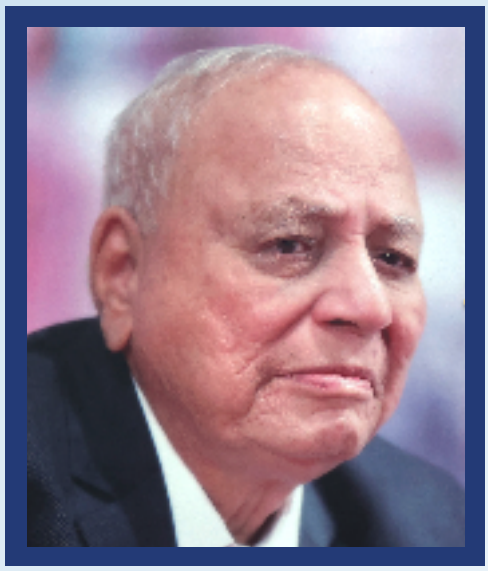
LJ University
University with a Difference

ANNUAL RESEARCH REPORT (2023-24)

In Loving Memory of



Prof B M Peerzada Sir
(1926-2023)

Managing Trustee and Founder, LJK Trust

Prof. B M Peerzada was a visionary educator and leader who founded LJ Trust and University, driven by a passion for empowering students and fostering innovation.

His illustrious career inspired countless individuals, and his academic legacy contiues to shape our institution.

His tireless dedication to education and unwavering commitment to excellence have left an indelible mark on our university community. We will deeply miss his guidance, wisdom, and warmth.

LJ University
University with a Difference

Foreword

I am delighted to present the **Annual Report 2023-24 of the Directorate of Research for your perusal.** The University continues its steady progress toward realizing its vision of becoming a research-focused institution. Significant advancements are evident in our research endeavours. Green shoots are visible. We aim to achieve an average publication rate of at least two research papers per faculty member annually. I extend my sincere appreciation to the Directorate of Research, particularly Dr. Priya Shah, for their tireless efforts in compiling this comprehensive report.

This year has been marked by a notable increase in research productivity, with 98 papers published in reputable journals, primarily indexed in Scopus. All schools have contributed to this achievement, but I would like to highlight the exceptional performance of the School of Pharmacy, School of Management Studies, School of Engineering, and School of Applied Sciences. I am confident that other schools will soon follow suit. Our robust and motivating Research Policy provides significant incentives for research and publication. This year, a total of over Rs. 10 lakh in incentives was awarded to faculty members who published their research. I extend my warmest congratulations to all faculty members who have published or attempted to publish their work. Their potential for future research success is immense.

High-quality research frequently results in ground-breaking innovations. I would like to commend our innovative faculty members and students who were awarded 16 patents during the academic year. To foster a culture of innovation among our students, the University provided grants totalling over Rs. 28 lakh to 18 students to support their innovative pursuits and passion.

Overall, this year has been characterized by a strong commitment to research and a positive atmosphere of scholarly inquiry. I am confident that the momentum gained this year will propel our research efforts forward in the years to come.
Thank you,

Prof. Dinesh Awasthi
Vice chancellor, LJ University

Executive Summary

The LJ University Annual Research Report 2023-2024 encapsulates a remarkable year marked by outstanding achievements and a steadfast commitment to research excellence. At the heart of this success is our pioneering Scheme for Promoting Research Among Faculty Members and Students, a policy that distinguishes LJ University from other institutions. This initiative provides comprehensive support for securing research grants, attending prestigious conferences, and recognizing scholarly achievements with incentives and awards.

This year, the university proudly celebrated 98 faculty publications in esteemed journals indexed by Scopus and Web of Science, showcasing a profound dedication to academic excellence. Faculty contributions included 57 research papers, 19 case studies, 14 book chapters, and 8 conference proceedings, enriching a diverse array of academic fields.

The report details research incentives totaling ₹10,26,901, with the L.J. Institute of Pharmacy and L.J. Institute of Management Studies receiving the highest awards. This financial support underscores the university's commitment to nurturing a thriving research environment.

Our top initiative this year includes a monthly research newsletter that is emailed to every member of the LJ community. This newsletter celebrates each publication and serves as a networking platform, fostering inter and multidisciplinary research by connecting faculty, students, and researchers across various fields.

Innovation took center stage with the incubation and funding of 26 matured startups, alongside 39 student startups in the preincubation phase. A total of ₹1.695 crore was raised to support these ventures, positioning the university as a catalyst for innovation. Events such as Start-up Week 24x7, featuring 18 teams and 58 members, and Sharkteen Season 4.0, where three startups secured funding, highlight our dynamic entrepreneurial spirit. The Women Investing in Women 2.0 event attracted over 600 participants, emphasizing our dedication to inclusivity and empowerment.

The university's successful collaboration with government schemes resulted in managing ₹2,87,50,000 from central government sources and ₹10,00,000 from state initiatives. Conferences across various schools

drew hundreds of attendees, promoting knowledge exchange and collaborative opportunities.

Our faculty's notable research publications span high-impact journals, addressing topics from sustainable vegan diets to machine learning applications. Additionally, patents were granted for innovative solutions such as an IoT-based sustainable water disinfection system, further enhancing our academic standing.

These accomplishments have significantly bolstered LJ University's reputation in the academic and research communities, setting the stage for future growth and contributions to societal development. Our commitment to driving excellence and fostering innovation remains unwavering.

The journey of our DoR team is a testament to dedication and perseverance. From a humble beginning with just two passionate individuals, we have evolved into a dynamic team committed to enhancing LJ University's research landscape. Regular seminars, workshops, and faculty development programs are organized almost monthly, in collaboration with various institutes. I extend my heartfelt gratitude to Prof. Sweety Shah, whose tireless commitment and leadership have been instrumental in bringing this comprehensive research report to fruition. Together, we continue to strive for excellence and innovation in all our endeavors.

Dr Priya Shah
I/C Director,
Directorate of Research (DoR), LJ University

List of Research Council Members

Dr. Dinesh Awasthi (Vice Chancellor, LJ University)

Prof. Rakesh Basant (Former Professor of Economics at Indian Institute of Management, Ahmedabad)

Prof. (Dr.) Ashwani Kumar (Centre of Public Policy Habitat and Human Development (TISS))

Dr. Viral Shah (Campus Director)

Shri Minesh Shah (Registrar)

Dr. Priya Shah (I/C, Directorate of Research, LJ University)

Dr. P.K. Mehta (Executive Committee Member, LJK Trust)

Dr. Shreeraj Shah (Director, L.J. Institute of Pharmacy)

Dr. Siddarth Singh Bist (Director, L.J. Institute of Management Studies)

Shri Alok Manke (Director, L.J. Institute of Computer Application)

Dr. Prexa Parikh (I/C Director, L.J. Institute of Engineering & Technology)

Dr. Rashi Goplani (Director, L.J. Institute of Event Management)

Dr. Divya Soni (Director, New L.J. Commerce College)

Dr. Richa Mandan (I/C Director, L.J. Integrated Management Program (MBA))

Ar. Himanshu Thakkar (Director, L.J. School of Architecture)

Mr. Mahesh Kella (Director, L.J. Polytechnic)

Dr. P. Danasekaran (Director, L.J. Institute of Physiotherapy)

Dr. Nisha Shah (Director, L.J. Institute of Applied Sciences)

Research Highlights-Infographic

(i) Number of Faculty Publications
(Indexed in Scopus, Web of Science, ABDC, ABS)

Publication Category	Research Papers	Case Studies	Book Chapters	Conference Proceeding Papers	Total
Number of Publications	57	19	14	08	98

Publication Category					Number of Publications
NACRA (Harvard Listed)					1
ABDC & Scopus					
A Category	Q1- 2				2
B Category	Q1- 1				1
C Category	Q3- 1	Q4- 1			2
Only Scopus	Q2-2	Q3- 7	Q4- 7	Only Indexed	56
Only ABDC- C					3
Scopus-Web of Science					28
Web of Science					3
UGC					2
Total					98

(ii) Institute wise Bifurcation of Research Incentive

(Indexed in Scopus, Web of Science, ABDC, ABS)

Name of School	Institute wise Incentive	Total Incentive Amount
School of Pharmacy		
L.J. Institute of Pharmacy	₹ 511260	₹ 511260
School of Management		
L.J. Institute of Management Studies	₹ 226667	₹ 235717
L.J. Integrated Management Program (MBA)	₹ 9050	
School of Applied Sciences		
L.J. Institute of Applied Sciences	₹ 125502	₹ 125502
School of Engineering and Technology		
L.J. Institute of Engineering & Technology	₹ 96253	₹ 101253
L.J. Polytechnic	₹ 5000	
School of Physiotherapy		
L.J. Institute of Physiotherapy	₹ 28500	₹ 28500
School of Computer Applications		
L.J. Institute of Computer Applications	₹ 20502	₹ 20502
School of Commerce and Professional Education		
New L.J. Commerce College	₹4167	₹ 4167
Total Research Incentive		**₹ 1026901**

