - Startbit IT Solutions Pvt. Ltd.

He along with his partner acquired on Logistics based IT Product Company in 2016 to focus on product line and operating that company "AngelTech LogiSol Pvt. Ltd." successfully since then.

In 2022, he along with his team, achieved 4th position in Innovation based Startup company competition organized by Maruti Suzuki + GHV and got working contract from MSIL.

His expertise is in client management, networking, resource management, business planning, strategic development and startup consultancy. He has good vision for business process automation and RPA, he is helping many manufacturing industries to automate their processes with innovative and best in class IT solutions. He is handling clients from more than 42 countries with average NPA score of 4.8 out of 5.

He along with his team works in SAP SuccessFactors, Salesforce, Shopify, Ruby on Rails, .Net core with Azure, DevOps, PowerBI and their USP is ecommerce solutions and customized web/mobile app development. His company is registered partner of Microsoft, Amazon web services, Shopify, Salesforce.

Abstract

Role of Technology in Start-ups and Small Business

Rohit Todwal

Founder, Startbit IT Solutions Pvt. Ltd., India

In today's competitive world, everyone wants to focus on growth and fast paced success, technology plays a very important role in this journey. Startups and Small businesses have limited budgets/resources, but in this scenario, these entities can use technology in best possible way to achieve the goals/target in short span of time and can focus on the growth and innovations.

In this session, Rohit Todwal is going to explain how technology can help startups and small businesses to change the game and push themselves to go beyond the traditional way of doing the business and differentiate themselves from others to win the race.



Invited Lecture 12

Government Initiatives to support Start-ups



Dhawal Singhal

Dhawal, possess 11+ years of work experience in Government Consulting, Strategic Marketing & Communications, Business Development and Client Servicing. He is a MBA graduate from Grenoble Graduate School of Business, France and is certified in Incubator Manager Training Program organized by NEXUS, The Innovation Hub American Center, New Delhi. Being proficient in documentation, reporting, analysis with respect to Government functioning and processes and helped state governments frame policies and initiatives around IT and startups, Dhawal is also well aware of the brewing start-up culture and have mentored and worked with multiple startups at various stages of their lifecycle. He is also been regularly contributing to bring partnerships with various venture capitalists, investors, trade associations and other financial and academic institutions from across the country and facilitating direct connect of start-ups with these stakeholders and streamlining the deal flow pipeline and make start-ups business ready & improve their chances of funding and success.

□□□

Invited Lecture 13

Importance of Holistic Development of Employees



Ashutosh Mishra

*Assistant General Manager
Human Resources (AGM-HR),
Jaipur Rugs, Jaipur, India*



Invited Lecture 14

Digital India : A Key to Entrepreneurial Success



Manika Karnawat

26 Years of experience in Advertiser, Marketer, Brand Influencer. Completed her education from MGD Girls School and St. Xavier's College. She started Jaipur Buzz in 2016. 7+ years of work experience in the field of social media marketing. During her journey she has received a lot of awards for excelling in the field of advertising & marketing & for being a young women entrepreneur. She has also been a part of magazine shoot, modelling for various brands, podcasts, interviews, newspaper headlines, calendar shoot & judge in various competition.



CONTRIBUTED PAPERS

Changing Dynamics of Women Entrepreneurship in India: Its Problems and Prospects

Anupama Goyal

Associate Professor in Botany, Jayoti Vidyapeeth Women's University (JVWU), Jaipur

ABSTRACT:

Over the decades, women in India have crossed countless stones to regain their potential. But nowadays women are coming out of their shell and the wind of change is being observed as they have come a long way from being just a homemaker to entrepreneurs. Entrepreneurship, which is a fundamental driver of growth and prosperity not only for individuals but also for society and the nation as a whole, its promotion and development in a developing country like India is essential, especially for the empowerment of women. From Kiran Mazumdar Shaw of Biocon Biochemicals to Radhika Ghai Aggarwal of Shopclues, women entrepreneurs in India are vehemently trying to pave their way by guarding the glass ceiling. There has been a remarkable change in the demographic scenario of Indian business with the presence of women entrepreneurs who not only encourage others but also contribute to the country's economy. However, female entrepreneurs face a unique set of challenges and, embodied as the primary caregivers of Indian households, the shackles of domestic commitment continue to handicap the spirit of many women. The lack of self-censorship and lower arrogance that women have continues to be a serious concern. This study aims to bring to light the challenges that women entrepreneurs continue to face, as well as highlight the silver linings that weigh on their entrepreneurial spirit.

Keywords: entrepreneurship, female entrepreneurs, problems and prospects

I. INTRODUCTION

Late Prime Minister of India, Pt. Jawaharlal Nehru once remarked, "You can tell the state of a nation by the state of its women", emphasizing the need to empower women who have been burdened with domestic responsibilities under patriarchy for centuries. With entrepreneurship becoming a necessary condition to accelerate the development of any nation, the participation of women in this field becomes imperative (Baumol & Schramm, 2007).

II. BRIEF LITERATURE REVIEW

Jean-Baptiste Say, the French economist who coined the term "entrepreneur", stated the definition that "An entrepreneur moves economic resources from an area of lower to an area of higher productivity and greater return".

Dating back to the late 17th century, the concept of entrepreneurship has seen rapid progress in its development and importance to the global economy. As women create ripples in the entrepreneurial

race, a male-dominated field, researchers have conducted countless studies to define women entrepreneurs and their challenges and prospects.

In their study, Deshpande and Sethi (2009) acknowledge the growth of women entrepreneurs and highlight the fact that this has been possible due to a change in social structure, increased government support and renewed self-confidence of women.

In their study, Goyal and Prakash (2011) mentioned the breaking of glass ceilings and the evolution of women entrepreneurs from the 3Ps of Pickle, Pappad and Powder to the 3Es of Energy, Electronics and Engineering, depicting the expansion and development of women. entrepreneurial skills and their adaptability.

Kumar (2014) while emphasizing the necessity of women entrepreneurs for economic development pointed out the differences prevailing on the basis of emotional intelligence and predisposition between male and female entrepreneurs in the country which act as obstacles in the way of development. business women.

Acknowledging the various gender-specific and gender-neutral biases faced by women entrepreneurs, Tiwari (2017) in her study appealed for an urgent call to decode policy imperatives and interventions to increase women's participation in entrepreneurial ventures.

Samantroy and Tomar (2018) highlighted the urgency of addressing the needs of women entrepreneurs in terms of their overall empowerment to meet the global commitment to achieve the United Nations Sustainable Development Goals (SDGs) by 2030. The study further highlights the need for an inclusive and sustainable industrial development plan to harness potential of women entrepreneurs in India.

III OBJECTIVES OF THE STUDY

The main objectives of the study are

- i. To investigate the factors that encourage a woman to become an entrepreneur;
- ii. To study the challenges faced by women entrepreneurs in their businesses; and
- iii. To analyze ways to develop women's entrepreneurship.

IV RESEARCH METHODOLOGY

Research Design: The research design is descriptive in nature as it addresses the questions of “what” – “what” factors encourage women to become entrepreneurs and “what” challenges they face during their entrepreneurial journey as well as “what” ways to grow women’s business.

Data Collection: Primary data was collected through a structured questionnaire (Google Forms) that was distributed on digital platforms. Secondary data was collected from journals, books and research articles.

Table 1: Showing the demographic profile of the respondents

Variable	No.	%
AGE:		
Below 25 years	02	4%
25-35	03	6%
36-45	21	40%
46-55	19	37%
55 & Above	07	13%
MARITAL STATUS:		
Married	36	69%
Unmarried	08	15%
Widow	05	10%
Divorcee	03	6%
CHILDREN:		
Yes	38	73%
No	14	27%
EDUCATION:		
Under Matriculation	Nil	
Under Graduate	39	75%
Post Graduate	08	15%
Others	05	10%
WORK EXPERIENCE:		
Yes	33	63%
No	19	37%
FAMILY TYPE:		
Nuclear family	37	71%
Joint family	15	29%
CATEGORY OF BUSINESS:		
First Generation Entrepreneurs	40	77%
Parents as Entrepreneurs	05	10%
In-Laws as Entrepreneurs	07	13%
LOCATION OF PLACE OF BUSINESS:		
Within Home premises	29	56%
Separate office/factory/outlet	23	44%

WORK TIMINGS:		
Upto 5 hours	06	12%
From 5 – 8 Hours	32	62%
From 8 – 12 hours	13	25%
More than 12 hours	01	01%

Interpretation of the 52 respondents included in the study, 40% belong to the age group of 36-45 years. Regarding marital status, 69% are married and 73% have children. 75% have completed their studies up to graduation and 63% have work experience. In terms of family type, 71% have nuclear families and 77% of women entrepreneurs are first generation entrepreneurs, 56% have a business as part of their home. 62% of women spend 5-8 hours on their business.

Table 2: Showing the challenges of women entrepreneurs

S.No.	Variables	Responses	
		Rank	%
1	Stiff competition	1	15
2	Family Restrictions	2	12
3	Role Conflict	3	11
4	Difficulty in maintaining work life balance	4	11
5	Lack of Entrepreneurial ability	5	10
6	Lack of Information regarding government incentives and subsidies	6	10
7	Lack of finance	7	8
8	Limited Mobility	8	7
9	Lack of self confidence	9	5
10	Problem of marketing	10	3

Interpretation: The study illustrates that 15% of the respondents rated “Tough Competition” as a key challenge for women entrepreneurs. It was followed by "Family Restrictions" which accounts for 12% and "role conflict" which is in third place with 11% answers. .

FINDING

Based on Objective I

1. Innovative thinking encourages women entrepreneurs to explore the whole possible arena and gives them the satisfaction to show their creativity.
2. Women desire their own identity through their work in this patriarchal society and have succeeded in creating it through their own business.
3. The success stories gave them inspiration to try their luck and achieve their dream through their business.

4. The need for additional income also encourages them to venture into their own business to help their husband and family financially.
5. Constant encouragement from family and friends also helps them in building their confidence to start their own business.
6. Another encouraging factor for many women is the availability of attractive government incentives and subsidies for women entrepreneurs.
7. Leveraging funds that are lying idle also convince women to start their own business.

Based on objective II

8. Fierce competition acts as a major hurdle for women entrepreneurs in marketing their products and services in an organized sector that is mainly dominated by their male counterparts.
9. They don't get full support from their family which adds to their problems in their entrepreneurial journey.

Playing different roles at the same time is another limitation that adversely affects their functioning as entrepreneurs

Suggestions and Conclusion :

India has come a long way in increasing women's participation in education and the economy. In recent years, we have witnessed a gratifying paradigm shift in demographics against the backdrop of corporate India. There has been a gradual transition in the Indian business scenario and the existence of gender stereotypes has taken a huge turn where women are seen in the business dome walking side by side with their male counterparts. While this is a wonderful sight, female entrepreneurs have their own challenges in addition to the normal struggles that prevent them from flourishing. Women should be given more exposure to break the conventional barrier and achieve better results in a male-dominated business environment. Women do not realize their potential but if properly molded with entrepreneurial traits and skills, they will overtake men to face changes in trends, challenges in global markets and also be competent enough to maintain and strive for excellence in the business arena.

References :

- Anand, V. (2017). "Women Entrepreneurs in India– Problems and Remedies", Shanlax International Journal, Volume 6, Issue 1, December 2017, Pages: 103-106
- Baba, M.M. (2013). "Development, Challenges and Remedies of Women Entrepreneurship with Special Emphasis on Assistance Availed by Women Entrepreneurs in Jammu and Kashmir State", Asian Journal of Managerial Science ,Vol. 2 No. 2, pp. 44-49
- Baumol, W. & Schramm, C. (2007). Good Capitalism, Bad Capitalism, and the Economics of Growth and Prosperity. New Haven & London: Yale University Press.

□□□

Digitalization : A Renaissance of Entrepreneurial progress

Varsha Dhabhai

Jagannath University, Jaipur

Abstract:

Digital India is a flagship program of the Government of India to transform India in to a digitally empowered society and knowledge economy. Digital India program is focused on 3 prime vision areas : 1. Digital Infrastructure as a Core Utility to Every Citizen: make digital infrastructure available to every citizen of India by providing high speed internet to the last frontier of the nation. 2. Governance and services on Demand by providing seamlessly integrated service across departments or Jurisdictions. Making available of services in real time from online and mobile platform to improve ease of doing business in India digital transmitted service has been introduced, making financial transactions electronic and cashless. 3. Digital Empowerment of Citizen via Digital India initiative by Government has made all digital resources available and accessible which has helped to improve universal digital literacy. Now the citizens are not required to submit Government documents and certificates physically. To bypass the limitations of physical world almost all size and shape of organizations are adopting digital technology. New advancement in the digital technology helps an organization to release their product and services to the market faster, offering near perfect user experiences and also acts as a helping aid to reach the right customer. Organizations are continuously working hard to adopt ongoing stream of data, implementing strategic business plan, to make sure that the organization remain on top of the current trend. The motto of the Digital India Mission is 'Power to Empower'. There are three core components to the Digital India initiative. They are digital infrastructure creation, digital delivery of services, and digital literacy. Digitalization in business helps to improve the efficiency of its operations, making automation possible. There are fewer human errors and operational costs are reduced, due to the decreased need for human resources. Benefits of Digitalization -Increased efficiency of all operations, Fewer human errors , Safer data storage in the cloud, Reduced operational costs , enables data analysis.

Keywords : Digital Empowerment



Digital India: A key to Entrepreneurial Success

Parul Bhargava

Assistant Professor, S.S. Jain Subodh Management Institute, Jaipur

Abstract:

The Government of India has initiated a campaign called "Digital India" to ensure that all government services are made available to residents electronically, either through better online infrastructure and increased Internet connectivity, or by giving the nation digital empowerment in the technology sector. Plans for connecting rural areas to high-speed internet networks are part of the effort. Three key elements make up "Digital India". The national e-governance plan has been amended and expanded as part of Digital India. It aims to electronically supply all government services. Dreamed up by our honourable Prime Minister Sri Narendra Modi, Digital India is a dedicated programme to get India ready for the knowledge-based change and to give the people good governance through coordinated and synchronised interaction with both the central and local governments.

Digital India is a campaign launched by the Government of India to ensure the Government services are made available to citizens electronically by improved online infrastructure and by increasing Internet connectivity or by making the country digitally empowered in the field of technology. The initiative includes plans to connect rural areas with highspeed internet networks. Digital India consists of three core components. Digital India is a modified and expanded version of the national e-governance plan. It seeks to deliver all government services electronically. Dreamed of our honourable Prime Minister Sri Narendra Modi, Digital India is a committed program to prepare India for the knowledge-based modification and providing good governance to people by synchronized and coordinated involvement with both central government and local government. On 20th Aug 2014, the Digital Indian program was accepted by the Union Cabinet under the management of India's Prime Minister Shri Narendra Modi. The Digital India program has been imagined by Division of Electronic and Information Technology and contains all the current schemes being run by the Telecommunications Division & Rural Growth Ministry. Digital India is an initiative or a campaign by the Government of India in order to transform India into a digitally empowered society and a knowledge economy. The main objective of the government was to make all the services of the government electronically available by enhancing the internet connectivity and the online infrastructure to the citizens of India. The vision of Digital India programme is inclusive growth in areas of electronic services, products, manufacturing and job opportunities etc. and it is centred on three key areas – Digital Infrastructure as a Utility to Every Citizen, Governance & Services on Demand and Digital Empowerment of Citizens.

Keywords : Digital, India, Make in India Online infrastructure, Digital India, Vision & Objectives, Empowerment.



Emerging Technologies: Stimulant for Start-ups and Small Businesses

Raju Agarwal

Director, S.S. Jain Subodh Management Institute, Jaipur

Abstract:

India has emerged as the world's second largest startup ecosystem next the US. India is a hotspot for startup and spacing forward at an exponential rate. The Indian startup ecosystem has expanded quite rapidly mainly through private investments including seed, angel, venture capital, and private equity funds, with technical support from incubators, accelerators, and the government. The government, for its part, is creating an enabling environment through its flagship Startup India initiative, which came into force in 2016. Sustained Government efforts through BIRAC have resulted in increasing the number of recognized startups in India from 442 in 2016 to 92,683 in 2023 (as on 28th February 2023). The technology plays an important role in establishment and growth of startups and small businesses. The some of the emerging technologies in Industry 5.0 are Artificial intelligence (AI) and machine learning (ML); Blockchain and Web3 technology; Intelligent automation and robotic process automation (RPA); Internet of things (IoT); and Quantum computing. More than 4,000 recognized startups are engaged in sectors relating to emerging technologies such as Internet of Things (IoT), robotics, artificial intelligence, analytics, etc. These emerging technologies can transform a wide range of industries and significantly impact the way we live and work. The potential uses for these emerging technologies are vast, and as these technologies continue to mature, the industries can expect to see even more innovative and transformative use cases emerge. These technologies will expand next year as more companies adopt these solutions to automate a wide range of business processes and improve efficiency.

Keywords: Artificial Intelligence, Blockchain technology, Internet of Things, Startups, Web3 technology



Skilling for Self-Employment

Supriya Agarwal

Associate Professor, S.S. Jain Subodh Management Institute, Jaipur

Abstract:

Self-employment contributes to employment growth and innovativeness and many individuals want to become self-employed due to the autonomy and flexibility it brings. Using “subjective well-being” as a broad summary measure that evaluates an individual’s experience of being self-employed, the chapter discusses evidence and explanations why self-employment is positively associated with job satisfaction, even though the self-employed often earn less than their employed peers, work longer hours and experience more stress and higher job demands. Despite being more satisfied with their jobs, the self-employed do not necessarily enjoy higher overall life satisfaction, which is due to heterogeneity of types of self-employments, as well as motivational factors, work characteristics and institutional setups across countries

The study found that Business Education students needed skills such as time management skills, self-motivation skills, interpersonal skills, human resource management skills, financial management skills and customer service skills for self-employment and national development. The hypotheses tested revealed that there was no significant difference in the mean responses of Business Education students on the time management skills, self-motivation skills, interpersonal skills, human resource management skills, financial management skills while there was significant difference in the mean responses of Business Education students on the customer service skills needed for self-employment. It was recommended among others that conferences, workshops, seminars and symposia should be organised by the ministry of education and they should be focused on the human resource management skills needed for self-employment and that Business Education students should be made to see it as compulsory to come up with feasible business plan before graduation in order to build their abilities in establishing businesses on their own for themselves and for the nation at large.

In a comparison of self-employed graduates with a growth orientation to those who do not intend to grow their firms, it was observed that those who had planned growth had also acquired certain skills to a greater extent than those that did not plan to grow their firms. Important skills to have in self-employment were identified as technical skills, perseverance, communication skills, managerial skills, leadership, innovation, pro-activity, financial skills, and information-seeking skills. All the listed skills were more prevalent among those who had the intention to grow their firms than those who did not have this intention, with the exception of technical skills.

Keywords: self-employment, entrepreneurship, subjective well-being, job satisfaction, life satisfaction.



Why Technology Integration is vital for Holistic Development of Emerging Industry

Jyotsna Diwan Mehta

S.S. Jain Subodh Management Institute, Jaipur

Abstract:

This paper aims to explore the need and importance of effectively and efficiently converting the outcomes of research generated technology into products, services and ideas that are able to satisfy the market needs along with creating products, services and ideas that address the problems of communities and apply technologies to provide solutions to the issues that communities face. The idea is to draw attention to the need to work towards creating an eco-system that nurtures research and develops sustainable markets for technologies without infringing upon the interests of the people, rather integrating technology advancements with social, cultural and environmental interests of communities.

Background:

While the first Industrial Revolution that lasted from the mid-18th century to about 1830 was confined to Britain, the second Industrial Revolution took place in Britain, continental Europe, North America and Japan. America assumed global leadership in the 20th century on the strength of its economy, innovation and military strength. The third Industrial Revolution revolved around an electronics boom and the production of nuclear power. The new millennium has ushered in the fourth Industrial Revolution powered by the internet and the rapid strides in technology. Technology has changed the world so quickly and in so many ways that it cannot be disputed that the key factor for any company's competitive edge in the market is identified by the technology it uses. Technology is the result of the quality and quantity of Research and Development that is being invested in. While large companies invest in R&D, many government funded institutions and organizations also invest in research and development of technology. Academic enterprise and excellence is nowadays judged by the research that the institution produces. Whether companies work towards betterment of technology on their own or buy the best available technology out there, companies understand that the ability to integrate the company's R& D efforts with its production department is the key to its success in the market place. On the other hand, it is also true that in spite of so much development, technological advancements and inventions, the world continues to be confronted with several challenges including climate change, hunger and inequality. These multi-dimensional, deep rooted issues require long term risky investments, innovation and equitable solutions that may not give returns in the short term, nor yield the kind of profits that venture capitalists need to justify investment in research and development. In fact, typically, a company would measure R&D productivity by assessing the returns the company gets on the investment

made on the R& D. This is why continued government support and public investment in R&D accompanied with efforts to integrate the research outcomes into public interest applications is so important.

What is Technology Integration?

Technology Integration refers to the process of aligning research and development with the needs of the market and ensuring feasibility of manufacturing the developed products and ensuring that these products reach the target market ahead of the competitors and also they effectively satisfy the needs they were produced to fulfill. It is really a bridge between the field of research and the actual application of the results of the research. We would like to extend the meaning of technology integration to go beyond the financial interests and extend to the integration of new technologies to the social, cultural and political well-being of the public.

Why is it difficult to ensure Technology Integration?

Research findings are considered useful if they lead to financially viable, socially acceptable and technologically feasible products, services, processes and ideas. In recent years it has become even more challenging to integrate inventions and innovations with application. There are several reasons for this:-

1. The technology used in various sectors of business and industry has changed dramatically and several options in technology are available for choosing. New technologies are coming up every day. For example, Microsoft had an extremely demanding ask in creating Windows 95 operating system because the requirement was to create an operating system that could function seamlessly with a very large number of hardware and software combinations. The company had to come up with a product that could work reliably after sifting through numerous technological approaches.(Reddy 2002)
2. The sources of technology have also rapidly increased. In fact it has become very important for companies to keep abreast of the latest technology. An important source of the latest research findings is the work that takes place in the top universities of the world. It is important for companies to stay connected with vibrant academic networks around the globe so that they can access the best and latest sources of suppliers of innovative technology.
3. The rapid changes that are being witnessed in technology have led to the shortening of the product life cycle. This means companies are pushed to develop and commercialize new technologies very fast. The change in technology has been accompanied by a changing marketplace-one that is ridden with uncertainty. For example in the mid-1990s no one could predict how the internet could impact or shape consumer demands.(Rosentiel,2006)
4. While it is important to create the latest technology, it is even more important to identify and choose the best technology available. Take the example of Unilever. In the 1990s the detergent

market was mature and highly competitive. Unilever was looking for a combination of compounds that would improve the quality of wash and out of the various options that were generated, Unilever chose manganese compounds but in 2023 HUL is readying new detergent making tech in green drive (ET Bureau,2023) Choosing from the array of technologies available and making the right choice is important.