Innovation at LJ University

Antrapreneur- The Business Incubator

Snapshot of **Antrapreneur**

Matured Startups Incubated and funded	26
Student startups preincubated	39
Startups funded	9
Capacity Building Events organised	15
Funding Events organised	3
Government & other Schemes associated with	7
Total funds raised for startups	₹ 1.695 Cr

Entrepreneurs sensitised

Patents granted

Incubated startups active in the ecosystem

Academic institutions associated with the Incubation centre

Life sciences/Pharma/ Biotechnology or related segment startups supported till date

Industry MoUs executed

Matured Startups **Incubated and funded**

Name of the Startup	Domain of Startup	Funds Supported
Currently Tech Private Limited	Social Media Platform	₹ 30,00,000
Designers Multicorp Private	Fashion	₹ 20,00,000
Dusala	Ecommerce	₹ 5,00,000
EduGuidance Consultancy Private Limited	Education and HR Tech	₹ 8,75,000
Hapchi Private Limited	Edutech	₹ 8,75,000
Paytamasha Ventures Private Limited	Media & Entertainment	₹ 30,00,000
Proficient Recruitment Services Private Limited	HR tech	₹ 40,00,000
Techmaghi	Education	₹ 20,00,000

Name of the Startup	Domain of Startup
Accomation	Fintech
Alphoenix Design Pvt Ltd	Dronetech
Crickheros	Sportstech
Darshan stroom	HR tech
Dealwala	Ecommerce
DELEX-The delivery Experts	Logitech
Denting Painting.com	Automobile
Eco Right Private Limited	Ecofriendley products
Kimana Motors Pvt Ltd	Ecommerce

Name of the Startup	Domain of Startup
Mycelia services	Saas
Nurasoi	Food and Beverages
Palsun Maritime	Marinetech
Pneucons	Fintech
Protein-box	Protien and Nutritionl Food
Tankhwa Patra	Soprtstech
Vastra	Textiletech
VayKay Technocrafts Pvt. Ltd.	Saas and Spiritual tech

Total funds raised for startups ₹ 1,69,75,000

Student **startups preincubated**

Project Name / Startup Name	Name of Students
Block Minor	Heet Patel, Priyansh Kakkad, Priyansh Jani, Himesh Khatri, Krish Sachdev, Shubam Shah, Ms. Riya Vaghela
COLLABHUB (Konnect Sphere)	Krish Thakkar, Mohit Pandya, Darsh Shah, Deval Devda, Monisha Charniya, Princi Rabadiya
EduConnect	Tirth Savalia, Meet Patel
Quantum Reach	Rushil Ketankumar, Sahilkumar Singh
Website Based Smart Parking	Suryanshsinh Sisodiya, Utsav Malaviya, Aryan Khanwani, Amit Dinnimani
Eczemasere Nity	Aman Shah, Dhruvi Thakkar, Stuti Shah
Pc Personal Assistant / CNC Automation GPI	Himanshu Nirmal, Krish Mehta, Raj Oza, Divya Soni
Abhimanyu	Mehta Harishkumar, Perin Modi, Karan Patel, Vinit Chokshi
Qurious	Riya Bhatt, Mahenoor Memon
Digital wedding invitations	Jay Gosai

Project Name / Startup Name	Name of Students
Helptag 365	Harmeet Godhani
Check My Warrenty	Neel Maniar
Sportswale	Dev Patel
PTC - Banana Initiation	Khushali Kaila, Deeshaben Parekh, Zeel Shah
Leuco care - Herbal Leukaemia control	Ashimkhan Pathan, Honey Tank
Fermented food for cardiac patients (Natto powder)	Khushi Rajyaguru, Trupti Chavda
Slow-release low cost NPK	Anshu Thakur, Aniket Dixit, Maya Kalal, Kinjal Chauhan, Nikita Adeshara
Nano micronutrients for agriculture	Shabnam Moh Hussain Ansari, Divesha Borge
Alphoenxi Design Pvt Ltd	Pranav Patel

Pharmacy Student **startups preincubated**

Title of Project	Funding Amount	Name of students	Name of Mentors
Nose to Brain delivery for neurodegenerative Disorder	₹ 1,70,000	Isha Bharucha, Kirti Sharma, Jignasha Daboya	Sheetal Acharya, Disha Joshi
Medicated Chewing gum for periods pain	₹ 1,20,000	Jignasha Daboya, Isha Bharucha, Kirti Sharma	Sheetal Acharya, Zenab presswal
Lung targeted drug delivery system for antifungal action	₹ 2,00,000	Sahil Shah, Brijesh Rakholya	Shreeraj Shah, Mangesh Kulkurni
Advancements in Colon-Targeted Drug Delivery: Novel Nano Particle-Coated Gum-Infused Pellets	₹ 1,20,000	Dewang Choudhary, Affan Momin	Jaymin patel
Unlocking the potential of Grafted form of Natural Gum in Microsphere-based Colon-Targeted Drug Delivery	₹ 1,00,000	Hiral Prajapati	Jaymin patel
Development of Tenofovir disoproxil fumarate formulation with herbal efflux inhibitor	₹ 1,50,000	Prexa Jain	Kaushika Patel
Development of nanoparticle-based DDS of anticancer drug with P Glycoprotein	₹ 1,70,000	Dhvani Patel	Kaushika Patel
Design of 3d printed intra vaginal formulation for the vaginal Disorder	₹ 1,20,000	Sakshi shah, Ilyas momin	Shreeraj Shah, Riya Patel
Development of Gastro Retantive Misoprostol	₹ 1,00,000	Pooja Kathrotia, Parth Koyani	Shital trivedi

Title of Project	Funding Amount	Name of students	Name of Mentors
Neuroprotective activity of D-carvone and Sabinene hydrate in rats with Alzheimer's disease	₹ 70,000	Parmar Pankti Himanshusinh	Dipa Israni
Evaluation of Pharmacological activity of Red Hibiscus on Polycystic Ovary Syndrome	₹ 1,50,000	Shah Anjali Ashwinkumar	Mansi Shah
A preventive approach for treatment of brain stroke using Saroglitazar	₹ 70,000	Mistry Prachi Jayeshbhai	Vijay Kevlani
Bioanalytical Method Development and Validation for Simultaneous Estimation of Benidipine Hydrochloride and Telmisartan in Pharmaceutical Dosage Form and its Application to Pharmacokinetic Study	₹ 70,000	Mistry Prachi Jayeshbhai	Jignesh Shah
Method Development and Validation for The Simultaneous Determination of Nifedipine and Candesartan Cilexetil in Synthetic Mixture and Its Application to Pharmacokinetic Study	₹ 2,00,000	Shikha Appa	Jignesh Shah
Quantitative Analysis of Pharmaceutical Compounds in Black Carrot Microemulsion: A Phytochemical Approach	₹ 2,00,000	Ms.Hetu rakholia	Hemal Bhavsar
Bioanalytical Method Development and Validation for Simultaneous Estimation of Benidipine Hydrochloride and Telmisartan in Pharmaceutical Dosage Form and Its Application to Pharmacokinetic Study	₹ 2,00,000	Ms.Patel Rutvi	Dilip Maheshwari

Title of Project	Funding Amount	Name of students	Name of Mentors
Quantitative Bio-Analysis of Bedaquiline and Linezolid in Rat Plasma by Rp-Hplc: Assessment of Pharmacokinetic Drug-Drug Interaction	₹ 2,00,000	Ms. Bhavika Panchal	Darshil Shah
Bio-Analytical Method Development and Validation of a Clomiphene Citrate in Pharmaceutical Dosage Form and Its Pharmacokinetics Study on Rat by Using Rphplc Method	₹ 2,00,000	Ms. Sakshi Mehta	Dilip Maheshwari

Total Project Funding ₹ 28,10,000

Antrapreneur-The Business Incubator-Events

Events Highlights

1. Start-up Week 24x7

Date of event: 6th & 7th April 2024
Type of the event: 360 Degree Mentorship to 18 teams of start up
Number of participants: 18 teams (58 members)

An immersive two-day event, designed to offer aspiring innovators a 360-degree mentorship experience. Drawing from a diverse pool of experts spanning Finance, Marketing, Operations, Human Resources, Legal, and Intellectual Property Rights (IPR), alongside a plethora of multi-disciplinary talents, the event ensured that each start up team was paired with 7 to 10 seasoned mentors daily, totalling an impressive 14 to 18 expert interactions over the course of the event. These intensive sessions served as more than mere discussions; they were transformative encounters where young minds gleaned invaluable insights, honed their ideas to precision, and forged meaningful connections with mentors willing to provide ongoing support.

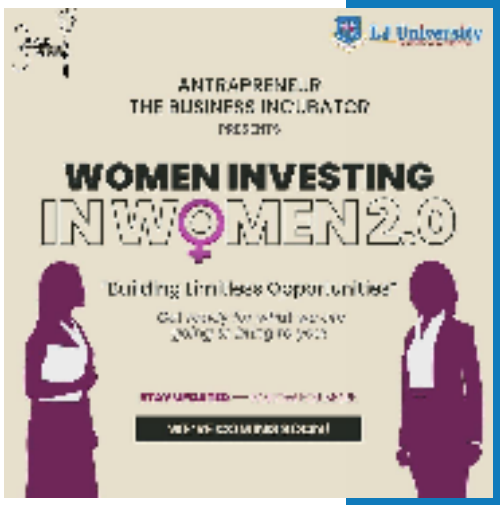
Events Highlights

2. Sharkteen Season 4.0

Date of event: 29th June 2024
Type of the event: Sensitization and Encouraging Teenpreneurs by connecting them to Investors
Number of participants: 13members)

In a dynamic initiative aimed at fostering student entrepreneurship, an event named Sharkteen 4.0 targeting individuals under 20 years old generated significant traction through Instagram, yielding 125 promising leads. Following extensive outreach efforts, 31 students enthusiastically submitted their innovative ideas out of which 13 teams got selected covering one wild card entry. Notably, three student startups—HelpTag - 365, 3D Wedding Invite, and Check My Warranty—distinguished themselves, each securing funding amounting to 2 lakhs, 2 lakhs, and 1 lakh respectively, underscoring the event's commitment to empowering young entrepreneurs.

Events Highlights



3. Women Investing in Women 2.0

Date of event: 10th and 11th February, 2023
Venue: LJ University, Ahmedabad
Organizing body(s): Antrapreneur- The Business Incubator
Number of participants: 600+

Around the globe, countries have recognized the importance of women's economic empowerment in achieving sustainable human development and the 2030 Agenda for Sustainable Development. One of the primary Sustainable Development Goals (SDGs) included in the 2030 Agenda is to achieve gender equality and empower women and girls.

Keeping this as social responsibility, Antrapreneur- The Business Incubator organised 'Women Investing in Women' with its second edition to celebrate a world of equality.

The event had Six Segment-

- Pre launch series with the Stalwart Women
- Learn to Earn (Workshop)
- Point To Point (A Talk Show)
- Mentor Mocktail (Mentoring Session)
- The Spotlight Pitch
- The Power Dias (Panel Discussion)

Events Highlights

4. Shark Teens Season 3

Organizing body(s): Antrapreneur- The Business Incubator with LJ Entrepreneurship and Family Business
Type of the event: Startup Pitch
Number of participants: 12 teams, 30+ individuals

SHARK TEENS SEASON 3 is an entrepreneurial pitch event that closely resembles the format of the renowned TV show, Shark Tank. SHARK TEENS, is a platform for all teenpreneurs to present & get validation for their business ideas.

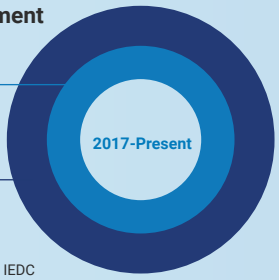
At this event, aspiring entrepreneurs take center stage to passionately present their groundbreaking business concepts to a panel of potential investors. The primary objective is to facilitate much-needed funding and mentorship for these innovative startups. Beyond the financial aspect, this event plays a pivotal role in fostering a thriving entrepreneurial ecosystem. It serves as a dynamic platform where ideas are transformed into tangible businesses, creating a synergy between visionaries and investors. By providing a stage for these presentations and fostering an environment of collaboration, SHARK TEENS SEASON 3 is a catalyst for innovation, growth, and success within the entrepreneurial community, ultimately driving economic development and prosperity.

Government Scheme associated with

Source:
Central Government

Fund Sanctioned
₹ 2,87,50,000

Fund Managed
₹ 2,87,50,000

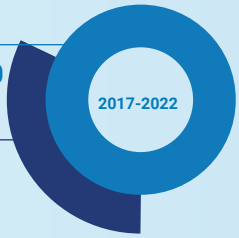


Scheme Name: New Gen IEDC
Genre of Scheme: Prototyping & Innovation grant

Source:
State Government

Fund Sanctioned
₹ 1,00,00,000

Fund Managed
₹31,00,000

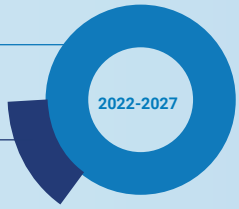


Scheme Name: SSIP 1.0
Genre of Scheme: Prototyping & Innovation grant

Source:
State Government

Fund Sanctioned
₹ 1,00,00,000

Fund Managed
₹ 10,00,000

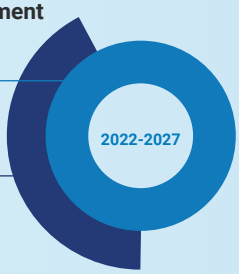


Scheme Name: SSIP 2.0
Genre of Scheme: Prototyping & Innovation grant

Source:
Central Government

Fund Sanctioned
₹ 4,00,00,000

Fund Managed
₹ 1,68,00,000

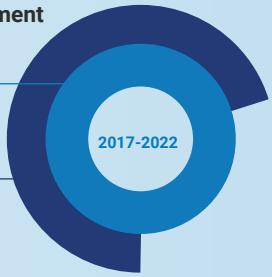


Scheme Name: SISFS
Genre of Scheme: Startup seed fund

Source:
Central Government

Fund Sanctioned
₹ 50,00,000

Fund Managed
₹ 37,50,000

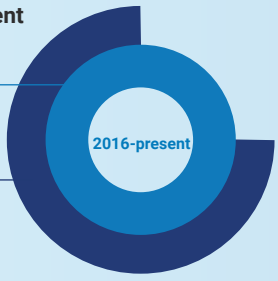


Scheme Name: IT/ ITes
Genre of Scheme: Startup Seed fund

Source:
State Government

Fund Sanctioned
₹ 3,81,00,000

Fund Managed
₹ 2,81,50,000

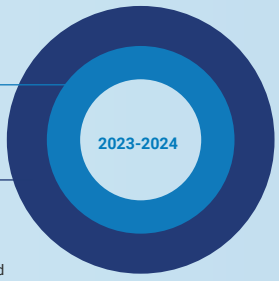


Scheme Name: IC
Genre of Scheme: Startup Seed fund

Source:
HDFC

Fund Sanctioned
₹ 35,00,000

Fund Managed
₹ 35,00,000



Scheme Name: CSR Fund
Genre of Scheme: CSR funds for startups

Conferences Organised

1 School of Computer Application

Date of Conference:
14th and 15th July, 2023

Title of the Conference: Recent Advances in Engineering and Computer Applications

Theme of Conference: Technology Advancement

Total Number of Attendees of the conference: 88

2 School of Pharmacy

Date of Conference:
6th & 7th October, 2023

Title of the Conference: "The future of Pharmaceutical Drug Development: Trends, Challenges and Opportunities"

Theme of Conference: Drug Development

Total Number of Attendees of the conference: 400

3 School of Physiotherapy

Date of Conference:
16th & 17th December, 2023

Title of the Conference: 14th GUJSTATE CONPHYCS 2023

Theme of Conference: Integrating Technology into Physiotherapy

Total Number of Attendees of the conference: 950

4 School of Applied Sciences

Date of Conference:
23rd and 24th February 2024

Title of the Conference: International Conference on Macromolecules, Supramolecules & Nanotechnology

Theme of Conference: Advancement of science and technology

Total Number of Attendees of the conference: 518

Seminars / Workshops / Talks Organised

1

Workshop on '**Systematic Literature Review**' in association with International Journal of Consumer Studies (IJCS) (ABDC- A, ABS-2, Scopus, SSCI, IF- 9.9, SJR- 2.02)
Organised by: Directorate of Research and School of Management
Resource Person: Prof. Justin Paul (Editor in Chief- IJCS)
Date: 11th January, 2024.

2

Two days Workshop on Basics of PowerBI
Organised by: Directorate of Research
Resource Person: Prof. Shreyansh Khatri
Date: 26th and 27th December, 2023.