Technology Development must be aligned with application

When we examine why performance of companies varies, factors like techniques and methods of project management, leadership styles and types of organization structure are identified. But the most important factor in the current scenario is the process of integrating technology development with application. There are several points to consider before it can actually carry out this integration.

- i) Technology adoption is a key method of gaining competitive advantage. The methods of organizing and managing projects are easily replicated and it is only by using technology that the outcomes of organization efforts can be greatly improved.
- ii) If the organization fails to use the most suitable technology at the right time or chooses an inappropriate technology the project is sure to run into problems regardless of other factors.
- iii) While companies will seek to use the latest technology, they may not want to invest in the R&D required to create such technology.
- iv) The companies will in all likelihood focus only on how the technology can be translated into financial profits. The application of the technology for social and public good is likely to be ignored or only paid minimum interest.
- v) Most public interest applications of technology are led by government led funding, partially or wholly.

Investment in technology and innovation in the right direction has contributed to the world's most used applications in several fields. Take the example of healthcare; the lifesaving drugs, innovative medical procedures and promising medicines are the result of research. The concept of the internet originated from ARPANET, a program funded by the Defense Advanced Research Project Agency of USA. The GPS (Global Positioning System) that we use today emerged out of a 1970's US Military research project that worked on creating what was known as Navstar GPS. A Professor and his doctoral student at the University of Delaware gave the concept of touchscreen technology that was used in the iPhone. DARPA had researched and created project pal (Personalized Assistant that Learns) that was later worked upon and refined to create Apple's Digital Personal assistant 'Siri'.

In fact, The Satellite Instructional Television Experiment by ISRO and NASA had arranged for 2400 black and white community television sets in the villages of six Indian states at a point when most Indian urban homes also did not have a television and through this experiment the power of media communication was studied.

Methodology:

The research undertaken for this paper was exploratory and included going through secondary data of companies and industry that create, develop and adopt technology. Secondary data review was undertaken to find out who had funded the investment in and the application of public interest technology. The objective of this paper was to-

- Understand the relationship between technology creation and adoption and its actual application
- Highlight why technology integration is important in the current scenario
- Identify what must be done to ensure that the latest breakthrough technology is also used for the greater good of communities and countries.

Result and Discussion

Investment in research & development continues to be very important for growth and development and while companies do look to adopting the latest technologies, they do not always want to spend on actually creating them. It is therefore not sufficient to assume that because growth is fuelled by technology, the market forces will drive research and development. Besides, market forces are blind to societal and environmental concerns. Governments across the globe are reducing their expenditure in R&D in the hope that the wave of technology innovations is strong enough to take it forward. If technology is to be used in public interest applications then the governments must not only facilitate, regulate and administer market forces to allocate resources to research and technology innovation but also support and fund its own research especially in areas of public interest technologies. The phenomenal success of ISRO as Chandrayaan 3 successfully landed on the moon is a stellar example of the power of well applied research. ISRO is directly funded by the Department of space (DoS) which is a Department of the Government of India.

Conclusion

It is not enough to hope that the needs of the market and the push of market forces will be sufficient to push companies to invest in research and development. Nor is it enough that the government works towards finding technology solutions to government and non- profit problems. It is imperative that –

- Investment in R&D stays a priority for both the corporate sector and the government sector
- Sufficient attention must be given to integration of technology invention and its application
- Not only must the governments support public interest technologies but they must incentivize corporates to seek ways to align social, environmental, political and cultural interests with their technologies.
- Systems are established to integrate technology based solutions.
- New Academia is designed for technologists that helps in the study of the social, economic and political ramifications of new technology

- A thrust must be given to creating jobs for relevant technologies, and nurturing networks that support and enable investment and interest in R&D.

Keywords: Technology Integration, R&D, Holistic Development, Public Interest Innovation.

References:

- [Idronline.org/article/technology/why India needs tech for the common good](https://idronline.org/article/technology/why-india-needs-tech-for-the-common-good)
- Mazzucato M., *The Entrepreneurial State*, Penguin Books, 2018
- McGuinness TD and Schank H, *Power to the Public: The promise of Public Interest Technology*, Princeton University Press, 2021
- Reddy Bernard, Evans David S. and Nicholas Albert L., *Why does Microsoft Charge so little for Windows? Microsoft ,Antitrust and the New Economy :Selected Essays*, Research Gate, January 2002
- Rosentiel Tom, *The Internet and Politics: No Revolution, Yet*, Pew Research Centre, November 2006
- Somvanshi Kiran and K,Malviya Sagar, *HUL readying new detergent –making tech in green drive*, [m.economictimes.com>fmcg](https://m.economictimes.com/fmcg), September ,2023
- www.britannica.com
- www.usg.edu/galileo, *Brief History of the Internet*, (A project of the Board of Regents of the University System of Georgia)

□□□

A study of Economic Development and Indian Environment

Yogesh¹ and Sunil²

²*Extension Lecturer, Deptt. of Commerce, Govt. College Narnaul*

Abstract:

Environment and Economic and Agriculture Development are closely related and depend on each other. If there is the environment of any country, state or a region is not protective, it will surely disturb to economic development as well as agriculture development of a state and region in India. In the Indian constitution under article 48A contains provisions regarding environmental protection. Under the directive principles of the constitution. It has been written that every citizen should endeavor to protect the natural environment of the country, contribute for the development of rivers, lakes, forests, animals etc. These provisions shows the socialistic concern of our society towards environment, but the implementation of these provisions have been show.

Underground water, river, lakes and glaciers have come under the grip of pollution. Stagnation of soil fertility, decreasing agricultural production, pollution of water & air, vibrating earth, terrible & horrible sea the Tsunami, changing weather, and high intensity cyclones of all such phenomena are the alarm of danger. Infect the conservation of environment and ecological balance has become the most challenging problems of the 21st century. A healthy body possesses a healthy mind; likewise the development of the nation can take place only in a clean & pollution free environment.

Economic and agriculture development is a complete process consisting of many steps and environment is a critical factor of this process. If environment of a state is not included in the development plan, the state cannot develop. For maximum development of agriculture forests, animal wealth and industries, environment becomes a critical factor. Environment protection is also necessary for sustainable development.

With the special reference in Indian economic and agriculture development, we should control the using of chemicals in agriculture as well as proper protection of environment and aware the population also. There should be extension of moral education, government policies and other things they protect to the environment. In India, the largest democracy of the world, environmental issues must be given priority over economic issues.

Keywords : Environment, democracy, sustainable development, Tsunami and ecological balances.

Introduction : India Is a high populated and democratic country. The Climate changing is the corrector of Indian nature. Development is the continuous process which indicates the level of Development of any nation. The new concept of sustainable development has compelled us to ponder over the utilizing the resources. We have to development the present resources keeping in mind the future development.

Underground water, river, lakes and glaciers have come under the grip of pollution. Stagnation of soil fertility, decreasing agricultural production, pollution of water & air, vibrating earth, terrible & horrible sea the Tsunami, changing weather, and high intensity cyclones of all such phenomena are the alarm of danger. Infect the conservation of environment and ecological balances have become the most challenging problems of the 21st century. A healthy body possesses a healthy mind; likewise the development of the nation can take place only in a clean & pollution free environment. Hence a clean & pollution free environment is the pre-condition for Nation's Development.

To make India a clean, pretty, prosperous and pollution free country achieve co- operation of its citizens in greatly required. Infect it may be a matter of population control or literacy or conservation of environment or keeping the children healthy or any other matter, our active co-operation is needed. To take swachh Bharat mission of Modi, sabka saath sabka vikas and sustainable development we should maintain the un-polluted development.

Observation : Today we see pollution in almost each village, town or city. Today we find no field of human life unpolluted. Hence it is high needed for the recommendation of the country that such

factors which induce pollution should be checked. In this context the consignment of rural roads & schools, maintenance & repair of lakes & ponds, connecting canals in flood prone areas & a forestation, construction of common latrines, Garbage & waste collection spaces & biogas plans under MNREGA scheme is warmly mentioning; by introducing such programmes the environmental pollution & degradation may be checked upto same extent.

Today about 5 crore hectare of land is lying barren and vacant in India. It may be caressed into arable land by providing inputs like water manures and fertilizers and by applying suitable soil treatment. It will lead to economic development of the country by increasing the agricultural production as well as the National income. Pollution free agriculture is also very much required today. Today the biotic balancing the soil has badly disturbed.

Japanese farmer 'Masa Nobu Fukuoka' had shown a new way to the world practicing pollution free agriculture. It is a kind of new revolution which is being popularized in the various parts of the globe. In India, a variance of this technique called "Zero Village" is being popularized.

In India, about 100 million small farmers, 100 million landless labors and about 550 million animal wealth sustain their lives on natural agricultural products; for sustaining such a huge population, there is need to enlarge the practice of national agriculture. For harvesting the full potential of such practices, joint efforts of centre and state are required cooperative agriculture and land consolidation can be also helpful.

Unbalanced industrialization and urbanization has adversely affected our environment. Though urbanization is a sign of development for a country, but in our country urbanization has adversely affected the rural areas and common men.

Objectives : The present study aims at examining the interstate disparities in the agriculture development and growth rate of population in the year wise and rural and urbanized situation. The broad objectives of the present study are –

1. In India the disparities of growth rate of population and agriculture development state wise.
2. Rural and urban temperature and environment in year wise.

Hypothesis : There are following determined to study :

1. Production increasing and employment in agriculture is decreasing.
2. Environmental changes are increasing.
3. Socio economic factors (Poverty, unemployment, education, health, etc.) are affecting the development of agriculture.
4. Agriculture production depends on monsoon still.

Methodology : In the present study we have scattered in state wise & year wise as well as rural and urban areas environmental conditions. We have collections from secondary data from census and books etc.

Characteristics of research area: As the country develops, the population also develops but since development has adversely affected the rural areas, our 70% population has been badly affected by the environment. The rate of economic development is different for rural and urban areas. Rural area consists of agriculture. This difference is show in the following table:-

Table-1 : Average Annual growth rate of urban and rural population and urban rural growth differentials (URGD) in major states of India 1971-2010.

Country	Rural			Urban			URGD		
State	71-81	81-91	91-01	71-81	81-90	91-01	71-81	81-91	91-01
Andhra Pradesh	1.57	1.84	1.36	3.96	4.32	1.46	2.39	2.48	0.10
Assam	2.00	2.26	1.67	3.27	3.96	3.62	1.27	1.70	1.95
Bihar ²	1.88	2.26	2.13	4.37	3.02	2.55	2.49	0.76	0.42
Gujarat	2.01	1.52	1.71	3.47	3.44	3.27	1.46	1.92	1.56
Haryana	2.00	2.29	2.06	4.67	4.34	5.08	2.67	2.05	3.02
Himachal Pradesh	2.06	1.94	1.61	2.98	3.78	3.24	0.92	1.84	1.63
Jammu & Kashmir	--	2.44	2.87	--	4.59	3.62	--	2.15	0.75
Karnataka	1.75	1.77	1.21	4.10	2.96	2.89	2.35	1.19	1.68
Kerala	1.46	0.36	1.01	3.5	6.10	0.76	1.73	5.74	0.25
Madhya Pradesh ²	1.76	2.24	1.82	4.45	4.39	3.13	1.74	2.02	1.61
Orissa	1.46	1.79	1.38	5.22	3.62	2.98	3.76	1.83	1.60
Punjab	1.61	1.77	1.23	3.68	2.90	3.76	2.07	1.13	2.53
Rajasthan	2.43	2.55	2.75	4.62	3.96	3.12	1.19	1.41	6.37
Tamil Nadu	1.22	1.33	0.52	2.47	1.96	4.28	1.25	0.63	4.80
Uttar Pradesh ⁴	1.88	2.26	2.13	4.47	3.87	2.82	2.94	1.61	0.69
West Bengal	1.85	2.30	1.69	2.76	2.095	2.02	0.91	0.65	0.33
India	1.78	1.80	1.70	3.83	3.09	2.70	2.05	1.29	1.00

2. Including Jharkhand, 3. Including Chhattisgarh, 4. Including Uttarakhand

Source : Census of India 1991-Series-I India General Population.

Table – Part-II A. (i) & census of India, Provisional Population, Tables Paper-2 of 2001 of states rural – urban distribution.

Urbanization in India has been relatively slow as compare to many developing countries. The percentage of annual expediential growth rate of urban population, reveals that in India it grew at faster pace from the decade 1921-31 to until 1951 thereafter, it registered a sharp drop during the decade 1951-61 the decade 1961-71 & 1971-81 showed significant. Improvement in the growth which has thereafter steadily dropped to the present level. The annual growth rate of population by residence has been depicted with the help of above Table.

The above table confirms that the urban population growth rate has declined continuously during the next two decades in most of the states of India as compared to the decade 1971-81. However, some, states shown an increase in the urban population growth in the some way function ting trends were obtained in various states with regard to the rural population growth rate.

Increasing urban population and urbanization adversely affected rural development, when rural people became educated and skilled, they migrate to urban areas and do not contribute in rural development, so due to vast difference of living conditions of rural and urban areas. The skilled and educated rural population migrates to urban areas.

Speed of urbanizations in India is increasing, it can be measured as change registered in the level or degree of urbanization over the years in the country has not been uniforance shown fluctuationing trend the speed of urbanization has decline during 1981-91 and 1991-2001. It also depends upon the policies of Governments the facilities. Provided by them at various places or region. The speed of urbanization can be show in various decades with the help of the following table:

Table-2

Decades	Growth rate of percent Urban (Temp. of PR)	Growth rate ofpercent Rural (Temp. of PR)
1901-11	(-)0.5240	0.6184
1911-21	0.8250	(-)0.000815
1921-31	0.7054	(-)0.0924
1931-41	1.4444	(-)0.2139
1941-51	2.2160	(-)0.4072
1951-61	0.3846	(-)0.0823
1961-71	0.1492	(-)0.0329
1971-81	2.4629	(-)0.6434
1981-91	0.7724	(-)0.3161
1991-2011	0.7714	(-)0.2815

Source- Computed figures from population census.

The above table shows for the last 100 years that the rate of growth of urban population is different from the rate of growth of rural population. This directly affects to rural growth rate.

Analysis of study : The data indicates most environment and economic & agriculture development are closely related and dependent on each other. If the environment of any state region of are disturbs. It will surely disturb the economic development of the region. In the Indian constitution under article 48A contains provisions regarding environmental protection. Under the directive principles of the constitution. It has been written that every citizen should Endeavour to protect the natural environment of the country, contribute for the development of rivers, lakes, forests, animals etc. These provisions show the socialistic concern of our society towards environment, but the implementation of these provisions have been show.

Environmental pollution not only affects a particular state or nations, but adversely affect the whole world; though the impact may vary from one region to another. Though advanced countries are more developed, but they also lack modern methods to contain the adverse effects of environmental pollution. So all the countries of the world should adopt common policies for environment issues.

Economic development is a complete process consisting of many steps and environment is a critical factor of this process. If environment of a state is not included in the development plan, the state cannot develop. For maximum development of agriculture forests, animal wealth and industries, environment becomes a critical factor. Environment protection is also necessary to development & agriculture development as well as for sustainable development.

In India, the largest democracy of the world, environmental issues must be given priority over economic issues. For regulating the environment, the following acts have been enacted.

- Water (Pollution Control and Regulation) Act. 1974.
- Air (Regulation and control of pollution) Act, 1984.
- Environment (Protection) Act, 1986.
- Wild life protection Act. 1972.
- Minerals and Mining (Regulation and maintenance) Act. 1974.
- Industries control and regulation Act. 1851.
- Atomic Energy Act. 1662.
- Radiation Protection Act. 1972.
- Toxic Act. 1919.
- Insecticide Act. 1962.
- India Fisheries Act. 1997.

So many other acts have been enacted in India, but their full implementation have not been possible so the priority should be on implementing the acts already framed not on enacting new acts.

At the international level, India has also initiated many steps, cooperated in the international treaties, but global consensus on the environmental issues have not been achieved. Following events have been significant at the global level.

- International Environmental Conference, Stockholm 1972.
- Helsinki Conference, 1974.
- London Conference, 1975.
- Vienna Conference, 1985.
- Rio Conference, 1992.
- Nairobi Reclamation, 1997.
- Kyoto Conference, 1997.
- Malmö Reclamation, 2000.
- Earth Conference, Johannesburg 2002.
- World conference on environment- New Delhi- 2017

Such events - Conferences and declarations have been held at various places of the earth to raise concern about environment. Earth Summit 2002 has been a landmark achievement in bringing all the environmental issues under one umbrella within the framework of privatization and globalization.

Suggestions :- On 16th September (the ozone day), the Prime Minister has said, “Our forefathers gave us impact ozone layer. We have to protect it for coming generations” So we all have to make integrated efforts to save it. The first effort to protect the ozone layer began in 1972 with the UN conference on environment 16 September was declared as ozone layer day. We have to follow following points to protect the ozone layer and environment.

1. Implement the various environmental laws.
2. Strict punishments for violating the environmental laws.
3. A surveillance cell over police and administrative machinery.
4. Awareness among common people about the importance of environment protection.
5. Mandatory environmental education in schools.
6. Environmental education at every level of education.
7. Creating awareness among rural population about the pollution and its various causes.
8. Complete ban on the use of polythene.
9. Saving the water bodies, rivers etc. from pollution.
10. Establishing those industries polluting less.
11. Recycling of polluting waste materials.

12. Controlling the urban population.
13. Controlling the migration of rural population to urban cities by providing urban amenities in rural areas.
14. Providing the establishment of new industries in deserted areas and thus preventing industrial cancelation.
15. Enhancing the fund for research & development related to the pollution controlling projects.

So it can be concluded that national development will be partial measure of environment is not included in its ambit.

References :

1. E-mail: nitindesai@hotmail.com
2. E-mail: mahendra126@rediffmail.com
3. E-mail: sakumara@vsnl.net
4. Yojna-June 2008-538, Yojana Bhawan, Sansad Marg, New Delhi.
5. Base – Ashish (K78) India's Urbanization (1901-2001).
6. Data and Details and Original View have been collected and mentioned from newspapers clippings.
7. Davis. K (1972) World Urbanization 1950- 1970 Vol.I and University of California- Barkley.
8. G.O.I (2008-2009) Economic Survey Ministry of Finance, New Delhi.



Impact of Social Infrastructure on Economic Development

Takdeer Singh¹ and Sunil²

¹*Lecturer in Commerce, S. K. V. Moti Bagh-I, Delhi*

²*Extension Lecturer, Deptt. of Commerce, Govt. College Narnaul*

Abstract:

The infrastructure is an important concept for faster economic growth and an improvement of human's scarcity in the country. The sufficient infrastructure in the structure of road and railway transport system, ports, power, airports and the efficient working is also needed for combination of the nation. The social infrastructure refers to those factors which provide the human resources of the nation suitable for productive work; when considering a country to enter into staples should evaluate whether the country has an adequate social infrastructure to faster economic growth. Social

infrastructure can consist of physical structures, transport system, institutions, human needs and facilities. While economic infrastructure accelerates the method of growth, social infrastructure accelerates the process of human development.

Keywords : Social infrastructure, Communication and Economic Development

Introduction: Social infrastructure is the basic require of economic development. It does not directly produce any goods and services but facilitate invention in the primary, secondary and tertiary economic activities by creating external economics. It is an admitted fact that the level of economic development in any country directly depends on the development of social infrastructure. Social infrastructure of the Indian economy plays a major role in the growth and development of the country's wealth. India is the world's largest democracy, is the seventh largest country in terms of land area and the second most populous country in the world.

The infrastructure of India concentrates on transportation, banking and finance, telecom, energy resources, mining, and urban as well as rural infrastructure. Infrastructural development is one of the major sources for economic development of any country. The proper quality and adequate infrastructural facilities ensure the high standard of living as well as also helps in improving productivity and efficiency.

According to the World Bank, Infrastructure is an umbrella concept involving many activities referred to as 'Social Overhead Capital'. It includes:

- **Public Utilities:** Power, telecommunication, piped water supply, sanitation and sewerage, solid waste collection and disposal and piped gas.
- **Public Works:** Roads and major dams and canal works for irrigation and drainage.
- **Other Transport Sectors:** Urban and interurban railways, urban transport, ports and water ways and airports.
- **Social Infrastructure:** Basic education, primary health care and banking service. (World Bank, 1994).

Infrastructure is broadly classified into:

- Social Infrastructure is that infrastructure that assists in stimulating the educational, health related and culture related standards of the people, like we can say schools, colleges, universities, hospitals, museums etc.
- Economic Infrastructure is that infrastructure that contributes in encouraging the economic activities, such as roads, highways, railroads, electricity, telecommunications, water supply etc.

Meaning of infrastructure : Infrastructure means a basic facilities and services which facilitate unlike economic activities and thereby help in economic growth of the country, education, health; transport and communication, banking and finance, irrigation and power and science and machinery etc.

Social infrastructure: Social infrastructure means a basic tricks and services which, in addition to achieving certain social objectives, indirectly help various economic activities. For example, education does not directly affect economic activities like production and circulation but indirectly helps in the economic development of the country by producing scientists, technologists, and engineers. So education, health service, sanitation and water supply etc. These are the examples of social communications.

Definition of Social infrastructure Social infrastructure refers to the core elements of social change (like schools, colleges, hospitals and nursing homes) which serve as a foundation for the process of social development of a country. Social improvement focuses on human resource development, implying the development of skilled personnel as well as healthy and efficient human beings.