3

Two days Workshop on Academic Writing
Organised by: Directorate of Research
Resource Person: Prof. Ankit Thakkar
Date: 8th and 9th January, 2024

4

A talk on Academic Writing for Research an AI
Organised by: Directorate of Research
Resource Person: Prof. Shreyansh Khatri
Date: 2nd March, 2024

5

A talk on Simplifying Budget
Organised by: Directorate of Research
Resource Person: Dr. Ketan Shah
Date: 7th February, 2024

6

Four days workshop on Crafting Excellence with AI Tools
Organised by: Directorate of Research
Resource Person: Prof. Hardik Shah

7

Meet the Reviewer's Series (Session- I)
Organised by: Directorate of Research & L.J. Institute of Management Studies
Date: 7th March 2024
Resource Person: Prof. Amandeep Dhir (Professor at the University of Agder, Norway)

8

Meet the Reviewer's Series (Session- II)
Organised by: Directorate of Research & School of Management Studies
Date: 22nd April, 2024
Resource Person: Dr. Bijal Mehta (Associate Professor at Ahmedabad University)

9

Workshop on Data Mining Using Orange
Organised by: Directorate of Research & School of Computer Application
Date: 27th April, 2024
Resource Person: Dr. Shanti Verma

10

One day workshop on "Skill India Mission (PMKVY) Training in Gujarata: Insights and Path Ahead
Organised by: School of Management in collaboration with ICSSR
Date: 26th February, 2024

11

Intellectus (FDP)
One day workshop on Qualitative Data Analysis
Organised by: Directorate of Research
Date: 8th July, 15th & 22nd July, 2023

12

Intellectus (FDP)
One day workshop on Effective Proposal Writing for Fund Raising
Organised by: Directorate of Research
Date: 1st July, 2023

13

PROPEL
Workshop on "Pharma Research Orientation Programmer for Excellence and Learning
Organised by: School of Pharmacy
Dates: 23rd & 24th February, 2024

14

Workshop on Cochrane Systematic Reviews and Meta-Analyses
Organised by: School of Physiotherapy
Dates: 18th-20th March, 2024

Our top Researchers

Chandramauly Sharma
School of Applied Sciences
Publications: 7
Research Honorarium: ₹ 11000

Sweety Shah
School of Management
Publications: 7
Research Honorarium: ₹ 11000

Shreeraj Shah
School of Pharmacy
Publications: 6
Research Honorarium: ₹ 11000

Neha Mehta
School of Management
Publications: 5
Research Honorarium: ₹ 5000

Vismay Shah
School of Engineering and Technology
Publications: 4
Research Honorarium: ₹ 5000

Paresh Patel
School of Pharmacy
Publications: 3
Research Honorarium: ₹ 5000

Sneha Sagar
School of Pharmacy
Publications: 3
Research Honorarium: ₹ 5000

Kaushika Patel
School of Pharmacy
Publications: 3
Research Honorarium: ₹ 5000

Jaymin Patel
School of Pharmacy
Publications: 3
Research Honorarium: ₹ 5000

Dilip Maheshwari
School of Pharmacy
Publications: 3
Research Honorarium: ₹ 5000

Jignesh Shah
School of Pharmacy
Publications: 3
Research Honorarium: ₹ 5000

Yash Raj Singh
School of Pharmacy
Publications: 3
Research Honorarium: ₹ 5000

Darshil Shah
School of Pharmacy
Publications: 3
Research Honorarium: ₹ 5000

Priya A. Shah
School of Pharmacy
Publications: 3
Research Honorarium: ₹ 5000

Hardik Joshi
School of Engineering and Technology
Publications: 3
Research Honorarium: ₹ 5000

Vamangi Pandya
School of Applied Sciences
Publications: 3
Research Honorarium: ₹ 5000

Patents Granted

Title of the Patent:

A Novel IOT based Sustainable Water Disinfection System

Author:
Dr. Shanti Verma

Patent Listing Number:
202023101810

Type of Patent:
German Utility Patent

School of Computer Applications

INTERNATIONAL

Title of the Patent:

Vermi Compost Machine

Author:
Dr. Shanti Verma

Patent Listing Number:
6294058

Type of Patent:
UK Design Patent

School of Computer Applications

INTERNATIONAL

Title of the Patent:

Artificial Intelligence Based Surveillance System for Oxygen Concentrator at Inventory Level

Author:
Dr. Shanti Verma

Patent Listing Number:
2021102487

Type of Patent:
Australian Utility Patent

School of Computer Applications

INTERNATIONAL

Title of the Patent:

Women Safety Hidden Malicious Chip Using Deep Learning and IOT Based Tracking Technology

Author:
Dr. Shanti Verma

Patent Listing Number:
2021101242

Type of Patent:
Australian Utility Patent

School of Computer Applications

INTERNATIONAL

Patents Granted

Title of the Patent:

A Novel Machine Learning Based Digital Currency Reader for Blind

Author:
Dr. Shanti Verma

Patent Listing Number:
382765-001

Type of Patent:
Indian Design Patent

School of Computer Applications

NATIONAL

Title of the Patent:

Machine Learning Based Robot for Determining Crop Yield

Author:
Dr. Anil Suthar

Patent Listing Number:
6289556

Type of Patent:
UK Design Patent

School of Engineering and Technology

INTERNATIONAL-UK

Title of the Patent:

Wearable EEG Monitoring Devices

Author:
Dr. Anil Suthar

Patent Listing Number:
393755-00

Type of Patent:
Indian Design Patent

School of Engineering and Technology

NATIONAL

Title of the Patent:

Smart Deep Learning Text Recognition Device

Author:
Dr. Shanti Verma

Patent Listing Number:
6315809

Type of Patent:
UK Design Patent

School of Computer Applications

INTERNATIONAL-UK

Patents Granted

Title of the Patent:	Author:		
An Electric Vehicles Safety Evaluation Device	Dr. Anil Suthar Patent Listing Number: 6287692 Type of Patent: UK Design Patent	School of Engineering and Technology	INTERNATIONAL-UK
Blood Group Identification Development System (BIDS)	Dr. Shreeraj Shah Patent Listing Number: 492557 (202021005150) Type of Patent: Indian Patent	School of Pharmacy	NATIONAL
Smart Drug Delivery Device for Personalized Medicine	Dr. Shanti Verma Patent Listing Number: 6333622 Type of Patent: UK Design Patent	School of Computer Applications	INTERNATIONAL
Solar Powdered Vending Cart	Dr. Prexa Parikh Patent Listing Number: 6316873 Type of Patent: UK Design Patent	School of Engineering and Technology	INTERNATIONAL

Patents Granted

Title of the Patent:	Author:		
Artificial Intelligence Based Network Intrusion Detection Device	Dr. Anil Suthar Patent Listing Number: 391585-001 Type of Patent: Indian Design Patent	School of Engineering and Technology	NATIONAL
Electrical Kick Scooter with Double Sliding Mechanism	Dr. Prexa Parikh Patent Listing Number: 6352503 Type of Patent: UK Design Patent	School of Engineering and Technology	INTERNATIONAL
Deep learning and image processing for lung cancer detection in IOT Healthcare systems	Ms. Kinjal Parmar and Dr. Anilkumar Suthar Patent Listing Number: 6333622 Type of Patent: Utility Patent	School of Engineering and Technology	NATIONAL
Robot for Sorting Goods	Dr. Anil Suthar Patent Listing Number: 404204-001 Type of Patent: Indian Design Patent	School of Engineering and Technology	NATIONAL

Research Publications

School of Pharmacy
L.J. Institute of Pharmacy

1. Palmi Modi, Bhumi Shah


Interleukin-1β converting enzyme (ICE):
A comprehensive review on discovery and development of caspase-1 inhibitors
European Journal of Medicinal Chemistry, Elsevier
Scopus, Web of Science

Abstract: Caspase-1 is a critical mediator of the inflammatory process by activating various pro-inflammatory cytokines such as pro-IL-1β, IL-18 and IL-33. Uncontrolled activation of caspase-1 leads to various cytokines-mediated diseases. Thus, inhibition of Caspase-1 is considered therapeutically beneficial to halt the progression of such diseases. Currently, rilonacept, canakinumab and anakinra are in use for caspase-1-mediated autoinflammatory diseases. However, the poor pharmacokinetic profile of these peptides limits their use as therapeutic agents. Therefore, several peptidomimetic inhibitors have been developed, but only a few compounds (VX-740, VX-765) have advanced to clinical trials; because of their toxic profile. Several small molecule inhibitors have also been progressing based on the three-dimensional structure of caspase-1.However, there is no successful candidate available clinically. In this perspective, we highlight the mechanism of caspase-1 activation, its therapeutic potential as a disease target and potential therapeutic strategies targeting caspase-1 with their limitations.

2. Paresh Patel

Phytochemistry, ethnopharmacology and novel formulations-based approaches for the treatment of irritable bowel syndrome: a comprehensive review
Phytochemistry Reviews, Springer
Scopus Q1, Web of Science.

Abstract: Irritable bowel syndrome (IBS) is a chronic digestive illness characterized by symptoms such as bloating, stomach discomfort, diarrhea, irregular bowel motions, and constipation. IBS is caused by genetic predisposition and the gut-brain axis, which affects the brain and psychological health. The gut microbiome may mediate dysbiosis in IBS patients, stress, and psychological comorbidity. Medications for IBS include probiotics, antispasmodics, antibiotics, and several agents acting on central nervous system. However, the disappointing results of conventional treatments are leading many patients to consider complementary and alternative medicines. The current study examines different herbal remedies, theirphytoconstituents,

the ways in which herbs work, and novel approaches based on nanotechnology to treat IBS. Moreover, with the help of the phytoconstituents discussed in this review, a ligand-based pharmacophore was generated in order to obtain structural knowledge for potential future developments of leads for the treatment of IBS. Potent activity against IBS may be enhanced by structural alterations of these phytoconstituents on hydrophobic, donor, and acceptor regions. In summary, this research could pave the way for the management of IBS through the use of herbal medicinal plants and encourage scientists to explore for novel natural remedies.The gut microbiome may mediate dysbiosis in IBS patients, stress, and psychological comorbidity. Medications for IBS include probiotics, antispasmodics, antibiotics, and several agents acting on central nervous system. However, the disappointing results of conventional treatments are leading many patients to consider complementary and alternative medicines. The current study examines different herbal remedies, their phytoconstituents, the ways in which herbs work, and novel approaches based on nanotechnology to treat IBS. Moreover, with the help of the phytoconstituents discussed in this review, a ligand-based pharmacophore was generated in order to obtain structural knowledge for potential future developments of leads for the treatment of IBS. Potent activity against IBS may be enhanced by structural alterations of these phytoconstituents on hydrophobic, donor, and acceptor regions. In summary, this research could pave the way for the management of IBS through the use of herbal medicinal plants and encourage scientists to explore for novel natural remedies.

3. Kaushika Patel, Vijay Kevlani & Shreeraj Shah



A novel Posaconazole oral formulation using spray dried solid dispersion technology: in-vitro and in-vivo study
Drug Delivery and Translational Research, Springer
Scopus, Web of Science

Abstract: SD (solid dispersion) technology is one of the well-recognized solubility enhancement methods; but the use of versatile carriers in ASD (amorphous SD) to achieve the added advantage of modified release along with solubility improvement is an emerging area of exploration. Spray drying is a widely used technology with excellent scalability and product attributes. The SD carriers explored were Soluplus ® , possessing excellent solubilization properties that may enhance bioavailability and is suitable for innovative processing, and Gelucire 43/01, a lipid polymer utilized in a non-effervescent-based floating gastro-retentive DDS for the modified release of API. The CPPs of spray drying were screened during preliminary trials, and the formulation variables were optimized using a 3^2 Full Factorial Design. All nine batches were evaluated for % yield, % drug content,

flow properties, floating behavior, saturation solubility, and in-vitro drug release in 0.1 N HCl. The optimized batch characterized based on DSC (differential scanning calorimetry) and PXRD (powder X-ray diffraction) confirmed the amorphous nature of entrapped drug in SDD (spray-dried dispersion). Particle size analysis and SEM (scanning electron microscopy) demonstrated micron size irregular shaped particles. Residual solvent analysis by GCMS-HS confirmed the elimination of organic solvents from SDD. The optimized batch was found stable after 6 months stability study as per ICH guidelines. In-vivo roentgenography study in New Zealand white rabbit showed the residence of SDD in gastric environment for sufficient time. The pharmacokinetic study was performed in male Sprague–Dawley rats to determine the bioavailability of developed SDD based product in fasting and fed conditions, and to compare the data with marketed Noxafil formulation. The current research is focused on the development of a novel ternary SDD (spray-dried dispersion)-based gastro-retentive formulation for an anti-fungal drug Posaconazole.

4. Kaushika Patel, Paresh Patel & Shreeraj Shah



Exploring the potential of P-glycoprotein inhibitors in the targeted delivery of anti-cancer drugs: A comprehensive review European Journal of Pharmaceutics and Biopharmaceutics, Elsevier Scopus Q1, Web of Science.

Abstract: Due to the high prevalence of cancer, progress in the management of cancer is the need of the hour. Most cancer patients develop chemotherapeutic drug resistance, and many remain insidious due to overexpression of Multidrug Resistance Protein 1 (MDR1), also known as Permeability-glycoprotein (P-gp) or ABCB1 transporter (ATP-binding cassette subfamily B member 1). P-gp, a transmembrane protein that protects vital organs from outside chemicals, expels medications from malignant cells.The blood–brain barrier (BBB), gastrointestinal tract (GIT), kidneys, liver, pancreas, and cancer cells overexpress P-gp on their apical surfaces, making treatment inefficient and resistant.Compounds that compete with anticancer medicines for transportation or directly inhibit P-gp may overcome biological barriers. Developing nanotechnology-based formulations may help overcome P-gp-mediated efflux and improve bioavailability and cell chemotherapeutic agent accumulation. Nanocarriers transport pharmaceuticals via receptor-mediated endocytosis, unlike passive diffusion, which bypasses ABCB1. Anticancer drugs and P-gp inhibitors in nanocarriers may synergistically increase drug accumulation and chemotherapeutic agent toxicity. The projection of desirable bindingand effect may be procured initially by molecular docking of the inhibitor with P-gp, enablingthe reduction of preliminary trials in formulation development.

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Compounds that compete with anticancer medicines for transportation or directly inhibit P-gp may overcome biological barriers. Developing nanotechnology-based formulations may help overcome P-gp-mediated efflux and improve bioavailability and cell chemotherapeutic agent accumulation. Nanocarriers transport pharmaceuticals via receptor-mediated endocytosis, unlike passive diffusion, which bypasses ABCB1. Anticancer drugs and P-gp inhibitors in nanocarriers may synergistically increase drug accumulation and chemotherapeutic agent toxicity. The projection of desirable binding and effect may be procured initially by molecular docking of the inhibitor with P-gp, enabling the reduction of preliminary trials in formulation development.

5. Yash Raj Singh

Evaluation of Physicochemical Properties of Ipsapirone Derivatives Based on Chromatographic and Chemometric Approaches
Molecules, MDPI
Scopus: Q1, Web of Science

Abstract: The study aimed to create an effective colon-targeted budesonide delivery system using natural polymers. Various natural gums were assessed for their ability to develop a microbial degradation-based colon-targeted drug delivery system. The sensitivity of polymers to colonic enzymes was tested by evaluating viscosity changes in the presence of a prebiotic culture medium simulating rat cecal content. Tamarind gum and Karaya gum exhibited superior viscometric profiles. Compression coating with these gums, followed by an Eudragit S 100 coat, was employed for successful colon delivery. A 32-factorial design optimized the system, using variables like polymer to ethyl cellulose (EC) ratio and Eudragit S 100 weight gain. The design-space stipulated less than 10% drug release in 2 hours (h), less than 15% in 5 h, and over 50% in 7 h for colon targeting. The Tamarind gum batch (TM 9) released 8.91% at 5 h and 50.23% at 7 h, achieving optimal drug delivery to the colon.

6. Yash Raj Singh, Darshil Shah, Dilip Maheshwari, Jignesh Shah and Shreeraj Shah

Advances in AI-Driven Retention Prediction for Different Chromatographic Techniques: Unraveling the Complexity
Critical Reviews in Analytical Chemistry, Taylor and Francis
Web of Science

Abstract: Retention prediction through Artificial intelligence (AI)-based techniques has gained exponential growth due to their abilities to process complex sets of data and ease the crucial task of identification and separation of compounds in most employed chromatographic techniques. Numerous approaches were reported for retention prediction in different chromatographic techniques, and consistent results demonstrated that the accuracy and effectiveness of deep learning models outclassed the linear machine learning models, mainly in liquid and gas chromatography, as ML algorithms use fewer complex data to train and predict information. Support Vector machine-based neural networks were found to be most utilized for the prediction of retention factors of different compounds in thin-layer chromatography. Cheminformatics, chemometrics, and hybrid approaches were also employed for the modeling and were more reliable in retention prediction over conventional models. Quantitative Structure Retention Relationship (QSRR) was also a potential method for predicting retention in different chromatographic techniques and determining the separation method for analytes. These techniques demonstrated the aids of incorporating QSRR with AI-driven techniques acquiring more precise retention predictions. This review aims at recent exploration of different AI-driven approaches employed for retention prediction in different chromatographic techniques, and due to the lack of summarized literature, it also aims at providing a comprehensive literature that will be highly useful for the society of scientists exploring the field of AI in analytical chemistry.