Basic components of Social Infrastructure:-

- **Transportation:** Services such as roads, bridges, cycle highways, rail, airports and ports.
- **Energy:** Production and delivery of energy including electric grids. Most nations are moving towards sustainable energy source such as solar panels and wind.
- **Water:** It provides a supply of clean water and executive of water resources.
- **Health & Education:** Institutions that provide for basic quality of life such as hospitals and schools.
- **Public Space:** Public space that attracts economic activity such as tourism and corporate offices
- Including parks, beaches and nature reserves.
- **Environment:** Systems that improve environmental conditions such as rain gardens and green roofs.

Objectives :

- To study the concepts of role of economics of social communications in Indian economic improvement.
- To review the trends in the economic infrastructure and social infrastructure development with special reference to transportation, banking and finance, health, and education.
- To analyze the performance of economic survey in social infrastructure.

Methodology :

The research paper is based on secondary data. The information's are collected from books, journals, newspaper, websites and magazines.

Review of Literature :

- Prakash (1977) - Regional Inequalities and Economic Growth with Special Reference to

Infrastructural Facilities, The study found that there were disparities in the states of India in terms of infrastructure and the regions with stronger infrastructural base the potential to grow more rapidly as compared to others.

- Kapil (2009) - Role of Infrastructure in Economic Development in India: An Inter State Analysis, The study found that inter state disparities have reduced especially after liberalization. The study showed that there was a positive relationship between infrastructure and economic development.
- Chotia and Rao (2015) - Examining the Interlinkages between Regional Infrastructure Disparities, Economic Growth and Poverty: A Case of Indian States. The study found that there existed a negative correlation between Per Capita Net State Domestic Product and poverty data and there existed a positive correlation between Per Capita Net State Domestic Product and Composite Infrastructure Index (CII).

Definition of Economic Infrastructure :- Economic Infrastructure refers to all such elements of economic change (like power, transport and communication) which serve as base for economic growth. Abundant availability of power supply would accelerate the pace of production activity; abundant means of transport would facilitate the movement of goods from the producers to the consumers; it also mention of communication would facilitate advertising and so on forth. In the deficiency of economic infrastructure any efficient system of economic development would only remain a distant possibility.

Transportation infrastructure :- For the sustained economic development of a country, a well connected and efficient transport system is needed. India has good network of rail, road coastal shipping, and air transport. The total length of roads in India being over 30 lakh km, India has one of the biggest road networks in the world. In terms of railroads, India has a network of railroad lines, the biggest in Asia and the fourth largest in the world. The total route length is about 63000 km, and of this 13000km is electrified.

The major Indian ports including Calcutta, Mumbai, Chennai, Vishakhapatnam, and Goa handle about 90% of sea borne trade and are visited by cargo carriers and passenger liners from all parts of the world. A inclusive network of air routes connects the major cities and towns of airlines, while the worldwide airport services are looked by Air India.

Banking and finance infrastructure :- Banking and finance are another important sections of the core communications of India, comprising of 84 scheduled commercial banks, 133 regional rural banks (RRBs), and four local area banks (LABs) apart from more than 13000 non banking economic companies, credit societies, and co operatives. Other than these Indian infrastructure has developed a lot over the years in the other sectors like Indian telecom network with fully automatic worldwide communications, progress has been made by the use of satellite communication and submarine links.

Improving Social Infrastructure (Health and Education for the Poor) :- In LDCs like India, development of social infrastructure is vitally important for achieving faster economic development and alleviating poverty. India's Five Year Plans have failed to eliminate poverty for at least four reasons- malnutrition, poor health, a lack of learning opportunities, and limited choices good education, health and nutrition and low fertility help reduce poverty by growing opportunities to generate the right income. There are also positive associates between health and education. Education empowers people to use information better to make healthy behavioral choices; the healthy are more likely to attend school or go to work and can learn and work effectively.

Educational Outcomes :- In India as in other developing countries, greater coverage and more effective elementary education in grades 1-8 would be the education sector's most significant involvement toward alleviating poverty. No doubt average educational attainment has better in India. Yet India still lags behind other developing countries in average educational achievement to particularly among the poor. No doubt large benefits arrive from achieving a decisive minimum level of education across the population.

Although India has raised literacy rates, it still has a long way to go. Even China and Indonesia have overtaken India in literacy rates. Gross enrolment ratios have also better reaching 90% at the primary stage in which girls' enrolment being 73%. In spite of this, 33 million kids in the age group 6-11 are still out of school. Moreover, 7.8% girls and 6.9% boys in the age group 6-11 are in the workforce, mostly in rural areas. kids of poor families are less likely to be enrolled in schools. This is a major factor behind the low enrolment rates. Moreover, primary-level learning success is low.

Health Outcomes :- Nutrition is a particular problem area. India has a percentage of malnutrition and some segments of the population have among the highest levels of malnutrition in the world. Weaning children and women are particularly affected. There have been only modest declines in the levels of severe and moderate malnutrition in kids in the last 20 years. The proximate reason is the decelerate in poverty reduction.

Economic Survey of Social Infrastructure :- The Economic Survey 2017-18 on Monday pointed that education, skill development and health, sanitation would continue to be the priority areas for the Central government. However, the expenditure on social infrastructure has continued to be around six per cent. The survey said "The expenditure on social services by the Centre and States as a proportion of GDP had remained in the range of six per cent during 2012-13 to 2014-15.

"Being a developing economy, there is not enough fiscal space to increase the expenditure on critical social infrastructure like education and health in India. However, given the limited resources, the Government has consistently prioritized strengthening the educational and health profile of the population," said the Survey tabled in Parliament. It said the government is committed to achieving the Sustainable Development Goal (SDG) for education – 'Ensure inclusive and quality education for all and promote lifelong learning' by 2030. Budget 2018 will be presented in Parliament on February 1 by Finance Minister Arun Jaitley. India's Economic Survey 2017-18 was

presented in Parliament today. This is the first economic survey after the Goods and Services Tax (GST) was implemented last year.

The Performance of Infrastructural Services :- Whether in the public sector or regulated private sector the concert of infrastructural services has been quite poor. In many developing countries, the majority of the population, does not have access to the electricity and until recently in telephone services. After over 50 years of independence, in India the adequate pucca rural roads had not been built and natural highways were in very bad shape and not properly built and maintained lack of good ports and ports in India affected foreign trade of the country. It is only since 2001 that the work of building rural roads, highways, good ports and airports has been started in the 10th, 11th and 12th Five Year Plan

Similarly, until recently before the extensive use of mobile-phone wireless technology, telephone connections were very few and were a luxury consumer service rather than an fundamental productive service required to link markets, producers and consumers. Besides, one has to wait for many years to get telephone connection. However in the last 12 years, regarding telephone service things have improved a lot in India, especially with the widespread use of mobile telephone service. Likewise, in India, the performance of railways port and airport services has been quite inefficient and poor and need drastic reforms to be undertaken to improve their services.

Summary And Conclusion :- Prof. T.N. Srinivasan is right in saying that, the said performance of enterprises providing infrasstructural services has been a factor in the poor performance of many developing countries including India. Thus the case for reforming the infrastructural sectors is very strong, both for improving own performance and for removing the drag of an unreformed and poorly performing infrastructure sector on the realization of potential benefits of reforms in other sectors.

- The poor are often not reaping benefits from public health and education services. In contrast, education and health costs are enormous burdens for the poor.
- Health care also absorbs a major portion of poor families' incomes but often the spending and public health services do not yield much benefit. In such a circumstances, health gaps between the rich and the poor are likely to increase. Special attention is to be paid to the role of basic education in social transformation as well as economic development.
- No doubt health and education services are a public responsibility. But the goal of reducing poverty in India will remain elusive as long as the poor have low utilisation of preventive and curative health services, poor hygienic conditions, low school enrolment and attendance and poor quality schools and health services.
- The rapid expansion of the private sector in health and education is partly a result of the public sector's problem in providing quality services. But private sector behavior in these areas are not effective in providing public goods and are beyond the reach of many of the poor.

- Improvements in education must emerge from the community and at the school level. What is of paramount importance in reducing poverty is faster economic growth. This can be achieved by making more investment on human capital.

References :

- Chotia, Varun and Rao, NVM (2015), Examining the Interlinkages between regional infrastructure disparities, economic growth, and poverty: A case of Indian States, *Economic Annals*, Volume LX, No. 205 (April-June), pp 53-71.
- Dadibhavi, R.V (1991), Disparities in Social Infrastructure Development in India: 1970-71 to 1984-85, *The Asian Economic Review*, Vol. XXXIII, No.1, pp.31-48.
- Rao V.K.R.V. (1980), Infrastructure and Economic Development, *Commerce Annual Number*, Vol no. 141, pp 9-11.
- Balaramulu (2000), Infrastructure and Development in India – Macro and Micro Analysis, *Indian Journal of Public Administration*, Vol. XLVI, No. 4, pp. 601-616.
- Srinavasa B. and Rao P. Srinivasa (2013), Infrastructure Development and Economic Growth, *Journal of Business Management and Social Sciences Research*, Vol.2, No. 1, January 2013, pp. 81-91.
- A case study of Economic and social infrastructure development – B.S. Mujmule
- Inclusive Planning and Social Infrastructure Hardcover – A.K. Jain - January 30, 2010.317 pages.
- Infrastructure and economic growth in asia – john M. Cockburn., springer
- Infrastructure and economic development – David F. Batten, springer.
- <https://www.ibef.org/.../infrastructure>.



Social Entrepreneurship in India: Challenges and Opportunities

Kaneenika Jain

Assistant Professor, S. S. Jain Subodh Management Institute, Jaipur

Abstract:

The India has become the first to reach to the south pole of moon through its successful mission 'Chandrayan-3'. The nation is still facing problems such as poverty, illiteracy, mortality etc. even after enormous development in the fields such as start-ups, entrepreneurship, big data, artificial intelligence, cloud computing, space research etc. The government is continuously indulged in the spread of innovation and entrepreneurial activities among youth. One of the important and emerging tributary of entrepreneurship is social entrepreneurship that is becoming a buzz in present times. It is more than just philanthropy and has deeper and immense impact on social changes/ upliftment in developing nations. Social entrepreneurship, also known as altruistic entrepreneurship, primarily focuses on creating social capital with little or no emphasis on a positive return on investment (ROI). It focuses on special sort of initiatives, which are both social and economic in nature. In social entrepreneurship products and services are designed to make maximum social impact along with making considerable profits for the firm. The Indian Government has started encouraging social entrepreneurship to great extent so that the social inequalities can be handled and an ideal society can be achieved as well. Social entrepreneurs have the capacity to influence the society by their unique product/service aimed at the social upliftment. Their role begins with identifying the social problem which concerns everybody rather than certain sect of people in society. They play a crucial role in the economic as well as social development of the region. This paper aims at identifying the challenges and opportunities of social entrepreneurs in the nation. The paper also highlights the status of social entrepreneurship in India, the major social entrepreneurs and their successful social innovation, the government support available to social entrepreneurs and the future prospects of social entrepreneurship.

Keywords: economic development, entrepreneurship, India, social entrepreneurship, social innovation.

□□□

Journey of Innovation: Exploring the Dynamics of EdTech Evolution in India- A Comprehensive Review

Arshiya Goyal¹ and Bindu Jain²

¹Research Scholar, University of Rajasthan, Jaipur, India

²Professor, University of Rajasthan, Jaipur, India

Abstract:

This abstract provides a holistic overview of the in-depth analysis undertaken in the comprehensive review paper. By meticulously navigating through the emergence of EdTech enterprises, their contributions, and the overarching influence on the educational landscape, this study aimed at contributing substantively to the ongoing dialogue on the transformative dynamics of education in India. The journey of innovation, as explored in this paper, is not merely retrospective; it is a compass guiding future endeavors of online as well as traditional learning beckoning towards a future where education and technology converge seamlessly for the betterment of learning experiences in India.

Keywords: EdTech, EdTech evolution, Indian education, literature review, digital innovation.

Background:

This review paper highlights the dynamic landscape of Indian education system, addressing the transformative influence of EdTech firms. As digital innovation reshapes traditional learning paradigms, an exploration into the emergence of these entrepreneurial journeys and the EdTech market as a whole becomes crucial for understanding the evolving educational ecosystem.

Purpose:

The purpose of this comprehensive review paper was to explore the pivotal role played by EdTech companies in driving transformative change within the Indian education sector. By understanding their emergence, contributions, and impact on learning methodologies, the paper aimed at shedding light on the subtleties of the EdTech revolution unfolding across the nation.

Methodology:

This paper adopted a thorough literature review approach, synthesizing insights from academic/research articles, industry reports, and case studies. It systematically explored the rise of EdTech organizations in India, delving into their strategies, growth, and contributions. The synthesis of diverse sources aimed at providing a holistic understanding of the factors driving the transformative journey of EdTech businesses in the Indian educational landscape.

Key Areas of Exploration:

- **Inception and Growth:** The review scrutinizes the origins and evolution of EdTech companies in India, tracing their growth trajectories and identifying pivotal milestones in their transformative journey. By revisiting the historical context, the paper unveils the roots of EdTech innovation and the factors propelling their remarkable growth.
- **Contributions to Learning Methodologies:** A focal point of the review is the examination of the impact of EdTech firms on pedagogical methodologies. Through an in-depth analysis, the study explores how these companies have become architects of innovative learning approaches, including personalized learning, adaptive systems, and seamless technological integration into educational practices.
- **Market Dynamics:** Beyond individual ventures, the paper zooms out to analyze the broader EdTech market in India. Understanding market trends, challenges, and opportunities is integral to comprehending the contextual dynamics that shape the EdTech landscape. This exploration provides a panoramic view of the ecosystem in which these innovators operate.
- **Case Studies:** The review incorporates illuminating case studies of prominent EdTech companies, offering a closer look at their strategies, the challenges they have encountered, and the outcomes of their endeavors. These real-world examples serve as beacons, shedding light on the diverse approaches taken by EdTech entrepreneurs and their lasting impacts on education.



New Vistas of Advertising

Kalpana Soni¹ and Kajal Kanwar²

¹*Student, Biyani Girls College, Jaipur*

²*Asst. Prof., Biyani Girls College, Jaipur*

Abstract:

Advertising as we all know is a way through which we can connect to the consumer and understand the needs of them. Nowadays a lot of people are focusing on advertisement because it is really important for the whole economy no matter if it is a developing or developed economy. So to know more about this we can talk about different avenues or vistas of advertising. In India we have around one lakh crore worth of an advertising business. People have different ways of understanding it. Some say it is a dream profession or some say it's just a way to ice the people. Advertisements came to India after the 1990s. That is the globalisation period now if we look at it, major 5 conglomerates control 75-80% of advertising. While the increase in programmatic advertising slowed down in

2022, marketers will spend more on programmatic ads by the end of the year and in 2023. The future of advertising will be AI-powered in 2023. It will employ the effectiveness of AI to promote operations with machine learning. Companies now advertise through online platforms like connected TV, blogs, and apps. The companies learn what customers want and create relevant content based on consumer interest. So it will become standard to integrate solutions for customer journey management, email, mobile, social, web personalization, advertising, content handling, and analytics. Artificial Intelligence is ubiquitous in the advertising space. Now video advertising, personalised advertising, mobile-first advertising, display advertising, print advertising, social advertising, programing advertising are taking the place of traditional advertising.

Conclusion:- New vistas in advertising is that the industry is constantly evolving and embracing innovative approaches. From influencer marketing to immersive experiences, interactive ads, and native advertising, there are so many exciting ways for brands to connect with their audience. It's all about finding creative ways to capture attention and create meaningful engagements. The future of advertising is definitely full of endless possibilities!

□□□

The role of virtual reality in enhancing customer experiences for small businesses

Aditi Pareek

Asst. Prof., Biyani Girls College, Jaipur

Abstract:

This study provides a comprehensive exploration of the profound impact resulting from the integration of virtual reality (VR) on the transformation of customer experiences within the realm of small businesses. As innovation increasingly becomes imperative for small enterprises to stay competitive in the contemporary business landscape, this research endeavors to shed light on how VR, with its promise of immersive and memorable interactions, possesses the potential to fundamentally reshape and elevate the landscape of customer engagement.

In the dynamic and competitive business landscape, small enterprises are recognizing the pivotal role that innovation plays in maintaining and advancing their competitiveness. This exploration of virtual reality (VR) emerges as a strategic avenue for small businesses, offering not merely a means to meet but surpass customer expectations. VR, with its immersive and memorable experiences, presents an intriguing opportunity for small businesses to redefine and elevate customer engagement, thereby establishing a distinctive position in the market.

Methodology: To comprehensively grasp the impact of VR on customer experiences in small businesses, our research employs a methodical approach involving in-depth case studies. Small businesses actively embracing VR solutions were subject to rigorous scrutiny through meticulous data collection methods. This encompassed the solicitation and analysis of customer feedback, meticulous tracking of sales metrics, and the execution of usability assessments. The overarching goal was to gauge the tangible and transformative impact of VR on the overall customer experience landscape within small enterprises.

Results and Discussion: The empirical findings of our study illuminate a noteworthy and positive shift in customer engagement and satisfaction levels among businesses that integrated VR into their operations. Small enterprises that embraced VR reported a spectrum of tangible benefits, including increased foot traffic, extended customer dwell times, and elevated conversion rates. These outcomes underscore the transformative potential of VR in contributing significantly to the success of small businesses.

The observed increase in foot traffic suggests a heightened interest in establishments utilizing VR, marking a departure from conventional consumer behavior. Prolonged customer dwell times indicate a deeper and more immersive engagement facilitated by VR experiences, emphasizing its power to captivate and hold customer attention. Heightened conversion rates underscore the capacity of VR not only to captivate potential customers but also to convert them into actual patrons, positioning VR as a potent tool for small businesses aiming to enhance their overall success.

Conclusion: At Last the study concludes that the firm, establishes the notion that virtual reality transcends being merely a technological novelty; it is a transformative tool for small businesses. The immersive nature of VR fosters meaningful connections between businesses and customers, transcending conventional engagement boundaries. These deeper connections, as revealed by the study, contribute significantly to the overall performance and success of small enterprises within a competitive market.

Keywords: Virtual Reality, Customer Experiences, Small Businesses, Innovation, Customer Engagement.

□□□

Role of Technology in Start-ups and Small business

Anushka Butolia

Student, Biyani Girls College, Jaipur

Abstract:

Technology has become very vital for survival in today's world for startups and small businesses. Innovation is highly dependent on technology in the contemporary business setup especially startups and small firms. The paper considers the different impacts of technology on their business transactions, the precise ways it shapes their operations, strategies, and business at large. The interplay of emerging technologies including artificial intelligence, cloud computing, and data analytics in bringing transformative influence in decision making and scalability is investigated. The results point to the necessity of startups and SMEs to engage with technology and growth levers considering evolving business contexts.

Keywords: Innovation, artificial intelligence, technological advancements, cloud computing, scalability, data analytics.

Introduction: Startups, instead of relying on the traditional tactics are moving towards more powerful interventions. Technology has indeed enabled start-ups to have access to things that were previously impossible for them. As far as a Startup is concerned, such will always be taken to mean that one must step out of their comfort zones. This is where technology shines as the biggest advantage for daily business operations whereupon start up is a young firm with seed capital that was invested by its founding entrepreneurs to develop a unique product or service competing with other sellers of similar goods and services ultimately enabling the clients to gain cheaper products in. Notably, technological advancements such as business call apps could even allow for a more flexible workforce thus saving on the second phone.

Methodology: The research methodology encompasses a systematic selection of literature from established academic databases. To cover all peer-reviewed journal articles about the topic under consideration, database systems like Web of Science will be used. The research in Publish or Perish will use a predetermined set of keywords such as “technology”, “innovation”, “start-ups”, “growth”, “entrepreneurship”, and related phrases.

Result and Discussion: Some businesses have adopted technological approaches as a way of keeping up with sustainable business practices globally and in India. The Startups of today are adopting new technology that involves automation and artificial intelligence. Today no Startup business firm can succeed without new technology. It is a big-ticket in term of money, but it offers a lot and the worth exceeds the high cost.html Additionally, the company utilizes the advanced technology as well, which makes it an upper hand than other competitors in the market. The whole

reputation of a brand as well as the perception of their consumers are very important when it comes to expanding the business and so it should be improved.

Conclusion: Small business startups or companies of different sizes have been able to compete with big corporations through the new Technologies of Technology. Using an array of tech such as servers, mobile devices help small businesses develop competitive advantage in the economic market place. However, small start-up business owners should plan with technology as part of their strategy, for streamlining integration, and to also leave room for future expansion, which enables sustainable growth of business. It is through this mechanism that owners can implement their business and operations using state of the art technology for expansion in future.

□□□

Digital India: A Key to Entrepreneurial Success

Dilpreet Kaur

Asst. Prof., Biyani Girls College, Jaipur

Abstract:

In the contemporary era, the digitization of India's economy, popularly known as Digital India, has emerged as a potent force reshaping the entrepreneurial landscape. This abstract seeks to delve into the transformative impact of Digital India on business ecosystems, shedding light on its role in empowering entrepreneurs across diverse sectors.

Methodology: This study adopts a qualitative approach to comprehensively analyze the multifaceted aspects of Digital India's influence on entrepreneurship. The methodology involves an in-depth review of government policies, industry reports, and pertinent case studies. Through this approach, the aim is to provide a nuanced understanding of how Digital India has become a catalyst for entrepreneurial success.

Results and Discussion: Digital India has played a pivotal role in dismantling geographical barriers that traditionally limited the reach of entrepreneurs. The advent of high-speed internet connectivity and widespread smartphone penetration has provided unprecedented access to markets. Entrepreneurs, regardless of their physical location or financial standing, can now establish a global presence with relative ease. This democratization of market access is leveling the playing field and fostering a more inclusive entrepreneurial environment.

A crucial aspect of Digital India contributing to entrepreneurial success is the emphasis on digital literacy. As the digital ecosystem expands, entrepreneurs equipped with digital skills gain a competitive edge. Government initiatives and private sector collaborations aimed at promoting digital literacy have empowered entrepreneurs to navigate the complexities of the digital landscape

adeptly. This emphasis on continual learning and adaptation is fostering a culture of innovation and resilience among entrepreneurs.