7. Kaushika Patel, Jaymin Patel & Shreeraj Shah



Development of Delayed Release Oral Formulation Comprising Esomeprazole Spray Dried Dispersion Utilizing Design of Experiment As An Optimization Strategy
AAPS PharmSciTech, Springer
Scopus: Q2, Web of Science

Abstract: Solid dispersion (SD) technology is one of the most widely preferred solubility enhancement methods, especially for Biopharmaceutics classification system class II and IV drugs. Since the last decade, its application for the dual purpose of solubility hike and modified release using novel carriers has been in demand for its added advantages. Spray drying is a commercially accepted technique with high aspects of scalability and product characteristics. The current study used spray-dried dispersion to design delayed release capsule for the proton pump inhibitor esomeprazole. The SD carrier hydroxypropyl methylcellulose acetate succinate-medium grade (HPMCAS-MF) enhanced solubility, inhibited precipitation of saturated drug solutions, and allowed enteric release owing to its solubility above pH 6. The proposed approach avoided compression, coating with enteric polymers, and the development of multi-particulate pellet-based formulations, improving manufacturing feasibility. The formulation was optimized using Box-Behnken design, considering significant formulation variables like HPMCAS-MF proportion and critical process parameters like feed flow rate and inlet temperature. The optimized spray-dried dispersion were characterized based on Fourier transform infrared spectroscopy (FTIR), differential scanning calorimetry (DSC), powder X-ray diffraction (PXRD), and scanning electron microscopy (SEM) and also evaluated for solubility, in vitro drug release, residual solvent content, and stability testing. Response surface methodology optimization anticipated that formulation variables affected solubility and release profile, whereas CPPs affected yield. The design space was developed via overlay plot based on constraints specified to attain the desired response and validated using three checkpoint batches with desirability 1. FTIR showed active pharmaceutical ingredient-polymer compatibility. Particle size and SEM studies showed spherical particles with an average Z-value of 1.8 µ. DSC and PXRD confirmed SD's amorphous nature. The drug release investigation and release kinetics prediction utilizing DD-solver software showed a 2-h lag time with > 90% cumulative drug release up to 4 h for the DR formulation.

8. Venessa James

Estimation of selected elemental impurities by inductively coupled plasma-mass spectroscopy (ICP-MS) in commercial and fresh fruit juices
Environmental Monitoring and Assessment, Springer
Scopus-Web of Science

Abstract: The main objective of the study is the estimation of elemental impurities in selected packaged commercial fruit juices and fresh fruit juices available in Ahmedabad, Gujarat. Estimation of seventeen samples (9 commercial fruit juices and 8 fresh fruit juices) was carried out for elemental impurities which include lead, cadmium, arsenic, mercury, methyl mercury, nickel, chromium, tin, copper, and zinc. Inductively coupled plasma-mass spectroscopy (ICP-MS) with microwave-assisted sample digestion was used to determine the element content of samples. The ICP-MS method was confirmed for accuracy by performing validation with validation parameters such as linearity, precision, and accuracy. The method's trueness was confirmed with single-element standards. The results were compared with Food Safety and Standards Authority of India (FSSAI) standards. Arsenic, mercury, methyl mercury, tin, and copper were within permissible limits in all samples of fruit juices. The concentration of lead was found to exceed limits in 5 samples of commercial fruit juices which were 0.07, 0.13, 0.18, 0.21, and 0.38 mg/kg, respectively. The concentration of nickel was found to be above permissible limits in 5 samples (1.26, 1.72, 1.95, 3.24, and 4.07 mg/kg) of commercial fruit juices and 6 samples of fresh fruit juices (0.19. 0.21, 0.21, 0.42, 0.66, and 2.42 mg/kg). The concentration of chromium was found to be above permissible limits in 5 samples (3.13, 3.51, 4.29, 5.91, and 6.02 mg/kg) of commercial fruit juices and 6 samples of fresh fruit juices (0.80. 0.88, 0.98, 0.99, 1.16, and 8.95 mg/kg). Health risk assessment was performed for elemental impurities. Target hazard quotient and health risk index for elemental impurities were found to be less than 1 which is considered safe for consumers. Hazard index for elemental impurities was found to be more than 1 in two samples which can cause serious non-carcinogenic risk to consumers. Target carcinogenic risk was found within acceptable levels for all elemental impurities in all samples of fruit juices. Essential elements like copper and zinc are required by the human body for various body functions but heavy metals like lead, arsenic, and cadmium are highly toxic to human beings due to their adverse effects and it needs to be controlled. Lead poses a significant health risk to human health. It is essential to further monitor the levels of elemental impurities on a regular basis in commercial and fresh fruit juices.

9. Jaymin Patel, Kaushika Patel, Shreeraj Shah



Fabrication of a Dual-Triggered Natural Gum–Based Multi-Particulate Colon-Targeted Drug Delivery System of Budesonide Using the QbD Approach
Journal of Pharmaceutical Innovation, Spriner
Scopus: Q2, Web of Science

Abstract: **Purpose:** To develop microbial and pH-triggered colon-targeted budesonide pellets utilising the Quality by Design (QbD) approach. Several polysaccharide-based natural gums selected using a retrospective research strategy were screened for their efficacy in developing a microbial degradation–based colon-targeted Drug Delivery System (DDS).

Methods: The viscosity profiles were generated in the presence of a prebiotic culture medium that simulated the effect of 4% rat cecal content. Critical process parameters (CPPs) such as spheronization speed and time and formulation variables (CMAs) such as proportion of tamarind gum and microcrystalline cellulose (MCC): lactose were selected as independent variables for screening design 2 4 FFD (full factorial design) to sort out the crucial parameters for the further optimization of pellets. The significant dependent variables were aspect ratio, particle size distribution, and % CDR (cumulative drug release) at 2 h. Pellets were super coated with the enteric polymer Eudragit S100. The screened range was further revealed to Box Behnken Design (BBD) for response surface optimization.

Results: On the basis of viscometric analysis, tamarind gum was selected for formulation development. Based on the screening design, considering the constraints of aspect ratio, particle size distribution, and % CDR at 2 h in the range of 1–1.2, 1–1.3, and < 25%, respectively, the independent variables selected for Box Behnken Design (BBD) were proportion of gum and % MCC in the ranges of 2–3 g and 30–40%, respectively. The optimization design space was generated based on the criteria of LT 10% of the drug in the first 5 h and MT 80% in the first 9 h to achieve colon targeting.

Conclusion: Tamarind gum is efficient for colon targeting, and its proportion of 2.5–3 g along with an enteric coating of 6% leads to an optimised formulation.

10. Shital Trivedi, Riya Patel & Shreeraj Shah



Review on novel oral iron formulations with enhanced bioavailability for the treatment of iron deficiency
Journal of Drug Delivery Science and Technology, Elsevier
Scopus, Web of Science

Abstract: Iron deficiency (ID), if it remains untreated, leads to severe conditions of anemia, and based on the WHO data, ID is the primary cause of anemia worldwide, specifically in women. Iron deficiency without anemia can be treated with oral iron salts, but despite the availability of plenty of conventional iron products on the market, the problem persists. This is due to poor patient compliance resulting from poor iron bioavailability because of its carrier-mediated absorption by the DMT1 carrier protein, mainly in duodenal enterocytes, and associated GI side effects due to unabsorbed iron in the GI region. GI side effects are less with EC and SR iron products due to the release of a small amount of iron at a time but are not beneficial due to poor bioavailability caused by the short gastric emptying time, as iron released beyond the duodenum, remains unabsorbed in a significant fraction. Novel iron formulations like spherical lipid-coated particles, microspheres, nanoparticles, SLNs, liposomes, and sucrosomial iron are researched and developed to reduce GI side effects because of encapsulated iron and to improve bioavailability based on higher solubility related to small size and higher permeability due to the lipoidal outer surface, bypassing carrier-mediated absorption. However, gastroretentive iron tablets, capsules, and pellets dosage forms that release iron slowly for a prolonged period at the absorption site, which improves its bioavailability with lower GI side effects, seem to be a better approach based on ease in their manufacturing on a large scale and other issues like cost, market size, etc. over liposomal nanoproducts and can be focused on for future development. This review study focuses on the delivery of iron using innovative oral iron formulations designed to enhance bioavailability with reduced side effects. It delves into the problems associated with conventional and sustained-release iron products. The authors have compiled patented and non-patented literature and relevant clinical trials of oral iron products to perform a gap analysis, providing valuable insights for researchers working on the development of iron formulations.