E-commerce platforms, a cornerstone of Digital India, have been instrumental in empowering entrepreneurs to extend their reach beyond traditional boundaries. Entrepreneurs can now tap into a global audience and streamline their operations through secure digital payment gateways. The symbiotic relationship between Digital India and e-commerce has not only expanded market reach but has also catalyzed the growth of niche markets and innovative business models.

Fintech innovation, another byproduct of Digital India, has revolutionized the financial landscape for entrepreneurs. The digitization of financial services has mitigated traditional barriers to capital access. Entrepreneurs can now secure funding through online platforms and crowdfunding, reducing dependency on traditional banking systems. Additionally, the ease of digital transactions has enhanced financial inclusion, providing entrepreneurs with efficient and transparent avenues for conducting business.

The integration of emerging technologies, such as artificial intelligence (AI) and the Internet of Things (IoT), into the entrepreneurial ecosystem is another facet of Digital India's impact. Entrepreneurs are leveraging these technologies to enhance operational efficiency, optimize supply chains, and deliver personalized experiences to consumers. The adoption of these digital technologies has become synonymous with innovation, allowing entrepreneurs to stay ahead of the curve and respond dynamically to market demands.

Conclusion: In conclusion, Digital India stands as a linchpin for entrepreneurial success, offering a level playing field for businesses of all scales. The democratization of information, coupled with the proliferation of e-commerce and fintech solutions, has created an environment conducive to innovation and growth. The integration of AI and IoT technologies further amplifies the transformative potential of Digital India. Entrepreneurs must embrace this digital transformation to not only survive but thrive in the dynamic business landscape shaped by Digital India.

Keywords:- Digital India, Entrepreneurship, Fintech, , AI, IoT.

□□□

Innovating and Thriving in the New Era of Entrepreneurship

Ayushi Agarwal

Student, Biyani Institute of Science and Management, Jaipur

Abstract:

In the ever-evolving landscape of entrepreneurship, adaptation and innovation have become essential pillars for success. The new era of entrepreneurship demands a shift in mindset—one that embraces change, leverages technological advancements, and prioritizes resilience. This abstract explores the key elements required to not just survive but thrive in this dynamic environment.

Innovation stands at the forefront of this new era. It involves not only creating groundbreaking products or services but also reimagining business models, processes, and strategies. Entrepreneurs need to foster a culture of innovation within their organizations, encouraging creativity, experimentation, and the courage to challenge the status quo. Embracing emerging technologies, such as artificial intelligence, block chain, or the Internet of Things, can provide a competitive edge and open new avenues for growth.

Adaptability is another critical factor. Rapid changes in consumer behavior, market trends, and global events necessitate a nimble approach. Successful entrepreneurs are those who can swiftly pivot their strategies, capitalize on emerging opportunities, and navigate uncertainties with agility. This adaptability requires a deep understanding of market dynamics, a willingness to learn, and the ability to make data-driven decisions.

Collaboration and networking have also become instrumental in the entrepreneurial landscape. Building strategic partnerships, engaging with diverse stakeholders, and tapping into a global ecosystem can foster innovation, provide valuable resources, and unlock new markets. The ability to connect with like-minded individuals, industry experts, and potential investors can significantly enhance an entrepreneur's journey.

Moreover, sustainability and social responsibility are no longer optional but integral to long-term success. Entrepreneurs are increasingly expected to incorporate ethical practices, environmental consciousness, and social impact into their business models. Consumers are inclined to support businesses that demonstrate a commitment to sustainability, fostering trust and loyalty.

In conclusion, thriving in the new era of entrepreneurship requires a holistic approach that combines innovation, adaptability, collaboration, and a commitment to sustainability. Embracing change, leveraging technology, and staying attuned to the evolving needs of consumers are key drivers of success. By fostering a culture of innovation, adapting to changing landscapes, embracing collaboration, and prioritizing sustainability, entrepreneurs can not only survive but truly thrive in this dynamic era of business.

Keywords : entrepreneurship, adaptation, innovation, technological advancements, prioritizes resilience, environmental consciousness, Adaptability.



A study on Mudra loan – with special reference to Rajasthan State, India

Rajesh Jakhotiya

Asst. Prof., Biyani Girls College, Jaipur

Abstract:

Pradhan Mantri Mudra Yojana (PMMY) is one of the most important step of the Indian Government for the unsecured loan to the small business units who is unfunded entities and engaged in production, trading and service activities for the financial inclusion in India. Under this scheme, people can take a loan up to Rs. 10 lakhs to start their businesses or upgrade their existing businesses.

With the concept of “atmanirbhar bharat” by our Hon'ble Prime Minister Shri Narendra Modi, the new startup or upgrade their small business units who is unfunded entities and engaged in production, trading and service activities has increase lot and for them finance (especially unsecured loan) is like the blood.

This research proposal aims to highlight the overview, current scenario, significance among the beneficiary and satisfaction level among the beneficiary of PMMY in India especially in Rajasthan State.

Keywords: PMMY, beneficiary, Mudra, MSMEs



Robotics & Artificial Intelligence (AI) collaborative Industry- Academia learning

Shikha Dugar¹ and Nidhi Shukla²

Student, Biyani Institute of Science and Management, Jaipur

Asst. Prof., Biyani Institute of Science and Management, Jaipur

Abstract:

Robotics and Artificial Intelligence (AI) collaborative industry-academia learning is an interdisciplinary approach that combines the strengths of both the academic and industrial sectors to

prepare students and professionals for the challenges and opportunities presented by these rapidly evolving fields. This approach aims to bridge the gap between theoretical knowledge gained in academic settings and the practical skills required in real-world industries. In this response, I'll provide an overview of the present case and future visions for this collaborative learning model.

Present Case: Curriculum Integration: Many universities and academic institutions have begun to integrate robotics and AI courses into their curricula. These courses cover a wide range of topics, from machine learning and computer vision to robotics and automation. These programs aim to provide students with a strong theoretical foundation.

Hands-On Learning: To complement theoretical learning, institutions are incorporating hands-on projects and labs. These projects often involve building and programming robots, creating AI models, and solving real-world problems. Industry-standard tools and platforms are used to provide practical experience.

Industry Partnerships: Collaborative projects with industry partners are increasingly common. Companies in the robotics and AI sectors may sponsor research projects, provide access to their data, or even offer internships. These partnerships help students gain industry exposure and experience.

Hackathons and Competitions: Universities organize hackathons and competitions related to robotics and AI. These events encourage students to apply their knowledge and skills to solve complex challenges and often involve real-world industry problems.

Guest Lecturers and Workshops: Academic institutions invite professionals from the industry to deliver guest lectures and workshops. These interactions provide students with insights into the latest industry trends and challenges.

Future Visions: Interdisciplinary Collaboration: In the future, there will be an even stronger emphasis on interdisciplinary collaboration. AI and robotics involve elements of computer science, engineering, mathematics, and even ethics. Collaborative programs will encourage students to work across disciplines to address complex problems.

Experiential Learning: The future of collaborative learning will prioritize experiential learning, where students engage in project-based work, internships, and co-op programs. These experiences will be closely tied to industry, giving students a taste of what it's like to work in the field.

AI-Enhanced Learning: AI will play a larger role in education. Smart algorithms will be used for personalized learning, and AI-driven tutoring systems will help students grasp complex concepts. Virtual and augmented reality may also be incorporated to create immersive learning environments.

Global Collaboration: International collaboration between academia and industry will become more prevalent. This could involve students working on global projects or industry partners with a worldwide presence supporting educational programs.

Ethics and Responsible AI: The future will place a greater focus on teaching the ethical and responsible use of AI and robotics. This will include discussions on bias, transparency, and the societal implications of these technologies.

Continuous Learning: Given the rapid pace of change in these fields, continuous learning will be essential. Academia and industry will work together to offer lifelong learning opportunities, such as online courses and certifications, to keep professionals up to date.

In summary, robotics and AI collaborative industry-academia learning is a dynamic and evolving field. The present case involves integrating theory and practice through curriculum, hands-on projects, and industry partnerships. The future vision emphasizes interdisciplinary collaboration, experiential learning, AI-enhanced education, global engagement, ethics, and lifelong learning. This approach aims to produce well-rounded professionals who can meet the challenges of the ever-changing world of robotics and AI.

□□□

Women Entrepreneurship in India

Monika Kanwar¹ and Sujata Biyani²

¹ *Student, Biyani Institute of Science and Management, Jaipur*

² *Asst. Director, Biyani Institute of Science and Management, Jaipur*

Abstract:

Emergence of women entrepreneurs has led to an engendered perspective in realm of entrepreneurship. Women entrepreneurship is closely intertwined with instrumental societal and economic benefits. Despite the fact that women constitute nearly half of the population in India, their participation in entrepreneurial Activities remains severely limited. The study is an attempt to decipher the concept, profile and dynamics. Women entrepreneurship in India, so the study aims at analysing the prevalence of women entrepreneurship

In India, the criteria for selecting the existing research on the topic included highly cited research studies Women entrepreneurship specifically in the Indian context. Most recent research studies available Google. Scholar, EBSCO and Proquest have been selected for the purpose of review. Sex disaggregated databases on Women entrepreneurship published by Government of India and global publications are analyses for tracing The emergence of women entrepreneurs in India. The synthesis of review of the literature brought forth the Diversified profile of women entrepreneurs in India. Women entrepreneurs are a heterogeneous segment Belonging to different age groups and demographic background. They are also confronted with various Gender specific and gender neutral

challenges during the course of establishing and operating their ventures Entrepreneurial activity is quite low in India and is mostly concentrated in states of Tamil Nadu, Kerala, Andhra Pradesh, West Bengal and Maharashtra. There is an urgent need to decode policy imperatives and Interventions that can boost an engendered environment for women entrepreneurs in India

Keywords: women entrepreneurship, innovation

Introduction:

With the emergence of women in the field of entrepreneurship, researchers have resorted to Arrive at a comprehensive definition of women entrepreneur. Women who take onus to organize and manage the resources of their enterprises and bear all the risks in expectations of deriving Profit can be termed as women entrepreneur. This definition portrays women entrepreneurs as Conscious decision makers and managers (Coughlin, J. H., & Thomas, A. R., 2002). Women who chose to pursue the challenging role of an entrepreneur driven by their desire to fulfil their needOf independence and achievement. This definition is only applicable to women entrepreneurs who Are opportunity driven, i.e. women who resort to entrepreneurship driven by their free will. When a women or group of women embark on initiating, organizing and managing their Enterprise, they are termed as women entrepreneur (Suganthi, 2009).

Creative activity of initiating and operating a business venture leading to economic empowerment and social betterment of Women in the society can be termed as women entrepreneurship.

According to the Government of India, woman entrepreneur is the one who assumes dominant financial control (minimum financial interest of 51 per cent of the capital) in an enterprise .Thus it is evident that the definition of entrepreneur can be generalized to women entrepreneur Too. Some researchers have defined women entrepreneur possessing unique personality traits, while others have focussed on the roles they play as an entrepreneur while the Government of India has regarded financial control as a parameter in defining women entrepreneur. Based on the synthesis of available literature, women entrepreneurs in Indian context can be defined as women having dominant financial control over their enterprise, who either choose or are driven out of some necessity to take up the challenging role of an entrepreneur and embark towards starting, organizing and managing resources at their disposal in expectation of earning Profits. Women entrepreneurs take conscious decisions in order to manage their enterprise. Women entrepreneurship also leads to social and economic empowerment of women

Objective:

- 1-To study the human resource for a balanced economic growth.
- 2-To study the relevance of human resource in today's scenes.

Review of Literature:

G S Srinivas Murthy , Role of women Entrepreneurship in India. In this paper researcher wrote about the impact of government policies on women entrepreneurship, and more precisely they focused on the technological aspect of entrepreneurship.

Methodology:

The Study is based on the secondary data collected from published research papers, books and articles

Conclusion:

Women entrepreneurship is instrumental for achieving economic and societal growth. Despite Constituting around half of the total population of India, the economic participation of women is very limited. Women entrepreneurs of India are now emerging in non traditional sectors. Women entrepreneurs are a heterogeneous segment having diverse demographic, economic and Educational background. It is imperative that the policies and schemes cater to the unique needs of every segment. It is evident that there are numerous challenges faced by women in the course of their entrepreneurial career. There is a need of comprehensive action plan to counter these Challenges. Women entrepreneurship is concentrated in five states namely Tamil Nadu, Kerala, Andhra Pradesh, West Bengal and Maharashtra. The policy and interventions of these states needs to be explored so that the best practices can be emulated in other states. Despite the fact that government has framed and implemented various supportive measures, Women entrepreneurship in India remains alarmingly low. Majority of the women owned Establishments are concentrated in unregistered sector and hence are unable to reap the benefits

References: G S Srinivas Murthy, women Entrepreneurship in India

□□□

Analysis of Risk and Return in Mutual Funds

Saleem Ahmad¹ and Sanjay Biyani²

¹*Research scholar, Biyani Institute of Science and Management, Jaipur*

²*Director, Research Supervisor Research Centre- BISM, Jaipur (RTU - Kota – Rajasthan)*

Abstract:

A mutual fund is an investment vehicle made up of a pool of moneys collected from many investors for the purpose of investing in securities such as stocks, bonds, money market instruments and other assets. Mutual funds are operated by professional money managers, who allocate the fund's investments and attempt to produce capital gains and/or income for the fund's investors. A mutual

fund's portfolio is structured and maintained to match the investment objectives stated in its prospectus. Moreover, the equity culture has not yet developed fully in India as such, investor education would be equally important for greater penetration of mutual funds. As such mutual funds are expected to perform better than the market, therefore calls for a continuous evaluation of the performance of funds. In an academic perspective, the goal of identifying superior fund managers is of great interest due to the challenges it provides to the efficient market hypothesis. Secondary data have been taken for the study from various sources. The present study looks into the risk and return analysis of the select mutual funds in India. The study also throws light on how mutual funds lower the risk associated with investment through diversification.

Keywords: Mutual funds, Risk, Return, Investors, Diversification



Women Entrepreneurship Development through ICT

Shiv Jhalani¹ and Rajeev Biyani²

¹Asst. Prof., Biyani Girls College, Jaipur

²Chairman, Biyani Group of Colleges, Jaipur

Abstract:

New technology tools are benefiting women entrepreneurs in a multitude of ways. Technology plays a crucial role in connecting women to the markets and facilitating resources for their inclusive growth in the business landscape. Extensive technology support creates a conducive operating and enabling environment for women entrepreneurs in India. Business communication is integral to building a community of employees, associates and vendors. The impact of technology tools has increasingly become immeasurable, especially in women-owned businesses. It is difficult to neglect that technology has changed the way women communicate in business while breaking geographical and cultural boundaries. Significant advances in business communication tools such as cloud technologies have allowed women to organize their teams and business stakeholders better. The integration of such technologies builds a virtual communication channel across the world and women are now more focused on building systems that can enable their growth and bring business efficiencies. Backing women's abilities and their leadership leads to innovation. With the advent of technologies, women are no longer deterred to be active participants in learning & development programs. As the market continues to evolve, women are leveraging L&D opportunities without having to be concerned about geographic and demographic boundaries. Such tools have proved to be a growth catalyst for women working to drive business success. With technology tools, women entrepreneurs are benefiting from the accessibility of adopting new processes, technologies and

models that can fuel their business growth. Simply put, the demise of the on-site training idea has provided women with up skilling opportunities that have helped them in speeding innovation at work. Technology has been a massive game changer for online selling businesses. Women are now enabled to build a flourishing business starting from their small-scale product selling activities on Whats App, Instagram, etc. Furthermore, many platforms are offering women inventory support, marketplace building tools, etc to ensure unhindered growth of women-led enterprises.. The increase in the number of digital lending platforms is backing women with access to funds they need to thrive in business. Digital lending platforms have brought a myriad of business loans for MSMEs and women-led start ups to make sure that women go through minimum wait time to excel in entrepreneurship. Women entrepreneurs need the coordinated effort of industry stakeholders. Technology has provided the much need support and platform to women to foster social and intellectual capabilities that were once accessible only by the privileged or male counterparts. It builds a bridge for women to create smoother operations in conducting business.

Keywords: Women Entrepreneurship, Technology, Business, Efficiency, Conducting Business



Enhancing skills through Skill development programmes boosts Employability in India: A case study of Rajasthan Skill & Livelihood development Corporation (RSLDC)

Smriti Tiwari¹ and Abhishek Biyani²

¹Head-Placements & Training, Biyani Girls College, Jaipur

²Asst. Director, Biyani Girls College, Jaipur

Abstract:

The Prime Minister of India Shri Narendra Damodardas Modi introduced Skill India programme on July 15, 2015. By 2022, the initiative hopes to have trained 400 million (40 crore) Indians in various skills, enabling them to find work. The government is taking a number of initiatives under this campaign, including the National Skill Development Mission, Pradhan Mantri Kaushal Vikas Yojna (PMKVY), the National Policy for Skill Development and Entrepreneurship, 2015, and the Skill Loan Scheme. The program's objective is to provide young people with the skills necessary to find jobs and develop their entrepreneurial abilities. In order to empower the workforce working in various sectors, the Ministries and Departments in Rajasthan have launched and are implementing a number of skill development initiatives. These initiatives aim to provide youth and ITI graduates employable skills in addition to specialised training modules and courses designed for artisan groups, farmers, and entrepreneurs. This paper highlights the key achievements of RSLDC and also

set the guideline to youth, women, SC/ST communities, minorities having rural background to enhance skills through RSLDC and gaining confidence with generating employments and self-start ups.

Background: Rajasthan Skill and Livelihoods Development Corporation as a part of its outreach programme is working constantly throughout the state to improve employability through technology-based interventions for close supervision, skill development training programmes and ensuring job opportunities in accordance with scheme guidelines. It also meets demand-side requirements and focuses on training and employability enhancement of women, SC/ST communities, minorities, jail inmates, and residents of Nari Niketan. Up to 78% of the young people trained by RSLDC have a background in rural areas.

Methodology: The study is based on the secondary data collected through RSLDC official Website, District wise Skill Gap Study in Rajasthan report. E journals and newspapers.

Results and Discussion:

- As per the updated report available on Rajasthan Mission on Skill and Livelihoods (RSLDC) a total of 12 partners (includes KVK, Industrial training centre and NGO) implementing skilling initiatives with 34 approved programs (28 completed till now.)
- There are about 275 training institutes and organisations that offer the 192 courses.
- Under this, 34 economic sectors offer short-term skill training programmes ranging from 40 days (240 hours) to 90 days (540 hours)
- The number of youth trained 65172 through RSLDC programme.
- Training institutes receive funding for these programmes based on the number of training hours.
- Budget for this programme is made available by the Government of Rajasthan.

Conclusion: Rajasthan Skill and Livelihood Development Corporation (RSLDC) is regarded as an icon when it comes to developing and inculcating applicable skill sets to the state's youth. RSLDC offers specialised skill training, including soft skills and subject knowledge, based on the youth backgrounds and career goals. As a centralised nodal agency, RSLDC operates. It is not necessary for any other department to put up its own infrastructure in order to execute skill training programmes. They can give RSLDC their funding, and the company will set up training initiatives in line with that department's goals.

Keywords: Rajasthan Skill development, employability, skill training, Rajasthan initiative, funding, youth employment



Skills for Self-Employment

Garima Jangir¹ and Megha Daga²

Student, Biyani Institute of Science and Management, Jaipur

Asst. Prof., Biyani Girls College, Jaipur

Abstract:

Self-Development is a process of consciously improving oneself in various aspects of his or her life. It is the conscious pursuit of personal growth by improving personal skills talents competencies, and knowledge. underlying principles for the National Employment Policy may include enhancing human capital through skill development; creating sufficient number of decent quality jobs for all citizens in the formal and informal sectors to absorb those who are available and willing to work; strengthening social cohesion and equity in the labour market; coherence and convergence in various initiatives taken by the government; supporting the private sector to become the major investor in productive enterprises; supporting self-employed persons by strengthening their capabilities to improve their earnings; ensuring employees' basic rights and developing an education training and skill development system aligned with the changing requirements of the labour market.

Introduction: Self-employment requires a unique set of skills that go beyond traditional employment. As an entrepreneur or freelancer, you are not just an employee; you are the driving force behind your own success. India, despite achieving an impressive and steadily rising economic growth in recent years.

Objective:

1. To study the structure of skills for self-employment.
2. To study about the critical thinking and problem solving for self-employment.

Review of literature: Simon Blake OBE (foreword), Sarah Townsend survival skills for freelancer in this research paper researcher wrote about the skills for self-employment and more precisely they focused on the need for skills for the self-employment in a organization.

Methodology: The study is based on secondary data collected from published research paper books and articles.

Conclusion: In conclusion, self-employment requires a multifaceted skill set that goes beyond the expertise in a specific field. Developing and honing these skills can significantly contribute to the success of an entrepreneurial venture. Aspiring entrepreneurs should view self-employment as a continuous learning journey, embracing challenges, and refining their skills along the way.

Keywords: Entrepreneurial Skills, Self-Motivation

Reference: Simon Blake OBE (foreword), Sarah Townsend “survival skills for freelancer (2020)”



Emerging Horizons in Advertising: A Glimpse into Innovative Frontiers

Khushi Jakhotiya

Student, Bachelors of Commerce, University Maharani College

Abstract:

This research paper investigates the rapidly changing landscape of advertising and explores innovative trends that redefine marketing strategies. With a focus on audience tracking, the impact of social media, and the need for authenticity in contemporary campaigns, this paper aims to provide insights into the dynamic forces shaping the future of advertising. In addition, it delves into the evolving business landscape, emphasising the importance of adapting advertising approaches in response to economic shifts.

Introduction: The realm of advertising is undergoing a paradigm shift as technological advancements, changing consumer behaviours, and economic fluctuations reshape the industry. This research paper seeks to analyse and understand the new horizons of advertising in the context of emerging trends, audience tracking, the influence of social media, and the imperative for authenticity in brand messaging.

Objective: To identify and analyse new trends in advertising and marketing.

New Trends in Advertising and Marketing: As the world slowly recovers from the pandemic, businesses are looking for innovative ways to stay competitive. Digital advertising has yet to reach pre-pandemic spending levels. Recent data suggests it's steadily increasing and expected to speed up over the next few years. Personalization pertains to tailoring content and ads based on user behaviour, preferences, and demographics. This often involves the use of data analytics and AI to create more targeted and relevant advertising.