11. Bhumi Shah and Palmi Modi


Breaking Barriers: Current Advances and Future Directions in Mpox Therapy
Current Drug Targets, 27-Dec-2023E - Bentham Science Publishers
Scopus-Web of Science

Abstract: Background: Mpox, a newly discovered zoonotic infection, can be transmitted from animal to human and between humans. Serological and genomic studies are used to identify the virus.

Objective: Currently, there are no proven effective treatments for Mpox. Also, the safety and efficacy of intravenous vaccinia immune globulin, oral Tecovirimat (an inhibitor of intracellular viral release), and oral Brincidofovir (a DNA polymerase inhibitor) against the Mpox virus are uncertain, highlighting the need for more effective and safe treatments. As a result, drug repurposing has emerged as a promising strategy to identify previously licensed drugs that can be repurposed to treat Mpox.

Results: Various approaches have been employed to identify previously approved drugs that can target specific Mpox virus proteins, including thymidylate kinase, D9 decapping enzyme, E8 protein, Topoisomerase1, p37, envelope proteins (D13, A26, and H3), F13 protein, virus's main cysteine proteases, and DNA polymerase.

Conclusion: In this summary, we provide an overview of potential drugs that could be used to treat Mpox and discuss the underlying biological processes of their actions.

12. Dilip Maheshwari

Analytical validation of a microwave-assisted ICP-MS method for the quantification of elemental impurities in doxycycline hyclate tablets
Chemical Papers, Springer
Scopus Q2, Web of Science

Abstract: Elemental impurities are generated in pharmaceuticals at various stages of the manufacturing process and storage. The presence of elemental impurities in pharmaceuticals may lead to severe health complications. In this work, the presence of elemental impurities was determined in doxycycline hyclate tablets using microwave-assisted sample preparation. Concentrated nitric acid

(70%) and hydrofluoric acid (47–51%) were used for the preparation of sample solution. Spike recovery experiments were performed using a matrix to detect class 1 (As, Cd, Hg, and Pb) and class 2A (Co, V and Ni) elements in a single analysis. The developed ICP-MS method was validated using different analytical parameters, i.e. specificity, linearity, precision (system precision and method precision), accuracy, limit of detection (LOD) and limit of quantitation (LOQ). All the experimental results demonstrated that the developed ICP-MS method is suitable for the simple and sensitive analysis of trace elements in doxycycline hyclate tablets.

13. Yash Raj Singh, Darshil Shah, Mangesh Kulkarni, Dilip Maheshwari, Jignesh Shah and Shreeraj Shah

Current trends in chromatographic prediction using artificial intelligence and machine learning
Analytical Methods, Royal Society of Chemistry
Web of Science

Abstract: Abstract: Artificial intelligence (AI) and machine learning (ML) gained tremendous growth and are rapidly becoming popular in various fields of prediction due to their potential abilities, accuracy, and speed. Machine learning algorithms employ historical data to analyze or predict information using patterns or trends. AI and ML were most employed in chromatographic predictions and particularly attractive options for liquid chromatography method development, as they can help achieve desired results faster, more accurately, and more efficiently. This review aims at exploring various AI and ML models employed in the determination of chromatographic characteristics. This review also aims to provide deep insight into reported artificial neural network (ANN) associated techniques which maintained better accuracy and significant possibilities for chromatographic characteristics prediction in liquid chromatography over classical linear models and also emphasizes the integration of a fuzzy system with an ANN, as this integrated study provides more efficient and accurate methods in chromatographic prediction than other linear models. This study also focuses on

the retention prediction of a target molecule employing QSRR methodology combined with an ANN, highlighting a more effective technique than the QSRR alone. This approach showed the benefits of combining AI or ML algorithms with the QSRR to obtain more accurate retention predictions, emphasizing the potential of artificial of artificial intelligence and machine learning for overcoming adversities in analytical chemistry.

14. Jaymin Patel, Kaushika Patel & Shreeraj Shah



Methacrylic Acid Co-Polymers: Crucial agents for the Colon Targeted Oral Drug Delivery System
Research Journal of Pharmacy and Technology (RJPT), A & V Publications, India
Scopus Q2

Abstract: The objective of this research was to formulate an Ornidazole tablet capable of delivering the drug intact to the colon for the treatment of IBD, ulcerative colitis, and Crohn's disease. In the current investigation, pH-independent and pH-dependent polymers were used to target the Ornidazole tablet to the colon. This study evaluated two time-dependent (sustained release) polymers (Eudragit RS and Eudragit RL) and one pH-dependent polymer (Eudragit S100). The influence of the two formulation variables of the colon drug delivery system on the two response variables were examined simultaneously using a statistical 32-Full factorial design. X1 Ratio of Eudragit RS 100 to Eudragit RL 100 and X2 % weight gain with Eudragit S 100 were treated as independent variables in a factorial design, while Y5 and Y12 were treated as dependent variables.Through this procedure, a total of nine F9 samples were produced. Y5 in-vitro release should not exceed 10%, whereas Y12 should surpass 85%. Based on these results, batch B8 is considered the finest of all cohorts. According to the results, the enhanced formulation provides optimal intact drug delivery to the targeted region.

15. Shital Trivedi & Shreeraj Shah


Formulation Development of Non-effervescent Floating Pellets of Dried Ferrous Sulphate by Extrusion- Spheronization Technique
Research Journal of Pharmacy and Technology (RJPT), A & V Publications, India
Scopus Q2

Abstract: Dried Ferrous Sulphate is commonly used as iron salt for the treatment of iron deficiency by oral route, but conventional products face the problems of poor bioavailability due to its carrier-mediated absorption in an upper gastrointestinal region with a lower residence time at the absorption site and gastrointestinal side effects due to immediate release of the entire dose of an irritant drug which requires higher dosage frequency and prolonged duration of treatment to replenish deficient iron. Gastroretentive floating pellets of Dried Ferrous Sulphate would overcome these problems and to develop them using extrusion-spheronization, various grades of HPMC, ETHOCELTM 100cp along with Gelucire® 43/01 were tried in preliminary batches. Further optimization was done using Central Composite Design by selecting the different ratios of Gelucire® 43/01 and ETHOCELTM 100cp to a drug as formulation variables and spheronization time and speed as process variables, each at 3 levels. PVP K-30 as a binder and Isopropyl alcohol as a solvent were used. Pellets were characterized for average pellet size by sieving, roundness by microscopy, drug content, % drug release in vitro, and floating behaviour. Std run 3 with Gelucire® 43/01 (1.8:1) and ETHOCELTM 100cp (1.6:1), spheronized at 2000 RPM for 5 minutes was considered an optimized formulation which yielded an average pellet size of 868 µm ± 30, pellet roundness of 0.93± 0.02, immediate floating and sustained release for 12 hours in 0.1 N HCl dissolution medium and formulation with these characteristics could result into increased utilization of iron from the administered dose with reduced side effects.

16. Sampann Tank, Jignesh Shah & Dilip Maheshwari



A Prerequisite for need of Harmonized Nutrient Reference Values & its Standardized Terminology for Better access of Nutritional Supplements Globally
Current Nutrition and Food Science, Bentham Science Publishers
Scopus Q3

Abstract: To reduce the risk of insufficient nutrient intake, nutrient reference values for humans are set at the average nutrient need level without a safety margin. The vast majority of nations and areas in the globe set nutritional intake guidelines for their citizens. Currently, no harmonized nutrient reference value has been published, as well as the development of standards cannot be achieved through the use of formalized frameworks or terminology. The study's objective was to create recommendations for appropriate and secure micronutrient intake ranges that could be used to inform dietary advice. As relevant to the study, we examined micronutrient data from food intake surveys from representative

nations. The comparison of national standards illustrates that the level of reference values for nutrient for individual countries is dependent on variables such as methodology, data sources, physical activity exemptions, standard body weights, and age range. In the current study, iron, calcium, magnesium, vitamin A, B12, D and folate were identified as the most commonly under-consumed micronutrients. In this article, the level of six countries' standards are compared to the current reference values for nutrients. Further, numerous words for different dietary standards components are discussed, and a final set of harmonized reference nutrient intake for the dietary advice is provided.