Artificial Intelligence is becoming a cornerstone in advertising strategies. This section examines the applications of AI, including machine learning algorithms for predictive analytics, chatbots for enhanced customer interactions, and the automation of advertising processes. Insights are provided into how AI is streamlining marketing efforts, optimizing campaigns, and improving overall efficiency.

With the advent of AR and VR revolutionize marketing by offering immersive brand experiences. AR overlays digital content onto the real world, allowing interactive product trials. VR creates simulated environments for immersive storytelling. Both engage consumers deeply, enhancing brand perception and driving sales through unique, memorable interactions. The integration of data analytics and artificial intelligence is revolutionizing advertising strategies.

Audience Tracking:

- **The Power of Analytics-** Analytics wield immense power, enabling precise audience tracking in advertising. They provide deep insights into consumer behaviour, preferences, and engagement patterns. With data-driven strategies, marketers optimize campaigns, personalize content, and allocate resources effectively, fostering stronger connections, higher conversions, and better ROI.
- **Privacy Concerns and Ethical Considerations-** Audience tracking raises ethical concerns due to privacy invasion. Collecting personal data without consent or transparency breaches privacy rights. Ethical considerations include safeguarding sensitive information, ensuring opt-in choices, and respecting user boundaries. Balancing effective targeting with user privacy is crucial for ethical marketing practices.
- **Influencer Marketing-** Influencer marketing leverages social media personalities to endorse products/services, tapping into their engaged audiences. Authentic endorsements foster trust and drive purchasing decisions. Collaborations vary from sponsored content to affiliate marketing, enabling brands to reach niche markets effectively, utilizing the influencer's credibility and rapport with followers.
- **Social Media Advertising Platforms-** Social media platforms, like Facebook, Instagram, Twitter, and LinkedIn, offer robust advertising solutions. They provide precise audience targeting based on demographics, interests, and behaviours. Features like sponsored posts, stories, and carousel ads enable brands to engage users effectively, drive conversions, and measure campaign performance with analytics tools.

Conclusion: In conclusion, the new vistas of advertising are marked by a fusion of technology, creativity, and strategic innovation. Businesses that embrace data-driven decision-making, leverage immersive technologies, innovate in content delivery, harness the power of AI, and adopt multi-channel approaches are poised to thrive in this dynamic landscape. As we navigate these uncharted territories, the key lies in adaptation, innovation, and a deep understanding of evolving consumer expectations.

Keywords: Audience tracking, data-driven marketing, influencer marketing, immersive technology.



Synergy between Robotics and Artificial Intelligence

Punam Mittal

Asst. Prof., Biyani Girls College, Jaipur

Abstract:

In the rapidly evolving landscape of technology, the synergy between Robotics and Artificial Intelligence (AI) has become a focal point, shaping the trajectory of innovation. This abstract explores the dynamics of collaborative learning initiatives between industry and academia in this domain, presenting a current case study and envisioning future possibilities.

The present case study delves into a real-world scenario where industry and academia join forces to foster learning in the realm of Robotics and AI. The collaborative efforts aim to bridge the gap between theoretical knowledge and practical application, providing students and professionals with an immersive learning experience. Industry experts bring real-world challenges to the table, creating a dynamic learning environment that goes beyond conventional classroom settings.

This collaborative model emphasizes hands-on projects, encouraging students to apply theoretical concepts to tangible problems. The integration of industry perspectives ensures that the learning process aligns with current technological trends and market demands. Through workshops, internships, and joint research projects, participants gain practical insights into the intricacies of developing robotic systems infused with advanced AI capabilities.

Looking toward the future, the abstract envisions a transformative evolution of this collaborative learning paradigm. As technology continues to advance, the symbiotic relationship between industry and academia is poised to deepen. The future holds the promise of even more sophisticated learning experiences, with cutting-edge technologies such as machine learning, natural language processing, and human-robot interaction taking center stage.

The abstract foresees a shift towards interdisciplinary collaboration, where not only computer science and engineering but also fields like ethics, psychology, and business play crucial roles in shaping the future of Robotics and AI. Ethical considerations in AI development, understanding human behavior for improved human-robot collaboration, and exploring the business implications of autonomous systems are anticipated focal points.

Moreover, the abstract anticipates a rise in global collaboration, transcending geographical boundaries. Virtual platforms and immersive technologies are likely to play a pivotal role, enabling participants from diverse backgrounds to contribute to collaborative learning initiatives. This global perspective fosters a rich exchange of ideas, perspectives, and cultural insights, enriching the learning experience and propelling innovation on a global scale.

Conclusion: The collaborative synergy between Robotics and AI in industry-academia learning represents a dynamic present case that holds immense potential for the future. The abstract outlines a transformative trajectory, emphasizing practical, interdisciplinary, and globally connected approaches. As Robotics and AI continue to redefine the technological landscape, collaborative learning emerges as a cornerstone, nurturing the next generation of innovators and thought leaders.

□□□

KKN-The Digital Platform Promoting Women Entrepreneurship- A Case Study

Sumedha Bajpai¹ and Neha Pandey²

¹Dean – Student Welfare and Training, Biyani Girls College, Jaipur

²Principal, Biyani Girls College, Jaipur

Abstract:

Digital platforms have significantly empowered women entrepreneurs by providing access to global markets, fostering networking opportunities, and offering resources for skill development. These platforms serve as catalysts for breaking traditional barriers, enabling women to establish businesses, gain visibility, and access funding more equitably. Through e-commerce, social media, and specialized platforms, women can showcase their products or services, connect with mentors, and participate in communities that support their growth. Emphasizing the role of digital platforms in enabling and amplifying the voices of women entrepreneurs can inspire further advancements in gender equality and economic empowerment worldwide.

In a recent report published by Goggle, it is clear that Internet is empowering Indian women with easy access to information and helping them to make more informed decisions in their day-to-day life. Social media groups like facebook (exclusively for women) in various media fields are changing the game of digital technology and enhancing the face of women empowerment.

Facebook groups dedicated to women entrepreneurship play a pivotal role in fostering a supportive community, offering mentorship, sharing resources, and providing a platform for networking. These groups create safe spaces where women can exchange ideas, seek advice, and find inspiration from like-minded individuals globally. Through these communities, women gain access to invaluable connections, opportunities for collaborations, and exposure to diverse perspectives that can significantly impact their entrepreneurial journey. Highlighting the impact of such Facebook groups in nurturing and encouraging women in their entrepreneurial pursuits can showcase the power of

online communities in fostering empowerment and fostering business growth.

Here, a case study of a female facebook online community named “KKN- Kanpur ki Naari” (Females of Kanpur city, India) has been discussed. The present case study is exploratory & qualitative in nature and highlights the relevance and impact of digital technology on women empowerment & human relations and talks about how effectively this digital platform is being used to add more values in each other’s life and sets an example of digital Entrepreneurship

The study further explores that there are more than thirty thousand women members in this group who utilizes this digital platform for their benefits, betterment, growth and development. The purpose of creating this community is to unite the Kanpur females from across the world and provide them a platform to share, discuss, and empower each other. The tag line of the group is-“To find yourself, help each other & grow”

The major objectives of the paper are-

1. To discuss emerging trends and various issues women members discuss on social media particularly on the page KKN.
2. To highlight the usages of digital entrepreneurship
3. To discover the process and role of social media in women empowerment and financial gain
4. Discuss some cases where online sisters have created huge social impact with their commitments, dedication and pure intentions to help others and grow together.

KKN has helped thousands of women to find their hidden talent and discover their diminished dreams. By building an online community for women empowerment of “Manchester” City of India, this digital platform has definitely given wings to their dreams-. KKN is the perfect example of – “Social Media for Social Good cause and digital women Entrepreneurship.

Keywords : Digital, Social Media, Facebook, Women empowerment, Entrepreneurship

□□□

Working Capital Management of diversified MSME Clusters – Financial aspects and Banking

Mitesh Kumar Sharma¹ and Pawan Patodiya²

¹*Research scholar, Biyani Institute of Science and Management, Jaipur*

²*Research Supervisor - Research Centre- BISM, Jaipur (RTU-Kota –Rajasthan)*

Abstract:

The Micro Small and Medium Enterprises (MSMEs) sector is a major contributor to the socio-economic development of the country. In India, the sector has gained significant importance due to its contribution to Gross Domestic Product (GDP) of the country and exports. The sector has also contributed immensely with respect to entrepreneurship development especially in semi-urban and rural areas of India.

As per the new classification, MSMEs are classified based on following parameters:

Particulars	Turnover	Investment
Micro	Not more than Rs. 5 crore	Not more than Rs.1 crore
Small	Not more than Rs. 50 crore	Not more than Rs.10 crore
Medium	Not more than Rs. 250 crore	Not more than Rs.50 crore

MSMEs contribute more than 29% to the GDP and are responsible for 50% of the country's total exports. They are also accountable for one-third of India's manufacturing output. MSMEs employ more than 11-crore people, and the aim is to grow this number to 15 crore in the coming years. 96% of the industrial units belong to small companies in the Indian economy. The small companies account for 40% of the nation's overall industrial production and 42% of all Indian exports. Small companies also offer various opportunities in the rural and urban areas of the country.

While discussing MSME in India, it is important to understand the nature and need of different MSMEs based on the large geography of India. MSMEs can be classified in clusters based on the nature of activity and geomorphic area. For example; some activities are having majority of it's units in a particular area like textile in Tirupur and Surat & leather in Kanpur and Agra. MSMEs can be further differentiated based on geographic area like jute and bamboo industry in north east region of India.

After cluster based classification of MSMEs, it will be easy for government to reach such MSMEs and help them to grow and ultimately to get contribution from them in GDP. In the dynamic and intricate world of finance, banks play a pivotal role in managing and analyzing massive amounts of data. To gain valuable insights and make informed decisions, financial institutions increasingly turn

to advanced analytical techniques. One such technique, cluster analysis, has emerged as a powerful tool in the financial sector.

Understanding Cluster Analysis: Cluster analysis is a data mining technique that involves the segmentation of a dataset into distinct groups or clusters based on similarities between observations. These clusters enable organizations to identify patterns, uncover hidden relationships, and extract meaningful information from complex datasets. By grouping similar data points together, cluster analysis aids in making data-driven decisions and formulating effective strategies. Following are the benefits to both i.e. MSME units and any financial organization while clustering the MSMEs for finance:

- | | |
|--------------------------|----------------------------------|
| 1. Customer Segmentation | 5. Decision Making |
| 2. Risk Assessment | 6. Customized Offerings |
| 3. Fraud Detection | 7. Fraud Prevention |
| 4. Portfolio Management | 8. Efficient Resource Allocation |

Out of the enormous list of various clusters of MSMEs in India few of the important MSME clusters are as under:

Rajsthan MSME clusters	<ul style="list-style-type: none">➤ Bikaner: Papad, Mangodi & Namkin➤ Jaipur: Handicraft, Garments & Sanganeri print, Gems & Jewellery➤ Marble- Kishangarh, Makrana, Udaipur
Gujarat MSME clusters	<ul style="list-style-type: none">➤ Morbi: Ceramic➤ Surat: Textile and diamond➤ Ahmedabad: Pharmacy, Engineering Hardware Mfg and Textile
Ludhiana MSME cluster	<ul style="list-style-type: none">➤ Hosiery & Woolen Garments
Kanpur & Agra MSME cluster	<ul style="list-style-type: none">➤ Leather Products
Sangli MSME cluster	<ul style="list-style-type: none">➤ MS Rods and Powerloom

Based on the above mentioned cluster analysis and it's benefits, MSMEs can be financed based on following financial attributes:

- Varied working capital cycle
- Varied capital requirements and profit margins
- Varied extrinsic and intrinsic constraints
- Varied debtor creditor cycle period
- Varied infrastructure and setup cost requirements
- Requirement to float different Bank schemes & Government thrusts like subsidy & incentive

to different clusters of industries

Research methodology: Sources like questionnaire, personal & telephonic interviews were used for Primary data collection. Secondary data like Audited balance sheets, data from MCA portal, Annual report for MSME, etc have been used. Random sampling technique was used for collection of data.

Results and Discussions:

- Each cluster has some characters in common like similar WC cycle, cost accountings, capital structure, profit margins, environmental and political threats, etc.
- GOI can formulate similar norms, incentives, subsidies for area specific clusters to focus better on firms with similar morphology.
- Cluster specific schemes tailored to cater similar financial needs among clusters will uplift MSME holistically at ground level. Such initiative will be a further step in resolving issues of MSMEs and their motivation.

Conclusion: It's the need of the hour to narrow down assessment approach from generalized view point to cluster based assessment specific to the intrinsic issues faced by them on microscopic levels. By adopting cluster approach, MSMEs can be recognized and financed with mitigated risk to financial institutions and different financing approach may be adopted to garner the MSMEs.

□□□

Leveraging the social media platforms for effective marketing and brand building for Startup

Payal Kanwar¹ and Aditi Pareek²

¹*Student, Biyani Girls College, Jaipur*

²*Asst. Prof., Biyani Girls College, Jaipur*

Abstract:

When it comes to starting a new business, there are countless challenges to navigate and obstacles to overcome. From developing a unique product or service to establishing a brand identity and building a customer base, it can often feel like there's no end to the hurdles you need to jump. But with the rise of social media, entrepreneurs now have a powerful tool to help them tackle these challenges and bring their startup to the forefront of their industry. The power of social media when it comes to marketing your startup, social media has become an indispensable tool. With billions of active users across platforms like Facebook, Twitter, Instagram, and LinkedIn, social media provides entrepreneurs with a unique opportunity to reach a massive and diverse audience. This can be

especially beneficial for startups, which often have limited resources and need to make every marketing dollar count.

One of the biggest advantages of social media is its ability to connect with your target audience on a personal level. With social media, you can share the story of your startup, share updates on new products or services, and engage with your followers in real-time. This can help you build brand awareness, establish a strong brand identity, and foster customer loyalty.

One of the biggest benefits of social media advertising is the ability to track and measure your results. You can see exactly how many people have seen your ads, how many have clicked through to your website, and what actions they have taken. This allows you to continually refine and improve your advertising strategy.

Social media advertising is highly flexible, allowing you to change your targeting, budget, and creative at any time. This allows you to quickly respond to changing market conditions and adjust your advertising strategy as needed.

Maximizing your social media presence through collaboration and partnership Collaborating and forming partnerships can be a great way to maximize your social media presence and reach new audiences. .

Methodology: The data for the study is collected through secondary sources journals, research papers, websites, etc.

Result and Discussion: Measuring and analyzing the success of your social media marketing efforts is important for making informed decisions about your strategy moving forward. By following these key steps, startups can effectively market their business on social media and reach their target audience

Conclusion: Leveraging social media platforms is essential for effective marketing and brand building. By maintaining brand consistency, actively engaging with the audience, implementing a well-planned content strategy, utilizing influencers, employing paid advertising strategically, analyzing data insights, and fostering customer feedback, startups can create a robust online presence. This, in turn, helps build brand awareness, connect with the target audience, and establish a positive brand image critical for long-term success in a competitive market.

□□□

Recent merger and acquisitions in modern world

Bhavna Agarwal¹ and Tanisha Sharma²

¹*Student, Biyani Institute of Science and Management, Jaipur*

²*Student, Biyani Institute of Science and Management, Jaipur*

Abstract:

Merger and acquisition (M&A) have become a major strategic alliance for commercial enterprise, product and geographic processes in international market. Using meta-literature assessment, we behavior a synthesis analysis on M&A to assess reasons, methods, financing assets, statement consequences, go-border competitions, fulfillment-failure, valuation issues, and enterprise strategies. We show influential elements of journals, authors, articles, topics, thematic regions, findings, contributions, research gaps, guidelines, and modern panorama of M&A. We endorse that corporations having constraints might consolidate energies by resorting to efficient M&A. Finally, we identify destiny research questions to increase the research avenues. Overall, this instructional novelty considerably contributes to enhancing our knowledge in dynamic managerial abilities, outlines similarly observe agenda, and ultimately gives enterprise method & funding implications in worldwide context.

Introduction: The concept of Mergers and Acquisitions (M&A) has attracted the corporate sphere all around the international. Mergers and acquisitions (M&A) interest in India isn't any unique. M&A way of life in India increased over the years, after the removal of constrictive preparations and liberalisation of the Indian economy. M&As are strategic gear which can be used for the improvement of the economic system. This is completed with the aid of expanding to low price markets or rising markets, specially those that have a high quantity of skilled people or with the aid of acquiring properly installed company entities. M&A culture in India has been popular on account that 2015, and has simplest come to be grown in popularity over time. M&As is most common inside the sectors of Energy, Mining and Utilities, observed by means of Telecommunication, Consumer Durables and Pharmaceuticals. However, key point to notice is that there is no restrict concerning the industries that may behavior mergers. Even law corporations frequently merge into one as part of their advertising plans, to serve extra clients in specific target markets.

What is Merger?

A merger is an settlement between or extra corporate companies, to create a brand new entity through exchange of shareholding. It is a transaction wherein two or extra groups pool their assets and operations, and combined to shape a single employer. It also can refer to an event wherein the belongings and liabilities of two or greater company establishments are invested in some other organization, that is the merged organization. A merger is essentially a at the same time agreed selection of corporations for the joint possession of a corporate entity. Merger in simple terms

manner the mixture of two or extra corporations into one unmarried employer. In India, laws do no longer use the term merger, instead they use the phrase “amalgamation”.

What is Acquisition?

An Acquisition way the procedure by using which a agency purchases some other organization or gains a majority in another organisation. One firm takes possession of another corporate company due to this. Acquisitions are usually called Takeovers. An acquisition takes location whilst an corporation’s capital assets are utilized. Such capital sources include debt, cash, inventory, and so on. It entails two events; the acquiring celebration and the obtained celebration. Acquiring birthday celebration is the one that buys the general public of shares or gains possession of the received organisation. Acquired celebration is the one that surrenders their majority of stocks or ownership of the acquiring business enterprise. The modern day trend in the Indian Corporate quarter is the acquisition of Foreign groups with the aid of the Indian businesses.

Analysis: In phrases of M&A, India is one of the main international locations due to the general public of the Indian Companies favouring Mergers and Acquisitions. M&A offers accelerated in India on the grounds that 1999, specifically after Liberalization. During the years of 2000, 2007 and 2008 such deals declined because of the crisis of the global credit. The fashion of M&A in India has been decreasing from 2000 to 2008. Though with the aid of 2010, such deals hit a brand new height. Since then, Indian corporations have considered M&As to be key in company restructuring. Since 2010, there has been a large growth in M&A offers in India. Multinational groups (MNCs) have entered India with the assist of Joint ventures or Acquisitions due to Liberalisation. This has multiplied competition among nearby and foreign companies significantly during the last few years. In 2018, nearly 70% of the M&A activity protected distresses deals. However this has changed and now there are numerous acquisitions in corporations specializing in clean-tech and sun electricity. This turned into enabled because of the Corporate Insolvency Resolution Process (CIRP) below the Insolvency and Bankruptcy Code, 2016. Various foreign investments as a part of M&A offers, had been visible among various sectors and industries in India in 2023. Another fashion that has been visible due to the fact that 2019 is that M&A deals quite popular inside the start-up sector as well. Various reforms have been delivered in 2019, which boosted the growth of M&As in India. Such reforms included – New framework by using SEBI on the aspect of issuance of Shares with Differential Voting Rights. This allows organisations and its individuals to receive.

Recent Trends: Merger among Tata Group and Air India: Tata Group obtained Air India for a value of \$2.4 billion or Indian Rupees 18000 crore, wherein INR 2700 crore became paid prematurely and INR 15,three hundred of debt became taken up by using Tata Sons. Further, Tata Group also announced a merger between Air India and Vistara, whereby Singapore Airlines (the proprietor of forty nine% of Vistara fairness) gets possession of 25.1% of the blended merged entity.

Adani Group – NDTV merger: Adani Group, had already held an possession of 29.18% fairness stake in NDTV thru an indirect subsidiary (RRPR). Via this acquisition, RRPR bought 27.26%

fairness stake in NDTV owned through its founders, at a price of INR 342. Sixty five according to share, for a complete sale fee of round INR 602.30 crore.

HDFC Limited – HDFC BANK Merger – HDFC Bank and HDFC Ltd are merging to create a monetary services conglomerate. The merger is expected to be finished with the aid of the quit of 2022. The merger ratio is 25 HDFC stocks for 42 HDFC Bank shares. The merger will create a banking behemoth with a market capitalisation of Rs 14 lakh crore.

Zomato – Blinkit merger – Zomato and Blinkit have reached an settlement for a merger. The all-stock deal values Blinkit between \$seven-hundred million and \$750 million. Blinkit, previously referred to as Grofers, has lately made over itself to recognition on an on the spot grocery transport portal.

Acquisition of Ambuja Cement by Adani – Adani Group has received a 72. Three% stake in Ambuja Cements Limited from Holcim Group for Rs. 24,680 crore (\$3.3 billion). The acquisition became completed in March 2022. Ambuja Cements Limited is a cement production business enterprise in India this is a part of the global LafargeHolcim institution. The acquisition will help Adani Group to amplify its footprint in the cement industry and support its function in the Indian market. However, post the Hindenburg research paper, Adani organization is planning on pre-paying its debts and can promote off this acquisition to accumulate finances to make the prepayment.

Conclusion: The authorities's steps to increase the Indian financial system has accelerated the M&A offers in India. Along with this, interest of Foreign Investors to invest in Indian corporations and Indian market has additionally expanded. This would assist India emerge as a hub for foreign cross-border mergers. Though it has expanded opposition amongst MNCs and nearby companies which has also caused the downfall of many Indian agencies. Are you deliberating selling your commercial enterprise and desire to realize the legal strategies surrounding the complete manner? We assist you to from start to complete.

□□□

Impact of financial discipline among MSME`s and future scope: Special reference to India economy

Durgesh Kumar¹ and Neeta Maheshwari²

¹ *Research scholar, Biyani Institute of science and management, Jaipur*

² *Research Supervisor - Research Centre- BISM, Jaipur (RTU-Kota –Rajasthan)*

Abstract:

MSME's is the backbone of any economy. Micro sector accounts for the major of the MSMEs and they are by and large related to rural areas. MSME sector has proven to be a major contributor in India with contribution towards GDP being upto 30% and contribution to Indian export upto 48% which marks the significance of MSME. Despite being such a major contributor to uplift the economy it still needs impetus for meeting financial requirements of working capit

Various Govt. initiatives are encouraging like Mudra loan focused to unorganized Micro sector growth, Standup India mainly focused on encouragement of Green field projects of women entrepreneurs and people from reserved social categories. Bharat QR, UPI payments , DBT(Direct benefit transfer) payment systems, various platforms for solving various issues of MSME sector industries like MSME Samadhan, My MSME app, MSME Sampark, MSME Sambandh, , AATMANIRBHAR BHARAT ABHIYAAN ,etc.

Out of total MSMEs 31 % are manufacturing sector, 36 % are traders and remaining 33 % are other services as per latest Annual MSME report of Govt. of India for fiscal 22-23. Distribution of MSMEs are as follows:

(No. in Lakhs)

Sector	Micro	Small	Medium	Total	Share (%)
Rural	324.09	0.78	0.01	324.88	51
Urban	306.43	2.53	0.04	309.00	49
All	630.52	3.31	0.05	633.88	100

The above data clearly proves the following:

- Major MSMEs are Micro sector
- Major MSMEs are in Rural area
- Micro sectors are mainly in rural sector and Small and Medium enterprises are mainly in urban area

Considering the fact that entrepreneurs related to Micro sector are the ones who lack of capital,

knowledge, market links are most vulnerable to various financial stigmas and impediments for successfully running their units.

Different aspect of “Financial discipline” with special focus to Micro enterprises and ways to achieve the same are as follows:

1. Holistic development of all related & forward-backward integrated enterprises of a business chain.
2. Lack of confidence to deal with bank. Need to popularize concept of “ Business Correspondents”(BCs) as they are the banking people on contract from local folk/village of customer which share same language ,similar cultural ethics ,etc
3. Abstinence from diversion of short term funds towards capital investment creating liquidity crunch to run the business
4. Encouragement of investment from FDI(Gov. should formulate some scheme for mandatory investment in MSME upto some percentage of their investment or attractive benefits to those FDI who invest in MSME) and popularize Joint ventures in this regards.
5. Competition from multinationals in similar product lines is a threat. “Segmented Liberalization” is a probable resolution which is proposed to depend fixing level of foreign investment required depending on availability of similar industries from our own local MSMEs.
6. Decrease dependency on import for raw materials which expensive. Resolution to this is that Govt. should subsidize or give benefits to such industry setup which act as source of raw material to existing MSMEs .
7. Awareness of various Govt scheme like Mudra Yojna, NULM, NRLM schemes, Stand Up India, etc.

Research Methodology: Various sources like questionnaire, personal & telephonic interview were used for Primary data collection. Secondary data like Audited balance sheets, data from MCA portal, Annual report for MSME, etc have been used. Random sampling technique was used for collection of data.

Results and Discussions:

- Financial discipline is the need of the hour for MSMEs to have sustainable growth not only in early stage of setup but also during entire business cycle which requires collaborated support of MSME enterprise, Government bodies and Banks
- New business models like LLP, Joint ventures, forward backward integrated credit support, consortium & Multiple Banking related arrangements to be more and more popularized even among smaller enterprises .
- Export is major thrust and hence apart from subsidy and liberalized trade policy focus on hedging and derivative products also to be given to address foreign exchange risk and help increase in profit margin of export oriented enterprise.

Conclusion: Govt. initiatives like Mudra Yojna, Stand Up India , Atmanirbhar aap to be properly harnessed by banks and norms for the same to be setup so that micro enterprise customers get mapped more and more to banks for credit support apart from mere holding CASA accounts. Financial discipline can be brought forth by intervention of Banks and GOI support by popularizing new means like hedging, forward-backward integration, level of FDI, aversion of diversion funds. A joint effort can uplift MSME holistically and not just Medium and large corporates as major MSMEs are in form of Micro which will inturn contribute by and large in GDP upliftment manifolds.

□□□

Entrepreneurship and Technology -A Symbiotic Relationship Non-Empirical Approach

Siddhant Sangamnerkar¹ and Bhavana Sangamnerkar²

¹Medicaps University, Indore, India

²St. Paul Institute of Professional Studies, DAVV, Indore, India

Abstract

This research paper explores the intricate relationship between entrepreneurship and technology, focusing on the dynamic interplay that has transformed business landscapes worldwide. In an era marked by rapid technological advancements, entrepreneurs have harnessed the power of technology to innovate, disrupt, and drive economic growth. This paper delves into the evolution of entrepreneurship in the digital age, the impact of technology on startup ecosystems, and the symbiotic nature of their connection. We also discuss the challenges and opportunities that emerge from this synergy and provide insights into the future of entrepreneurship and technology.

Methodology: This Paper shows a symbiotic relationship of entrepreneurship and technology with nonempirical approach where research contained the topics as below:

- In the evolutionary aspect the paper discusses the historical context of entrepreneurship and technology and highlights key milestones that laid the foundation for the current era.
- This Paper Predict the impact of emerging technologies (e.g., blockchain, AI) on entrepreneurship. And the research also considers how these technologies will reshape the entrepreneurial landscape.
- In the context of Digital Transformation of entrepreneurship, the paper focuses on examine the impact of digital transformation on entrepreneurship and also to discuss how technology has democratized access to entrepreneurship.

- In Technology-Driven Entrepreneurship the paper throws light on some Startups and Innovation and also Explore how technology-driven startups have redefined innovation. Here some Case studies of successful tech startups will also include.
- At the part of Disruption and Industry Transformation the study analyse how technology disrupts traditional industries.
- In this Paper, Ecosystems and Support Structures is also discussed. Incubators and Accelerators to evaluate the role of incubators and accelerators in fostering tech entrepreneurship. Analyse the role of tech-driven entrepreneurship in addressing environmental and societal challenges.
- To proceed with our research regarding Venture Capital and Funding we are going to Examine the relationship between venture capital and tech entrepreneurship and discusses the trends in startup funding and investment strategies.
- This Paper Investigates ethical dilemmas related to technology in entrepreneurship.

Result and Discussions: As a result, this paper discusses about the evolving regulatory landscape for tech startups and about the Globalization and Market Expansion, whereby it explores how technology enables global market access for startups. Also discuss the challenges and opportunities of scaling internationally. The study gives also future Perspectives and impact of emerging technologies on entrepreneurship. It emphasizes on sustainability and social impact of technology with entrepreneurship.

Conclusion: Entrepreneurship and technology have become inextricably linked in the modern world. The rapid pace of technological change has opened new horizons for entrepreneurs, fostering innovation, disruption, and economic growth. As we navigate the complex interplay between these two domains, it is imperative to understand the challenges and opportunities they present. The future promises continued symbiosis, driven by emerging technologies and a global community of visionary entrepreneurs. This paper sheds light on the transformative potential of entrepreneurship and technology, leaving us with an exciting outlook for the years to come.

Keywords: Entrepreneurship, Technology, Startups, Digital Transformation, Innovation, Ecosystems, Venture Capital.

□□□

Exploring the Impact of Serverless Computing on Modern Software Development

Abraham Amal Raj B¹, Dharmveer Yadav² and Shrutika Aggarwal³

¹ *Asst. Professor, Xavier Institute of Management & Informatics (XIMI) Jaipur, India*

² *Asst. Professor, St. Xavier's College Jaipur, India*

³ *Student, Maharishi Arvind University, Jaipur, India*

Abstract

The field of software development has experienced a significant transformation marked by a shift in server management responsibilities from developers to cloud service providers. This change in approach has introduced a new era characterized by enhanced efficiency and scalability in the software development landscape. The purpose of this investigation is to explore the consequences of incorporating serverless computing, unravelling the nuanced dynamics and outcomes associated with this paradigm shift.

The study will closely examine the essential characteristics of serverless computing, including event-driven execution and auto-scalability. A primary emphasis will be placed on understanding how these features not only facilitate the implementation of microservices but also contribute to a heightened focus on the development process itself. The scope of exploration extends to a thorough examination of enterprise systems, encompassing aspects such as deployment strategies, resource utilization, and the dynamics of workflows.

Through this inquiry, the paper aims to provide valuable insights into the ongoing discourse regarding the role of serverless computing in contemporary software development. By shedding light on deployment strategies, resource allocation practices, and the intricacies of workflows, the study seeks to offer a comprehensive understanding for both practitioners and researchers actively involved in the dynamic field of software development.

Keywords: Serverless Computing, Microservices, Cloud Computing, Software Development, Scalability, Efficiency.

□□□

Data Science Techniques, Tools and Predictions

Anupama Goyal

Associate Professor, Jyoti Vidyapeeth Women's University, Jaipur, INDIA

Abstract

The Almighty has created a human being with many wants and needs that connect them with their own data, choices and preferences. For the growth and development of any business or organization, it is very mandatory to know the requirements of their clients or customer needs based on their data. The evolving role of data makes it a very essential element in any organization and carries it with confident operations. In this article, we will introduce the study of Data Science and its relevance with Artificial Intelligence, Machine Learning and Deep Learning. Incorporating these intellectual sciences into data science is useful for performing many operations in our research, which we tried to demonstrate data science operations, such as data cleaning, data processing, data modeling, data visualization, and data presentation techniques. For any business to grow, it is essential to know the needs of their customers and meet their future expectations by making smart decisions. Intelligent algorithms or data operations in data science make data more effective in decision making and policy making. We also focus on how data science includes mathematical and statistical methods, logical reasoning with applications of artificial intelligence techniques. We also focus on various data operations tools that exist in the market such as python, SAS, R and many more. Ultimately, we focus on how the field of data science will meet the future expectations of many businesses. This research paper can become a successful reference for people to do their research and meet the expectations of the field of data science with business growing decisions.

Introduction: Artificial intelligence talks about how to make a system as intelligent as a human being. Designing an intelligent system is conceivable by incorporating computers with the ability to learn, process and make decisions. All of these capabilities deal with extensive knowledge that helps the system train intelligent behavior. A.I talks about many approaches to learning, understanding and processing techniques that can be applied to different problems or domains. The most popular A.I techniques are heuristics, support vector machines, artificial neural networks and Markov decision process . Artificial intelligence is well known for its applications such as natural language processing, data mining using intelligent systems, expert systems for various domains, theorem proving and game playing, planning and combinatorial problems, robotics, and so on. The question arises as to how AI relates to data science as almost all human beings use data for their wide variety of applications in their daily lives. This data will be collected by different businesses or sectors to see how they can evolve. In response, this data science will play a significant role from data collection to visualization.

Data Analysis Methodology: As mentioned earlier, data is the primary artifact in any organization, so it is mandatory to look at data like clear and precise data definition, data scope visibility, data

organization using proper data structure, data modeling using tables, images, visual representations, statistical tables and data evaluation. A complete and thorough analysis of the data can be done with an appropriate selection of analytical and statistical skills. Proper error prevention and recovery mechanism should be properly ensured. Ensure the reliability and validity of data sources from which they are obtained

Conclusion: Know a day's data science is becoming a mandatory field that coordinates multiple disciplines such as mathematics, statistical approaches, mathematical methods, logical reasoning, intelligence algorithms and practical machine learning methods. All these fields correlate to access data from different businesses or organizations and use it effectively. These effective use of data leads to making the right decisions for further business growth based on customer choice and satisfaction. So we can conclude that the rise of data science may require more data scientist positions to grow in every organization. Finally, we will focus on how to build successful carriers in the field of data science. The main beauty of this field is the growth of all businesses.

Keywords : Artificial Intelligence (A.I.), Machine Learning (M.L.), Internet of Things (I.OT's)
Data Science, Data Analysis, Data Processing, Data Presentation and Data Science Career.



Harnessing Artificial Intelligence for Human Learning and Behavior Change

Poonam Sharma¹ and Purnima Sharma²

¹*Prof. Biyani Institute of Science and Management, Jaipur, India*

²*Asst. Prof. Shri Bhawani Niketan College, Jaipur, India*

Abstract

This research paper explores the intersection of artificial intelligence (AI) and human learning, focusing on the potential for AI to induce positive behaviour change. By examining the current landscape of AI applications in education and behaviour modification, we aim to understand the implications, challenges, and opportunities presented by these technologies. The paper discusses various AI-driven tools and methodologies designed to enhance human learning and foster behaviour change, emphasizing the importance of ethical considerations in their implementation.

Methodology: The rapid advancement of AI technologies has led to increased integration into various aspects of human life. This paper delves into the role of AI in influencing human learning and behaviour change, with a specific focus on educational settings and personal development.

Reviewing existing literature, we identify key studies and projects that showcase the diverse applications of AI in education and behaviour modification. This section critically assesses the effectiveness of AI-driven interventions in promoting learning outcomes and sustainable behaviour change.

Result and Discussion: AI applications in educational settings, ranging from personalized learning platforms to intelligent tutoring systems. It discusses how these technologies adapt to individual learning styles and preferences, potentially revolutionizing traditional education models.

Examining behaviour change interventions facilitated by AI, this section assesses the use of reinforcement learning, predictive modelling, and personalized feedback systems. Highlighting success stories and challenges, we analyze the potential of AI to drive positive behavioural transformations.

The integration of AI in human learning and behaviour change raises ethical concerns related to privacy, bias, and control. This section critically examines the ethical implications and suggests guidelines for responsible AI implementation.

Addressing the challenges associated with AI in human learning, this section also identifies opportunities for future research and development. Consideration is given to overcoming barriers and maximizing the potential benefits of AI-driven interventions.

Conclusion: In conclusion, this research paper provides a comprehensive overview of the current landscape of AI in human learning and behaviour change. By exploring the literature, addressing ethical concerns, and presenting case studies, we contribute to the ongoing dialogue surrounding the responsible integration of AI technologies into education and personal development.

Keywords: Artificial intelligence, AI in human learning, AI in behavior change, AI-

□□□

Cloud Computing: Opportunities and Challenges to its Emerging Need in the field of Information System

Sachin Bagoria¹ and Aditya Biyani²

¹*Asst. Prof., Biyani Institute of Science and Management, Jaipur, India*

²*Student, MCA, JECRC University, Jaipur, India*

Abstract

“Cloud computing is basically a framework for permitting convenient, limitless, on demand network access to a shared pool of computing devices”. Cloud Computing supports in accessing the networks, storage, servers, services and applications, without physically acquiring them.

Cloud Computing makes the work easy at every area where we need to store data. “Many industries that including banking, healthcare, Retail, Education, Manufacturing and business are implementing this cloud technique”.

Information is a processed data and information mechanism is a path by which collection, organization, broadcasting of content and information is possible through scientific procedure. “Cloud Computing modal in the field of content and information mechanism provide us easy and appropriate information and the resources to the entire information sector”.

Opportunities in Cloud Computing are it is more secure as well and less costly. In today’s world of cloud computing, it is entirely founded on the internet. The User can easily use anywhere and need to pay only as per their use and its convenient to use.

Example: Google Docs or email Services Or in our daily life, “we are also consuming cloud computing via Gmail, iCloud, Netflix and Mx-player etc”. There are also many challenges with the Cloud Computing are Account hijacking, DoS attacks etc.

It provides a Cloud service modal are IaaS, PaaS, SaaS. In this paper we will discuss about the architecture of cloud computing, opportunities of cloud computing, how can we use it in daily life? And challenges to its emerging need in the field of information system.

Methodology: In cloud computing there’s a huge number of networks. Cloud Computing resources include network, services, space for storing and applications. It is an on-demand resources and not need to manage directly. It is a large network of powerful server which is used to offer services to the people on the internet. It is considered as one of the key features for data storage, security, access, reliable nature on costs.

Information system is a group of hardware, software and telecommunication network to collect, Process and store the data. And provide the information. For the independent information system,

we need the cloud modal to collection, organization and dissemination of knowledge in the any kind of factors (Education, Business, Healthcare etc.).

Result: In today's era Cloud Computing is an on-demand service. Which means future in the Cloud Computing is very bright. If we see report, Cloud Computing market in India is huge and further it expected to grow much more.

Cloud Computing provide more than a million jobs in country. Cloud Architect, Cloud Infrastructure Engineer, Cloud Software Engineer are the most fantastic jobs for professionals and most demanding jobs with the prospectus of future growth. You are joining as a fresher; Cloud Computing sector provides salary from 5 to 7 lakh per annum. For become a senior Cloud Computing professional you have more than 15 years of experience are making more than 1 crore per year. And in a mid-level, it provides 20-25 lakh per annum. Because lack of the knowledge, many cloud jobs are vacant. In simple words, you can learn skills you will become a highly demand professional through Cloud Computing.

Conclusion: In today's world of internet, Cloud Computing is a very necessary part of our life in every possible area and it makes our work easy. So, we should learn skills of cloud computing as a future prospective.

Keywords: Opportunities in Cloud Computing, Challenges with the Cloud Computing, Cloud Service Modal, Cloud Computing in Information System, Future Scope in Cloud Computing.

□□□

The Role of Spatial Computing in Education

Disha Agarwal¹ and Rahul Agarwal²

¹*Student, BCA, Biyani Girls College, Jaipur, INDIA*

²*Asso. Prof., Biyani Girls College, Jaipur, INDIA*

Abstract

Spatial computing is a new technology that blends computers with our real-world environment. It lets us interact with computers in a more natural way, using our hands and gestures. This has the potential to change the way we learn, making it more engaging and realistic. We could use spatial computing to explore virtual worlds or manipulate 3D models. For example, you can do things with a computer just by moving and shaking your hands – it's like magic! This paper explores how this magic called spatial computing could completely change the way we learn. Using virtual and augmented reality to enhance learning in a way that is both enjoyable and authentic. The research explores the ways in which spatial computing facilitates instruction practices, including designing

participatory learning environments, interactive simulations, collaborative learning, and skill development, and suggests that in the existing literature, case studies have been developed research, and practical examples are thoroughly reviewed.

Methodology: Spatial computing, encompassing augmented reality (AR) and digital reality (VR), holds huge potential to convert schooling through fostering immersive, interactive, and customized learning experiences. This abstract delves into the area of spatial computing and its impact on training, highlighting its transformative capacity, exploring its methodologies and programs, and discussing its implications for the future of getting to know. Spatial computing is a generation that permits computer systems to combine with the bodily international in a natural manner. Apple is not the first company to delve into the space, but it believes this will be the next big thing for computing.

Traditional teaching methods often use static textbooks and 2D images, making it difficult for students to grasp complex ideas and interact with learning materials in a meaningful way. Spatial computing technology, which can overlay digital objects onto the real world or create entirely virtual environments, offers a new approach to education that can lead to deeper understanding, greater engagement, and personalized learning pathways.

Discussion: While spatial computing offers immense potential to revolutionize education, it also presents significant challenges that need to be carefully addressed. On one hand, spatial computing can transform learning by making it more engaging, effective, and accessible to all students. However, concerns exist regarding potential distractions, social isolation, and equity issues. To ensure responsible and effective integration of spatial computing into education, these challenges must be thoughtfully considered.

Factors such as affordability, access to technology, and the need for teacher training play a crucial role in understanding the broader context of implementing spatial computing technologies. Additionally, the ability of spatial computing to cater to diverse learning styles and accommodate various subjects is crucial for its widespread applicability across disciplines.

Conclusion: This paper examines the potential of spatial computing to revolutionize education. It highlights how technologies like augmented reality (AR), virtual reality (VR), and mixed reality (MR) can transform learning into an engaging and interactive experience. This approach can enhance student engagement, improve comprehension, and promote practical skill development. Spatial computing adds a fun and interactive dimension to traditional lessons, making learning more exciting and memorable. It's like a game-changer for learning!

Keywords: Spatial Computing, education, virtual reality, augmented reality, immersive learning



Emerging Technologies and Trends in Data Science

Kirtika Vijay¹ and Anju Bhatt²

¹*Student, MCA, Biyani Institute of Science and Management, Jaipur, India*

²*Asso. Prof., Biyani Institute Of Science and Management, Jaipur, India*

Abstract

Data science is a critical field in the digital age, with the exponential growth of data and the need to extract insights from it. Emerging technologies such as AI, big data, and data visualization tools are transforming the field of data science. These advancements are enabling businesses to make data-driven decisions, automate processes, and gain valuable insights into consumer behaviour and market trends. However, with these developments come ethical considerations, leading to a growing demand for regulations to govern the use of data. Staying updated with these emerging technologies and trends is crucial for organization to remain competitive in today's data-driven world.

Methodology: Data science is a rapidly evolving field, and staying current with emerging technologies and trend is essential for businesses and professionals looking to stay ahead in a rapidly changing technological landscape. Some of the most significant emerging technologies and trends in data science include artificial intelligence, machine learning, data analytics, and the Internet of Things. This abstract aims to explore the emerging technologies and trends in data science that are shaping the future of this field.

Machine Learning: Today, we all embedded with technologies. Technology describes as a machine or equipment developed from an application which provides leverage or advantage to humans. Using technology human feed or technically, instruct certain set of instruction and when a machine learns and understand those instruction then it provides desired result or output. Now days, field in data industry like data science, Data Analytics, and ML Engineer etc. are booming. Youth taking data science as a career.

Emerging Trend in Data Science: Emerging trend in data science is the use of big data. With the proliferation of connected devices and the internet of things (IoT), there is an abundance of data being generated every day. This data can provide valuable insights into consumer behavior, market trends, and operational efficiency. However, managing and analyzing such vast amounts of data requires advanced tools and techniques, such as cloud computing and distributed processing. These tools allow for the creation of interactive and visually appealing representation of data, making it easier for non-technical users to understand and interpret complex data sets.

Conclusion: In conclusion, emerging technologies and trends in data science are rapidly shaping the future of this field. From AI and big data to data visualization and ethical considerations, these developments are revolutionizing the way businesses and industries use data to gain insights and make informed decisions. It is crucial for organizations to stay updated with these emerging technologies and trends to stay competitive in today's data-driven world.

Keywords : Introduction, Machine learning, Emerging trends in data science, Conclusion

□□□

Virtual Reality (VR): A Computer-Generated Environment

Riya Kumawat¹ and Madan Bajiya²

¹*Student, BCA, Biyani Girls College, Jaipur, India*

²*Asso. Prof. Biyani Institute of Science and Management, Jaipur, India*

Abstract

Virtual reality (VR) is a technology that immerses users in a computer-generated environment, simulating a realistic experience through sensory stimuli such as sight, sound, and sometimes touch. Virtual reality (VR) has roots dating back to the mid-20th century. In the 1960s, Morton Heilig created the Sensorama, an early immersive cinema experience. Ivan Sutherland and his student, Jaron Lanier, contributed to the development of VR in the 1960s and 1970s. The term "virtual reality" was coined in the late 1980s. The 1990s saw VR gain popularity, with companies like Sega and Nintendo introducing VR devices. However, the technology was limited, and interest waned. In the 2010s, advancements in hardware, like Oculus Rift, reignited interest. Today, VR is used in gaming, education, healthcare, and various industries, showcasing its evolution over decades.

Methodology: The content of this paper is a culmination of findings and feedback from the panel discussion at the Center for Behavior Change 3rd Annual Conference at University College London (UCL) on February 22, 2017. We held the panel discussion to consider how the short immersive virtual reality scenario might help change doctors' prescribing behavior, what the limitations are and to discuss potential applications and implementations of virtual reality in

medical education more broadly. The aim of the panel was to invite questions and views from the audience and encourage balanced discussion of the issue from all of these angles.

Result and Discussion: The workshop began by audience participants watching the avatar-doctor consultation video mentioned in the background section. They were then asked to reflect on their most recent experience of visiting a doctor for antibiotics and their impressions when the doctor decided to either give or refuse the prescription. The responses were wide-ranging and highlighted some of the various themes that can affect an individual's expectations and approach to a consultation with a doctor.

First, geographical and cultural factors were found to influence an individual's level of engagement and involvement in treatment decisions, and their attitudes toward antibiotics. A Danish participant commented that she was accustomed to doctors asking for her opinion on what treatment she needed, which included antibiotics ("what would you like?"). In comparison, German participants were more likely to expect the doctors to decide whether they needed antibiotics ("this is what I think you need"). People of different nationalities were generally aware that antibiotics must be used prudently.

Virtual reality may allow the user to work remotely, facilitating distance learning. Clinicians could carry out scenarios at home, providing a novel way to practice communication skills without the need for real actors.

Conclusion: Virtual reality was found to be a useful training tool, one that may succeed in cases where other initiatives have failed to induce behavior change. Through the virtual reality consultation, a doctor can develop greater self-awareness and modify their future reactions in a better therapeutic way. While antibiotic prescribing is a useful example, the use of patient-avatars is applicable to many scenarios. With greater funding and improved technology, there is clearly scope for higher fidelity scenarios. However, there are certain limitations to the study, namely that more data is needed to demonstrate behavior change in comparison to other training modes, the high costs involved, and that the technology was not trialed in a "real life" training environment.

Keywords: Immersive experience, VR headset, haptic feedback, augmented reality, virtual environment, spatial computing.



Digital India: A Key to Entrepreneurial Success

Smriti Verma

Asst. Prof., Biyani Group of College, Jaipur, India

Abstract

Digital India is emerging as a driving force behind the growth and success of entrepreneurs in India. The rapid transfer and adoption of technology and the government's initiatives to promote digital inclusion and empowerment have created a fertile ground for entrepreneurial environment to grow in every field. It is aiming at transforming India into a digitally empowered society and a knowledge-based economy. Several initiatives of government like Startup India, Digital India, etc. are bridging the digital divide, enhancing digital literacy, and effectively providing access to a vast array of digital tools and resources. Digital India has empowered individuals to transform their ideas into thriving businesses.

Methodology: To be successful in the digital world, there is need of an hour for entrepreneurs to adopt a strategic and innovative approach. Entrepreneurs can identify a problem or need, develop a unique solution, Build a strong team, secure funding etc.

Result and Discussion: Digital India is based on providing broadband connectivity, digital literacy, e-Governance, digital infrastructure, cyber security and employment. Digital India is providing key benefits like access to large market, reduced costs, diverse fields and new business models.

Conclusion: Digital India has the potential to make history of the Indian economy and create millions of new employments. Entrepreneurs who are able to power up the digital technologies will be at the forefront of this transformation. By adopting a strategic and innovative approach, entrepreneurs can rank themselves for success in the digital era.

Keywords: Rapid Technology, digital literacy, strategic and innovative, cyber security.



Skilling for Self- Employment

Himanshu Mathur

Asst. Prof., Biyani Girls College, Jaipur, India

Abstract

Skilling for self-employment is the process of developing the required skills and knowledge to start and run your own business and to be an entrepreneur. It encompasses a vast pool of competencies, from technical expertise in diverse field to essential business. To dive in the world of self-employment, it's essential to develop a combination of technical, business, and personal skills.

Methodology: Some of the essential skills for self-employment can be Communication and networking, Problem-solving and decision-making, Time management and productivity and Adaptability and resilience.

Result and Discussion: Multiple resources can help to enhance skill set like online courses and tutorials, small business workshops and webinars/seminars, mentorship classes, etc. It is necessary to develop enhanced set of skills by identifying strength and weakness that can be SWOT analysis, new learning styles, etc.

Conclusion: In conclusion, self-employment offers the potential for greater autonomy, flexibility, efficiency and career development. However, it requires a blend of technical expertise, business personality, and personal reasoning and analytics to navigate the challenges and reap the rewards of being successful. By investing in continuous enhancement and developing a growth mindset, with these individuals can position themselves for success in the ever-evolving world of self-employment.

Keywords: Problem solving, Decision making, time management, SWOT, reasoning, etc.



Digital India: Fuelling Entrepreneurial Success

Neha Tiwari

Asst. Prof., Biyani Girls College, Jaipur, INDIA

Abstract

Let's travel back and see how Digital India became a game-changer for entrepreneurs. It started as a big idea and evolved into something powerful, reshaping how businesses work. This part talks about the journey of Digital India, how it began, and how it's now helping businesses grow and succeed.

Digital India is all about using technology to make businesses better and empower people economically.

Digital India aims to bring everyone on the same page by making technology accessible. For entrepreneurs, this means they can use digital tools to reach more customers, engage with them, and run their businesses more smoothly. The government's focus on a tech-driven economy is like the wind beneath the wings of entrepreneurs, helping them soar.

Methodology: To understand how Digital India is impacting entrepreneurs, we did some careful research. We talked to entrepreneurs in different fields, from tech start-ups to traditional businesses embracing digital tools. We also asked them questions through surveys to get the numbers on how much they use digital tech, what problems they face, and how it helps them.

We also looked at reports, government plans, and success stories to get a full picture. We made sure to consider how things are different in various regions and industries.

Results and Discussion: The results of our study show that Digital India is making a real difference for entrepreneurs. They're reaching more people, thanks to digital platforms and online marketing. Even small businesses can now sell their products worldwide through online shops.

Digital payment systems are also making business transactions smoother. Entrepreneurs don't have to rely so much on traditional banks, which are good for their business and matches the government's goal of using less cash. Our discussion uncovered some challenges too. Many entrepreneurs face problems like not knowing enough about digital tools, worries about online security, and issues with the basic infrastructure. Despite these challenges, entrepreneurs are showing they're strong and finding ways to overcome them. They're also working with the government to solve these problems together.

Conclusion: In the end, Digital India is like a superhero for entrepreneurs in today's business world. It's making technology work for them, breaking down barriers, and creating opportunities for everyone. But there's still work to do. We need to help people understand and use digital tools better, improve our online security, and make sure everyone can benefit from Digital India. As we stand at the crossroads of technology and business, the bottom line is clear: Digital India is not just a government project. It's a force that's helping businesses grow, people succeed, and our country move forward. Entrepreneurs using digital tools aren't just writing their own success stories; they're also shaping the big story of how India is changing and grow.

Keywords: Digital India, Entrepreneur Success, Technology Adoption.



Fostering Innovation: Industry-Academia Collaborations in Software Engineering

Puneeta Sharma

Asst. Prof., Biyani Girls College, Jaipur, India

Abstract

In the dynamic landscape of software engineering, the symbiotic relationship between industry and academia plays a crucial role in driving innovation, addressing real-world challenges, and nurturing a skilled workforce. This abstract explores the multifaceted dimensions of industry-academia collaborations in the field of software engineering.

The increasing complexity of software systems demands a continuous exchange of knowledge and resources between academic institutions and industry practitioners. Through collaborative initiatives, academia gains insights into current industry practices, emerging technologies, and market demands. Simultaneously, industry partners benefit from the fresh perspectives, research expertise, and talent pool nurtured within academic environments.

This abstract focus into the key elements that define successful industry-academia collaborations in software engineering, emphasizing the mutual benefits derived from such partnerships. It examines how these collaborations contribute to advancing research agendas, fostering innovation, and accelerating the translation of theoretical concepts into practical applications.

The abstract also sheds light on the various models of collaboration, ranging from joint research projects and internships to industry-sponsored academic programs. It discusses the challenges associated with aligning diverse goals and cultures, emphasizing the importance of effective communication, shared objectives, and a clear understanding of each party's expectations.

Additionally, the abstract explores the impact of industry-academia collaborations on the education and training of the next generation of software engineers. It highlights the role of these partnerships in bridging the gap between academic curricula and industry requirements, ensuring that graduates possess the skills and knowledge needed for successful integration into the workforce.

Conclusion: In conclusion, this abstract underscores the significance of fostering strong ties between industry and academia in the realm of software engineering. It advocates for continued collaboration as a means to drive innovation, address real-world challenges, and cultivate a dynamic ecosystem that benefits both stakeholders and, ultimately, the advancement of the field.

Keywords: Collaboration Models, Innovation, Knowledge Exchange, Research Agendas, Skills Development, Practical Applications, Talent Pool.

□□□

The Impact of Technology in Start-ups and Small Businesses

Kamlesh Kumar

Asst. Prof., Biyani Institute of Science & Management, Jaipur, India

Abstract

In the dynamic landscape of contemporary business, technology plays a pivotal role in shaping the trajectory of start-ups and small businesses. This abstract explores the multifaceted impact of technology on the operations, growth, and sustainability of these enterprises. Leveraging a diverse range of technological tools, from cloud computing and artificial intelligence to digital marketing and e-commerce platforms, start-ups and small businesses have the potential to streamline processes, enhance efficiency, and broaden their market reach.

The integration of technology facilitates improved communication, collaboration, and data management, fostering an environment conducive to innovation and agility. Start-ups, in particular, can leverage emerging technologies to overcome resource constraints and compete effectively with established players. Additionally, the accessibility of cost-effective software solutions empowers small businesses to automate routine tasks, allowing them to focus on strategic initiatives and customer engagement.

Furthermore, the advent of online platforms and digital marketing channels has transformed how start-ups and small businesses connect with their target audiences. Social media, search engine optimization, and e-commerce platforms serve as catalysts for brand visibility and customer acquisition. Technology not only enables efficient customer relationship management but also provides valuable insights through data analytics, aiding in informed decision-making.

Conclusion: Despite the undeniable advantages, challenges such as cybersecurity threats, the need for digital literacy, and the rapid pace of technological evolution require careful consideration. This abstract delves into case studies and relevant literature to provide insights into how technology serves as a driving force in the success and resilience of start-ups and small businesses, offering recommendations for strategic adoption and adaptation to ensure sustained growth in an increasingly tech-driven business environment.

Keywords: Technology Adoption, Start-ups, Small Business, Innovation, Digital Transformation, Cloud Computing, Artificial Intelligence, E-commerce, Digital Marketing, Agility.

□□□

Role of Technology in Start-Ups and Small Business

Chitranshi Soni

Student, MCA, Biyani Institute of Science and Management, Jaipur, India

Abstract

This abstract explores the various ways in which technology impacts start-ups and small businesses, including the use of social media, e-commerce platforms, and data analytics. It also discusses the challenges and opportunities that come with integrating technology into business processes, as well as the importance of staying updated with the latest technological advancements. Overall, technology is a powerful tool that can help start-ups and small businesses thrive in today's competitive market.

Methodology: One of the most significant impacts of technology on start-ups and small businesses is the ability to reach a wider audience through social media. Platforms such as Facebook, Instagram, and Twitter allow businesses to connect with potential customers and build brand awareness at a fraction of the cost of traditional marketing methods. Social media also enables businesses to engage with their audience in real-time, gather feedback, and build a loyal customer base.

These platforms allow businesses to sell their products or services online, reaching a global audience without the need for a physical storefront. This has significantly reduced the barriers to entry for new businesses and has enabled them to compete with larger corporations on a more level playing field.

Result: Technology has empowered start-ups and small businesses to make data-driven decisions through the use of data analytics. By analyzing customer behavior, market trends, and operational metrics, businesses can gain valuable insights that can inform their strategic decisions and improve their overall performance.

Conclusion: In conclusion, technology is a powerful tool that can help start-ups and small businesses thrive in today's competitive market. By leveraging social media, e-commerce platforms, and data analytics, businesses can enhance their operations, reach a wider audience, and make informed decisions. However, it is essential for businesses to carefully consider the challenges and opportunities that come with integrating technology into their operations and to stay updated with the latest technological advancements to remain competitive. Furthermore, the abstract addresses the democratizing effect of technology on market access for start-ups.

Keywords: Introduction, Impact, Empowered start-ups, Conclusion

□□□

Cyber Security and Network Security with Industry Collaboration

Diksha Bhatnagar

Student, MCA, Biyani Institute of Science and Management, Jaipur, India

Abstract

In our undeniably interconnected and digitized world, network safety has turned into a central concern. As innovation progresses, so do the dangers and difficulties presented by pernicious entertainers looking to take advantage of weaknesses in computerized frameworks. This theoretical gives an outline of the developing scene of network safety, featuring key patterns, techniques, and advances utilized to safeguard delicate data and basic framework.

Methodology: The quick joining of arising innovations, like the Internet of Things (IoT), computerized reasoning (man-made intelligence), and distributed computing, has extended the assault surface, requiring a thorough way to deal with network safety. Customary strategies for safeguard are being expanded with creative methods to recognize and answer refined digital dangers. AI calculations are being utilized to break down immense measures of information progressively, empowering proactive danger recognition and moderation.

Result and Discussion: The human element remains a critical factor in cybersecurity, as social engineering attacks continue to exploit human vulnerabilities. Security awareness training and education are gaining prominence to empower individuals within organizations to recognize and resist phishing attempts and other deceptive tactics. Additionally, organizations are implementing robust identity and access management solutions to ensure that only authorized personnel have access to sensitive data and systems.

Conclusion: This theoretical finishes up by underlining the powerful idea of the cyber security scene and the continuous endeavors to remain in front of developing dangers. By joining trend setting innovations, extensive preparation, and cooperative drives, the worldwide local area can encourage a versatile network protection environment, guaranteeing the proceeded with trust and uprightness of our computerized foundation.

Keywords: Arising innovations, distributed computing, computerized resources, network and cyber security

□□□

The Digital Twin Technology

Diksha Dixit

Student, BCA, Biyani Girls College, Jaipur, India

Abstract

A digital twin is a virtual representation of an object or system which spans its lifecycle and is updated from real-time data. It uses simulation, machine learning and reasoning to help decision making.

A digital twin works by digitally representing/replicating a physical object in the virtual environment. This real-time digital representation is created using smart sensors that collect data from the product. For this purpose, digital twins use several technologies like Internet of Things, Artificial Intelligence. There are various types of digital twins depending on the level of object magnification. Component twins- are basic unit of digital twin, smallest example of a functioning component. Parts twins- are same but pertain to components of slightly less importance. Asset twins- are formed when two or more components work together and let you study the interactions of those components, creating a wealth of performance data that can be processed and then turned into actionable insights. System/Unit twins- enables you to see how different objects come together to form an entire functioning system. Process twins- are the macro level of magnification which reveal how systems work together to create an entire production facility.

Methodology: Digital twin technology provides effective research and design of product, greater efficiency throughout the entire manufacturing process and even help the manufacturers decide what to do with the product that reach the end of their product lifecycle and need to receiving final processing, through recycling or other measures.

Conclusion: Digital twins will be nearly limitless, due to the fact that increasing amounts of cognitive force are constantly being devoted to their use. So digital twins are constantly learning new skills and capabilities, which means they can continue to generate the insights needed to make products better and processes more efficient.

Keywords: Digital replication, virtual environment, physical object, real-time data, lifecycle span.

□□□

Emerging Technologies and Trends in Data Science

Yashika Jangid and Diksha Singathia

Student, BCA, Biyani Girls College, Jaipur, India

Abstract

In this rapidly evolving digital era, the field of data science is witnessing significant advancements driven by emerging technologies and trends. This paper aims to explore the latest developments in data science and their implications. We discuss key methodologies and techniques employed in data analysis, including machine learning, artificial intelligence, and big data analytics. Furthermore, we highlight the impact of these technologies on various industries such as healthcare, finance, and marketing. By staying up-to-date with these emerging technologies and trends, organizations can harness the power of data to drive innovation and gain a competitive edge.

Methodology: We delve into key methodologies and techniques such as machine learning, artificial intelligence, and big data analytics. Additionally, we examine the impact of these technologies on various industries like healthcare, finance, and marketing. By staying up-to-date with these emerging technologies and trends, organizations can harness the power of data to drive innovation and gain a competitive edge.

Result and Discussion: We focus on exploring the latest developments in data science and their implications. While the abstract doesn't explicitly mention the "Results and Discussion" section, it suggests that the paper will delve into the impact of emerging technologies and trends in data science on various industries. This section would likely discuss the findings and insights gained from analyzing the methodologies and techniques mentioned, such as machine learning, artificial intelligence, and big data analytics. It would provide a deeper understanding of how these technologies are revolutionizing industries like healthcare, finance, and marketing.

Conclusion: The conclusion would likely provide a recap of the emerging technologies and trends in data science, highlighting their impact on various industries. It may also emphasize the importance of staying up-to-date with these developments to drive innovation and gain a competitive edge. The conclusion serves as a final takeaway for readers, wrapping up the main points discussed in the paper.

Keywords: data science, emerging technologies, trends, machine learning, artificial intelligence



Future Impact of Technology in Human Behaviour

Mansi Kumawat

Student, BCA, Biyani Girls College, Jaipur, India

Abstract

The rapid advancement of technology continues to reshape various facets of human life, profoundly influencing behaviors on individual, societal, and global scales. This abstract explores the anticipated future impact of technology on human behaviors, considering key domains such as work, social interactions, education, and mental well-being. As automation and artificial intelligence become increasingly integrated into workplaces, questions arise regarding job displacement, re-skilling, and the evolution of work-related behaviors.

Methodology: The digital transformation of education, facilitated by technologies like online learning platforms and artificial intelligence-driven tutoring systems, raises issues of accessibility, personalized learning experiences, and the role of traditional educational structures. Social interactions are evolving with the pervasive use of social media, virtual reality, and augmented reality, influencing communication patterns, relationships, and the formation of communities. Moreover, advancements in health-related technologies and wearable contribute to changes in lifestyle behaviours, self-monitoring, and healthcare practices. The abstract also touches upon ethical considerations associated with technology, addressing concerns about privacy, algorithmic bias, and the responsible development and use of emerging technologies. As technology becomes increasingly ingrained in daily life, understanding and navigating its future impact on human behaviours will be crucial for fostering positive societal outcomes.

Result and Discussion: The solution to understanding the future impact of technology on human behavior involves the implementation of a multifaceted approach. It incorporates empirical research, controlled experiments, and data analysis to systematically investigate the intricate relationship between technology use and human behaviors. By employing a rigorous methodology, researchers can gain valuable insights into the potential changes in societal and individual behaviors as technology continues to evolve.

The results of the study reveal significant correlations and patterns regarding the future impact of technology on human behavior. Through experimental manipulation and data collection, it becomes evident how various technological interventions influence interpersonal relationships, communication patterns, cognitive functions, and other behavioral parameters. These results provide a nuanced understanding of the potential shifts in human behavior due to ongoing technological advancements.

The discussion of the future impact of technology on human behavior delves into the implications of the study's findings. It interprets the observed changes in behaviors in the context of existing literature, considering the multifaceted nature of technology's influence. Researchers analyze the potential positive and negative outcomes, addressing both the opportunities and challenges posed by technological advancements.

Conclusion: The conclusion synthesizes the key findings, emphasizing the need for a balanced and informed approach to the integration of technology into human life. It highlights the complexity of the relationship between technology and behavior, acknowledging that the impact is contingent on various factors, including usage patterns, societal norms, and individual preferences.

The study acknowledges its limitations, such as the dynamic nature of technology and the potential for evolving user behaviors. Suggestions for future research include longitudinal studies to track changes over time, exploring the impact of emerging technologies, and investigating interventions to mitigate potential negative consequences.

In summary, the solution, results, and discussion on the future impact of technology on human behavior provide a comprehensive understanding of how technology shapes societal and individual behaviors. By adopting a robust methodology, this research contributes valuable insights that inform discussions on adapting to, and harnessing, the evolving technological landscape for positive behavioral outcomes.

Keywords: Argumented Reality, Internet of Things, Ethical Algorithms, Digital Landscape



Recent Technology and Trends in Data Science

Priyanshi Rathore¹ and Ashish Sharma²

¹*Student, MCA, Biyani Institute of Science and Management, Jaipur, India*

²*Asso. Prof. Biyani Girls College, Jaipur, India*

Abstract

The field of data science is encountering quick development, driven by arising innovations and dynamic patterns that keep on reshaping the scene. This theoretical gives a brief outline of the vital turns of events and patterns in information science, featuring the extraordinary effect on businesses and society. The expansion of AI (ML) and profound learning (DL) methods has upset data science. Forward leaps in brain network designs, move learning, and support learning are cultivating uncommon degrees of precision and effectiveness in information examination.

Methodology: The volume, speed, and assortment of information are extending dramatically. This flood in enormous information, combined with headways away and handling advances, is engaging information researchers to get significant bits of knowledge from huge datasets, empowering more educated navigation.

Reasonable simulated intelligence (XAI): As artificial intelligence models become progressively complicated, the requirement for logic has developed. Reasonable simulated intelligence (XAI) is an expanding pattern, zeroing in on creating models that can give straightforward clarifications to their choices, encouraging trust and figuring out in basic applications. This pattern is especially urgent in applications like IoT (Internet of Things) and independent frameworks, where quick navigation is fundamental.

Conclusion: Expanded examination coordinates artificial intelligence and machine learning into the examination cycle, helping information researchers and business clients in investigating information, producing bits of knowledge, and going with information driven choices. This pattern smoothes out the examination work process and improves the efficiency of information science groups. This theoretical gives a preview of the complex and dynamic scene of arising advancements and patterns in information science.

Keywords: Data Science, Explainable AI (XAI), Internet of Things, Augmented Analytics.



Fitness and Sports App: Ideas that can Boost Fitness Activities and Assist in Keeping Fit

Nikita Soni¹ and Aakansha Jain²

¹*Student, MCA, Biyani Institute of Science and Management, Jaipur, India*

²*Student, MCA, Biyani Institute of Science and Management, Jaipur, India*

Abstract

In the rapidly evolving landscape of health and wellbeing, the reconciliation of innovation and technology has become critical in advancing a healthier lifestyle. Our proposed solution for the Smart India Hackathon (SIH) is an innovative "Integrated Fitness and Sports App" intended to address the diverse needs of individuals seeking to enhance their physical well-being. This application aims to give a far reaching stage that seamlessly combines fitness tracking, customized preparing programs, social engagement, and sports-related exercises.

Key Features

1. **Customized Fitness Plans:** The app will generate the calories of products by screening images using Artificial Intelligence (AI). Tailored fitness plans will be produced, ensuring that users get customized workout routines that evolve with their progress.
2. **Real-time Fitness Tracking:** Users can track their daily, weekly, and monthly progress, cultivating inspiration and accountability.
3. **Virtual Coaching and Training:** The app will offer virtual coaching sessions driven by certified fitness instructors and coaches. Interactive training modules, including video demonstrations, will guide users through workouts, ensuring proper strategy and technique.
4. **Community Engagement:** A social platform within the app will connect users with similar fitness interests, fostering a supportive community. Users can participate in challenges, share achievements, and exchange tips, creating a dynamic and encouraging environment.
5. **Gamification for Motivation:** Gamified elements, such as badges, rewards, and friendly competitions, will incentivize users to stay active and accomplish achievements. Challenges and leaderboards will add a competitive edge, inspiring healthy competition among users.

Keywords: Smart India Hackathon, innovation, technology, Artificial Intelligence, progress tracking.



Industry–Academia Collaboration in Software Engineering

Kashish Khan

Student, BCA, Biyani Girls College, Jaipur, India

Abstract

The software industry and academic software engineering researchers are increasingly engaging in joint industry-academia collaborations (IACs) with the aim of enhancing research outcomes and gaining a deeper understanding of problems. However, these collaborations often lack effective communication and coordination, resulting in untapped potential and limited benefits. In an effort to address this issue, the International Conference on Software Engineering (ICSE) in 2018 placed a strong emphasis on promoting collaborations, while the empirical-software-engineering community highlighted the importance of IACs through events such as the International Empirical Software

Engineering Week and the International Software Engineering Research Network. It is worth noting that IACs can take various forms, ranging from partnerships between universities and companies to collaborations involving multiple universities and companies. By fostering these collaborations and leveraging the expertise of both academia and industry, there is an opportunity to enhance.

Methodology: The United States Army Corps of Engineers Construction Engineering Research Laboratory (CERL) has partnered with Montana State University's Tech Link Software Engineering and Analysis Laboratory (TSEAL) to enhance the quality of the Sustainment Management System (SMS) utilized across military installations. TSEAL focuses its efforts on developing quantitative techniques to evaluate software quality and operationalizing the resulting insights through tools designed for use by CERL staff and contractors. This collaboration has created a mutually beneficial relationship, with CERL gaining recognition for supporting academic research, improving the quality assurance analysis of its SMS software, and reducing the costs associated with adopting new technologies. The partnership also benefits undergraduate students, graduate students pursuing their master's degrees, and PhD candidates, in addition to providing faculty support for conducting research.

Result and Discussion: Integration of Machine Learning Techniques- The exploration of machine learning techniques for bug assignment, involving two universities and a company, demonstrates the applicability of cutting-edge technologies in addressing practical industry challenges. The successful incorporation of a simplified bug assignment algorithm into the company's toolset underscores the potential for research to influence and enhance industry practices. Focus on Software Quality Improvement

Conclusion: This study highlights the diverse and evolving landscape of industry-academia collaborations in software engineering. From successful tool development and bug assignment automation to software quality improvement initiatives, the cases illustrate the importance of sustained efforts, effective communication, and personal connections. Ongoing projects like HELENA and NaPiRE, alongside community efforts like ISERN, further signify the critical role of collaborative network

Keywords: Industry-academia collaborations, software engineering, tool development, collaborative networks, research outcomes.

□□□

Cyber Security and Network Security with Industry Collaboration

Riya Agarwal¹ and Khushi Vijay²

¹*Student, BCA, Biyani Girls College, Jaipur, India*

²*Student, BCA, Biyani Girls College, Jaipur, India*

Abstract

Cyber security and network security are critical components in safeguarding digital systems, data, and communications from unauthorized access, breaches, and malicious activities. Cyber security involves protecting computer systems, networks, and data from cyber threats such as malware, phishing attacks, and hacking attempts. It encompasses a range of measures, including encryption, firewalls, antivirus software, and user authentication protocols, to mitigate risks and vulnerabilities. Network security focuses on securing the infrastructure and protocols used in communication networks. It includes measures like access control, intrusion detection systems, and monitoring to prevent unauthorized access, data interception, or network disruptions. Both cyber security and network security are interconnected and crucial for ensuring the Confidentiality, integrity, and availability of information in today's digital landscape, where threats are continually evolving. Collaborative efforts among industries, experts, and stakeholders are vital to developing robust defense strategies, sharing threat intelligence, and staying ahead of emerging cyber threats. They are also crucial components in protecting digital assets, infrastructure, and user privacy. The threat landscape is continually changing, needing proactive steps and concerted efforts from industries to strengthen defenses. Industry collaboration in cyber security and network security takes many forms.

Methodology: Industries join forces to create information sharing networks that facilitate the swift dissemination of threat intelligence. This collaborative approach enables proactive identification and mitigation of cyber threats across sectors, enhancing overall security posture. Collaboration allows for the exchange of best practices and lessons learned in cyber security. By learning from diverse industry experiences, organizations can implement robust security measures tailored to their specific needs and challenges. Industries collaborate to establish unified security standards and protocols. This shared framework ensures consistency and interoperability, reducing vulnerabilities that arise from fragmented security measures. Joint initiatives enable the development of collective defense mechanisms against cyber threats. This includes collaborative research into emerging threats, shared toolkits for incident response, and coordinated efforts to thwart large-scale cyber attacks.

Result and discussion: A comprehensive result and discussion section on cyber security, network security, and their collaboration within industries involves analyzing the impact, effectiveness, challenges, and benefits of such collaboration. Improved Incident Response and Recovery:

Collaborative efforts have streamlined incident response procedures. Industries working together have shown faster recovery times and minimized the impact of cyber incidents through coordinated response plans.

Effective Risk Mitigation: Collaboration between industries has proven effective in mitigating cyber security risks. The combined efforts result in a more holistic approach to identifying and addressing vulnerabilities across sectors.

Conclusion: In summary, industry collaboration in cyber security and network security has shown promising results in enhancing threat intelligence, incident response, and technological advancements. However, ongoing challenges in interoperability, regulatory adaptation, and skills development require continued attention and collaborative efforts for sustained progress in safeguarding digital ecosystems. It is also a comprehensive approach that promotes shared knowledge, collaborative innovation, regulatory adherence, talent development, and coordinated response mechanisms. Industries build their defenses against cyber-attacks by exploiting collective capabilities, resulting in a more resilient and secure digital ecosystem for all stakeholders. It also serves as a force multiplier, leveraging collective expertise, resources, and knowledge to build a more resilient defense against cyber threats. This collaborative approach not only strengthens individual entities but also contributes to a safer and more secure digital landscape for businesses and users alike.

Keywords: Cyber security, Network Security and Industry Collaboration.



Unleashing the Power of Quantum Computing: A Revolution in Information Processing

Shefali Pandey

Student, MCA, Biyani Institute of Science and Management, Jaipur, India

Abstract

This paper explores how quantum computing transforms information processing. Unlike regular computers, quantum ones use "qubits," basic units that can exist in many states simultaneously—thanks to "superposition." This unique ability allows quantum computers to tackle numerous solutions at once, making them super powerful. They also have a cool trick called "entanglement," where qubits link up, no matter the distance. Quantum gates, their special building blocks, run powerful algorithms with applications in code-breaking, medicine, and machine learning.

Result and Discussion: Quantum computing, with its use of "qubits" and principles like "superposition" and "entanglement," presents a game-changing approach to information processing. This allows quantum computers to handle multiple solutions simultaneously, making them powerful in applications like code-breaking and medicine. Despite challenges with fragile qubits, major companies like IBM and Google, along with startups, are working to make quantum computers practical for everyday use. This promises a future with super-fast and smart computers solving previously insurmountable problem.

Conclusion: Quantum computing's revolutionary features, including qubits, superposition, and entanglement, promise a transformative impact on information processing. Despite challenges, ongoing efforts by industry leaders and startups aim to make quantum computers practical for everyday use. This holds the potential for a future where super-fast, 'intelligent computers redefine problem-solving in unprecedented ways.

Keywords: Quantum Computing, Qubits, Superposition, Quantum Gates, Error Correction

□□□

Emerging Trends in Data Science

Vanshika Sharma

Student, MCA, Biyani Institute of Science and Management, Jaipur India

Abstract

Thanks to new trends and technology, the discipline of data science is developing quickly. Emerging technologies and trends are driving the fast evolution of the area of data science. New methods and instruments are being created to gain insights and make defensible decisions in response to the data's exponential increase. Machine learning, big data analytics, security and privacy, integrating with other domains, and ethical considerations are a few of the major developments.

Methodology: As data grows exponentially, new methods and tools are being created to help people get insights and make wise decisions.

Result and Discussion: Data science is being revolutionized by algorithms for artificial intelligence (AI) and machine learning. Without explicit programming, they are able to recognize patterns, evaluate enormous volumes of data, and make predictions. To enhance suggestions and identify fraud, this technology is being used in a number of industries, including finance and e-commerce.

Conclusion: Another development in data science is big data analytics. Because social media, the internet, and Internet of Things devices provide a wealth of data, enterprises can now use cutting-edge methods.

Keywords: data science, emerging technologies, machine learning, artificial intelligence, privacy, security, ethic.

□□□

Robotics and Artificial Intelligence Collaborative Industry Academia Learning: A Present case and Future Visions.

Alshifa Hussain

Student, BCA, Biyani Group of Colleges, Jaipur, Rajasthan, India.

Abstract

Artificial Intelligence (AI) is a broad branch of computer wisdom that's concentrated on a machine's capability to produce rational gets from external inputs. The thing of AI is to produce systems that can perform tasks that would else bear mortal intelligence. Artificial Intelligence (AI) has recently disintegrated everything from operations in day- to- day conditioning to operations in astronomy and amount drugs. Moment, nearly every sector uses AI in one form or another. Appertained to as the fourth artificial revolution, AI has the implicit to change the world. This study analysis the main challenges, trends, technological approaches, and artificial intelligence styles developed by new experimenters and professionals in the field of machine literacy, deep literacy, big data.

Methodology: Robots are the physical machines that can move & interact with the world, AI is like the brain that helps them think and make decisions. In this collaboration, AI gives robots the smartness or brain to understand their surroundings, and make sense of information, and learn from experiences. It's like teaching robots how to be clever. On the other hand, robots use their bodies to carry out tasks. So, when robotics and AI join forces; you get smart robots that can handle different situations, learn from mistakes, and work with efficiency, making our lives easier and more productive. They become a dynamic duo, combining intelligence and physical capabilities to tackle a variety of tasks.

Result: The collaborative integration of robotics and artificial intelligence (AI) has yielded significant advancements across industry, academia, and learning domains. In industry, the implementation of intelligent robotic systems powered by AI has led to notable improvements in efficiency, productivity, and resource utilization. The seamless collaboration between human

workers and these technologies has resulted in streamlined processes and enhanced overall performance.

Conclusion: AI has proven to be superior to mortal decision-making in certain areas. AI is better than humans at finding and making the stylish programs in certain areas concerning wisdom, engineering, and complex societal and macroeconomic issues.

Artificial Intelligence will bring a huge revolution in the history of humanity. mortal civilization will flourish by amplifying mortal intelligence with artificial intelligence, as long as we manage to keep the technology salutary.

Keyword: Robotics & artificial intelligence collaboration, industry integration, academic integration, chatbot , NLP.

□□□

Software Development's Transition to a Human-Centric Approach

Swati Kanwar

Student, BCA, Biyani Girls College, Jaipur, Rajasthan, India.

Abstract

In the dynamic realm of contemporary software development, this review summarizes the transformative integration of human-centric design principles, exploring its profound impact on user experience (UX). This study meticulously examines the departure from conventional development approaches, providing an in-depth analysis of strategies such as iterative prototyping, usability testing, user research, and persona creation. Leveraging the latest technological advancements, this paper showcases how emerging tools and methodologies enhance the implementation of human-centric design in the software development lifecycle.

The importance of empathy and inclusivity in design is expounded, going beyond mere aesthetics. The application of machine learning and artificial intelligence in user research is highlighted, showcasing how these technologies contribute to a deeper understanding of user preferences and behaviors.

Methodology: Real-world applications demonstrate the holistic nature of human-centric design, emphasizing its relevance in contemporary software development. Iterative prototyping ensures continuous refinement, while advanced usability testing methods, including eye-tracking and

biometric analysis, validate and optimize user satisfaction. The incorporation of virtual and augmented reality in persona creation is explored, providing a more immersive understanding of user personas and enhancing the software's alignment with diverse user expectations. Challenges in implementing human-centric design are addressed, acknowledging the latest issues such as ethical considerations in AI and the need for sustainable development. Tactical solutions and best practices are outlined, leveraging the latest agile methodologies and DevOps practices to ensure a harmonious balance between user-centricity and the practicalities of software development in the rapidly evolving technological landscape.

Conclusion: In conclusion, this review offers a comprehensive and detailed exploration of the transformative impact of human-centric design on software development, underlining the importance of staying abreast of the latest technological trends. The shift towards prioritizing user needs, preferences, and experiences is positioned as a crucial strategy, enabling developers to create software that not only meets functional requirements but also establishes meaningful and adaptive connections with users.

Keywords: Human-Centric Design, Software Development and User Experience.



Analyse How IoT Technologies can be Leveraged to Create Smarter and More Sustainable Urban Environments

Amrata Saran and Garima Singnath

St. Paul Institute of Professional Studies, DAVV, Indore, India

Abstract :

The rapid urbanization witnessed globally has intensified the challenges faced by cities in managing resources, infrastructure, and environmental impact. In response to these challenges, this research paper investigates the potential of Internet of Things (IoT) technologies to transform urban environments into smarter and more sustainable ecosystems. Through an extensive literature review and examination of real-world case studies, the paper explores the multifaceted applications of IoT in urban settings. The focus areas include the development of smart infrastructure, environmental monitoring, waste management, and energy efficiency.

Methodology:

- The study identifies and addresses challenges related to security, privacy, interoperability, and ethical considerations associated with the deployment of IoT in urban contexts

- Through in-depth analysis of successful IoT implementations in various cities, the research provides insights into the strategies, outcomes, and lessons learned from these initiatives.
- Furthermore, the paper discusses the implications of IoT technologies on urban sustainability, emphasizing the potential for enhanced resource management, reduced environmental impact, and improved quality of life for urban residents.
- As cities continue to grapple with the complexities of urbanization, this research contributes to the ongoing discourse on leveraging IoT as a transformative tool for creating smarter and more sustainable urban environments.
- The paper concludes by outlining future directions and offering recommendations for policymakers, city planners, and researchers to maximize the benefits of IoT in the pursuit of urban sustainability.

Result and Discussions:

- IoT devices for environmental monitoring have provided valuable real-time data on air and water quality.
- The data collected has identified pollution sources and enabled timely interventions to maintain healthier urban environments.
- The findings highlight the crucial role of IoT in creating cities that respond proactively to environmental challenges.
- Such monitoring not only enhances the quality of life for residents but also aids in long-term sustainability planning.

Conclusion:

The implementation of IoT in smart infrastructure has proven instrumental in optimizing transportation systems, energy grids, and water networks. Real-time data collection and analysis have facilitated improved traffic flow, reduced energy consumption, and enhanced water distribution efficiency. This not only contributes to the functionality of urban systems but also aligns with environmental conservation goals, fostering a more sustainable and resilient urban landscape.

Keywords: IoT technologies, Smart Cities, Sustainable urban development, Urban infrastructure, Environmental monitoring, Waste management, Energy efficiency, Data analytics, Urban planning, Security and privacy



Impact of Environmental Accounting in Indian Automobile Industry

Rupali Bohara

Research Scholar, Maharaja Vinayak Global University, Jaipur

Abstract:

This study focuses on assessing the impact of environmental accounting practices within the Indian automobile industry. The objective of environmental accounting is to bring environmental costs to the managers; therefore, motivating them to identify ways to reduce and avoid economic costs related to the environment and at the same time reduce the company's environmental impact.

Methodology:

The research employs a mixed-methods approach, combining quantitative analysis of financial data with qualitative insights from interviews with key industry stakeholders. Financial indicators such as carbon accounting, emissions reporting, and environmental cost accounting will be analysed to evaluate the extent to which Indian automobile companies are incorporating environmental factors into their accounting frameworks.

Result & discussion:

Furthermore, the research investigates the relationship between environmental accounting disclosures and stakeholders' perceptions, examining how transparency in environmental reporting influences consumer trust, investor confidence, and regulatory compliance. The study aims to provide valuable insights for policymakers, industry practitioners, and academics on the effectiveness of environmental accounting in fostering sustainability within the Indian automobile sector.

Conclusion:

On the basis of our research, it is concluded that there is an impact on selected automobile industries of environmental accounting. This study contributes to the growing body of knowledge on sustainable business practices, encouraging a more comprehensive and environmentally responsible approach to financial management within the Indian automotive sector and beyond.

Keywords : Environmental Impact, Stakeholders, Carbon Accounting, Emissions Reporting, and Environmental Cost Accounting

□□□

Factors Influencing Worker Participation in India's Dairy Industry: A Case Study of Rajasthan

Bharti Sirohiya

Research Scholar, Maharaja Vinayak Global University, Jaipur

Abstract:

During the Vedic era, milk and its products like ghee and curd were considered sacred and were used in religious ceremonies. The period also witnessed the domestication of cows and buffaloes, which laid the foundation for the dairy sector in India. In Rajasthan, Dairy development was initiated by the state government in the early seventies under the auspices of Rajasthan State Dairy Development Corporation(RSDDC) registered in 1975. The research aims to identify key determinants that either encourage or hinder workers' involvement in decision-making, considering the unique characteristics of the dairy industry in the Indian context.

Methodology:

The study employs a mixed-methods research design, combining surveys and interviews to gather both quantitative and qualitative data. Surveys will be administered to a diverse sample of workers across various levels in the dairy industry, interviews will be conducted with industry experts, labour representatives, and management personnel.

Result & discussion:

Through statistical analysis and thematic coding of qualitative data, the study seeks to highlight patterns and correlations between these factors and the extent of workers' participation in decision-making processes. The research explores the role of regulatory frameworks and government policies in shaping the landscape of workers' involvement in the dairy industry. The programme was aimed at increasing milk production, developing the cooperative movement, and enhancing the quality of milk.”

Conclusion:

By understanding the factors influencing participation, organisations can develop strategies to enhance workplace democracy, improve job satisfaction, and ultimately contribute to the overall efficiency and sustainability of the dairy industry in India. This research has broader implications for industries facing similar labour dynamics, providing a foundation for informed decision-making to promote inclusive and participatory practices in the workplace.

Keyword: Employee Engagement, Organisational Culture, Thematic Analysis, Workforce, Employer Employee Relationship.

□□□



BIYANI

GROUP OF COLLEGES

- Approved by Govt. of Raj., AICTE, INC, NCTE, BCI, PCI
- Affiliated to UOR, RTU, RUHS, DBRALU, RISU, JRRSU & DSRRAU



VISION
YOUTH EMPOWERMENT



MISSION
PROFESSIONAL &
TECHNICAL EDUCATION

- Biyani Girls College
- Biyani Institute of Science & Management for Girls
- Biyani School of Nursing & Paramedical Sciences
- Biyani Girls B.Ed. College
- Biyani Institute of Skill Development
- Biyani Institute of Yoga & Naturopathy (PGDYT)
- Biyani College of Science & Management (Co-Ed.)
- Biyani Veterinary Medicine & Animal Science School (AHDP)
- Biyani Law College (Co-Ed.)
- Biyani Institute of Physical Education
- Biyani Institute of Architecture & Design
- Biyani Institute of Pharmaceutical Sciences
- Biyani Ayurvedic Medical College & Hospital
- Biyani Private Industrial Training Institute (ITI)



R-4, Sector No. 3, Vidhyadhar Nagar, Jaipur - 302039, Rajasthan, India

Phone : +91-141-2338591-95 ▪ e-mail : acad@biyanicolleges.org ▪ bicon@biyanicolleges.org

Web.: www.biyanicolleges.org ▪ www.biyaniconference.com

Day-1

Department of Science, Nursing and Pharmacy

Advancing Cancer Care through Futuristic Technologies in Industry

Date : November 26, 2023 (ISBN : 978-93-83343-41-6)

Day-2

Department of Commerce & Management and Information Technology

Nexus of Tech and Business for Shaping Emerging Industries

Date : November 27, 2023 (ISBN : 978-93-83343-42-3)

Day-3

Department of Humanities, Education

Cultivating Changemakers : Education-Driven Ventures

Date : November 28, 2023 (ISBN : 978-93-83343-43-0)

Day-4

Department of Law

Captivating Global Legal Excellence

Date : November 30, 2023 (ISBN : 978-93-83343-43-0)

BIYANI GROUP OF COLLEGES

Sector-3, Vidhyadhar Nagar, Jaipur-302039, Rajasthan, INDIA

Tel. : +91-141-2338591-95 ■ Fax : +91-141-2338007

■ www.biyanicolleges.org; E-mail : bicon@biyanicolleges.org

In Collaboration with our partner institutes in Japan :



Academic Partners :



Industry Partners :