17. Jaymin Patel, Kaushika Patel, Shreeraj Shah



Quality by Design Approach for Optimization of Microbial and pH-Triggered Colon- Targeted Tablet Formulation Using Carboxymethyl Tamarind Gum
ASSAY and Drug Development Technologies, Mary Ann Liebert
Scopus: Q3, Web of Science

Abstract: The purpose of this study was to apply the quality by design (QbD) approach in the development of a microbial and pH-triggered colon-targeted budesonide tablet. A retrospective research strategy was used to select various polysaccharide-based natural gums such as tamarind gum, gellan gum, karaya gum, gum ghutti, and khaya gum, which were then evaluated for their effectiveness in microbial degradation and targeting the colon. Viscosity profiles were generated in the presence of a prebiotic culture medium prepared by using the Velgut capsule that mimicked the impact of 4% rat cecal content and helpful in screening of natural polymer. Based on the cumulative drug release data of preliminary batches, carboxymethyl (CM) tamarind gum was identified as a superior and an excellent polymer over the tamarind gum for formulation development. The presence of water as a bridging agent in wet granulation also played an important role in the retardation of drug release. Tablets were supercoated with the enteric polymer, Eudragit S100. The Box–Behnken design was utilized, where the selected independent variables were the proportion of CM tamarind gum, % water proportion, and % weight gain of Eudragit S 100 to optimize the formulation. The optimized design space was generated with the criteria that a drug release should be of less than 5% within the first 2 h, less than 10% within the first 5 h, and more than 70% within the first 8 h, to achieve colon targeting. The optimized batch F3 was found stable as per International Council for Harmonisation guidelines. The roentgenography study for optimized formulation demonstrated that it remained intact for 5 h and, at 7 h, was disseminated completely. CM tamarind gum is efficient for colon targeting, and its proportion in 100 mg along with an enteric coating of 6% led to the optimized formulation.

18. Priya A. Shah

Simultaneous Estimation of Eugenol and Scopoletin from the in House Avipattikar Churnaby RP-HPLC Method and Estimation of Scopoletin from Different Extracts of Jalap
Journal of Natural Remedies, Informatics Journals
Scopus: Q4

Background: Although standardising polyherbal medicine requires immediate attention, it is a tedious undertaking. Phytochemical profiling is a particularly useful tool for assessing the quality and effectiveness of polyherbal medicines, among various methods used for standardization. The proposal aimed to develop a precise RP-HPLC method for simultaneous estimation of eugenol and scopoletin in in-house Avipattikar churna. This method was also used to estimate scopoletin in various extracts of Ipomoea turpethum.

Methods: The phytomarkers in Avipattikar churna, hydroalcoholic and alcoholic extracts of Jalap were estimated by RP-HPLC system. In this setup, RP-ODS C8 column was employed with methanol: water (30:70 v/v, 0.1% formic acid) at 1 ml/min for 0-10 minutes, and then with methanol: water (60:40 v/v) at 0.8 ml/min for 10.01-25 minutes. Detection was done at 280 nm for eugenol and 366 nm for scopoletin using a UV/VIS detector. The method was validated by performing validation parameters as per ICH guidelines.

Results: The linearity of eugenol and scopoletin was performed, with correlation coefficients of 0.999 and 0.9969 respectively. In repeatability, % RSD was observed as 0.856 and 0.909 for eugenol and scopoletin correspondingly. The LOD (detection limit) of eugenol was 0.67 µg/mL and of scopoletin was 1.39 µg/mL. While LOQ (quantification limit) of eugenol was found as 2.04 µg/mL and 4.03 µg/mL for scopoletin. The % recovery was ranging from 102.96 - 100.45 % for eugenol and from 102.65 - 101.3 %w/w for scopoletin, after adding a pre-quantified amount (20 µg/mL) in the different concentrations of the standards. The eugenol and scopoletin were estimated 0.1366 %w/w and 0.0465 %w/w respectively in Avipattikar churna. The hydro alcoholic extract of Jalap showed presence of more scopoletin than in the alcoholic extract.

Conclusion: The validated process is established as accurate, consistent and precise which results as a better standardization drive for Ayurvedic dosage forms.

19. Mangesh Kulkarni and Sheetal Acharya


PLGA mediated drug delivery for Alzheimer's disease
Alzheimer's Disease and Advanced Drug Delivery Strategies, Elsevier
Scopus

Abstract: Alzheimer's disease (AD) is an incessant neurodegenerative disorder, the cases of which are estimated by WHO to cross 130 million by the year 2050. The high levels of β-amyloid (Aβ) peptides and the aggregation of the same is estimated to elicit AD symptoms leading to gradual loss of higher cognitive abilities. The prevalence of unconquerable Blood Brain Barrier (BBB) is one of the biggest challenges preventing therapeutic agents to reach AD site. Clinical uses of nanoparticles (NPs) have exhibited substantial benefits for targeting and drug delivery, notably in the management of AD.In this regard, the FDA approved native PLGA, due to its ability to attenuate memory deficit, finds unique potential in AD pathology. PLGA is advantageous over other polymers that are used in drug and gene delivery, imparting unique biodegradability, biocompatibility, and approval for human use granted by the FDA. Formulations made of PLGA have been studied extensively as delivery carriers for a variety of drugs, proteins and other macromolecules. In fact, some earlier studies have shown that PLGA-encapsulated drugs like donepezil, memantine etc., had beneficial effects on cellular and/or animal models of AD with satisfactory biocompatibility. This chapter highlights the challenges in AD treatment, therapeutic strategies to combat the disease, PLGA for treating AD, and current formulations of PLGA in the pipeline for the same.

20. Dipa Israni

Human-Machine Interaction in Leveraging the Concept of Telemedicine
Human-Machine Interface: Making Healthcare Digital, Wiley
Scopus

Abstract: Since the invention of the computer, several investigations and research projects in the area of human-machine interaction (HMI) have been carried out to continuously enhance the communication between human operators and automated systems. HMI has gained popularity in a variety of industries one of them being healthcare. The concept of "anywhere,

Abstract: Since the invention of the computer, several investigations and research projects in the area of human-machine interaction (HMI) have been carried out to continuously enhance the communication between human operators and automated systems. HMI has gained popularity in a variety of industries one of them being healthcare. The concept of “anywhere, anytime healthcare” is changing client attitudes and fostering a new wave of Telemedicine. Telemedicine is the practice of providing therapeutic services remotely via two-way, real-time audio and video communication between a patient and a medical specialist. There are various technological advances in human-machine interactions like artificial intelligence (AI), machine learning (ML), Blockchain, Big Data, and The Internet of medical things (IoMT) that can be utilized in telemedicine. Presently portable telemedicine monitoring devices and Telerobots collect vital life physiological signs; Ambient Assisted Living (AAL), a new development in technology that allows remote patient monitoring; the latest sensor technologies, where a person's vital data can be collected, and bio-information can be wirelessly or online transmitted to medical databases and healthcare specialists are being used in many countries. This review focuses on the human-machine interaction in leveraging the concept of telemedicine that provide a smart triage of patients and remote monitoring.

21. Dipa Israni & Mansi Shah

Blockchain: A Decentralized, Persistent, Immutable, Consensus, and Irrevocable System in Healthcare

Blockchain for Healthcare- CRC Press, Taylor & Francis Group

Abstract: Blockchain technology has piqued the focus of the healthcare sector in recent years. Blockchain is a technology with a distinct set of characteristics, including a decentralized structure, distributed notes, and a storage mechanism that ensures network security, transparency, and visibility. Unfortunately, current data management methods in healthcare frequently result in delayed therapies, subpar health management, and negative public perception. Blockchain offers us the fantastic potential to tackle today’s obstacles in the healthcare business, such as interoperability, supply chain fragmentation, ineffective handling of data, unprotected data exchange, data security violations, drug counterfeiting, integrity, traceability, and universal access. Blockchain technology has several potential applications in the healthcare industry, including the storage of electronic health records, the analysis of current and upcoming diseases, clinical trials, the storage of insurance data, telemedicine, the distribution of vaccines, and traceability. The areas where blockchain solutions are currently being investigated include medical fraud identification, public wellness monitoring, patient and provider identity security, pharmaceutical and medical device supply chain management, clinical research, and

vehicles via the distributed peer-to-peer apps they run, which are all examples of applications that benefit from this technology. This review emphasizes the benefits of blockchain technology in healthcare while outlining its drawbacks.

22. Paresh Patel

Quinoline–Pyrimidine Monoazo Dye Hybrids: Synthesis, Catalyst Optimization, Molecular Docking and ADMET Studies, Biological Activity, and Dye Ability Assessment
Russian Journal of Organic Chemistry, Springer
Scopus (Q4), Web of Science

Abstract: In order to develop motifs with the potential applications as drugs and dyes, a series of novel quinoline–pyrimidine monoazo hybrids have been synthesized via the Biginelli reaction followed by diazo coupling. Molecular docking study of the synthesized compounds was performed against Topoisomerase IV from E. coli K-12 and CYP51 from C. albicans. The ADMET properties of the synthesized compounds were also investigated in order to understand the efficacy of drug candidates. The compounds bearing naphthol and orcinol substitutions showed excellent antifungal and antibacterial properties. The α-naphthol derivative displayed the highest binding affinity score (8.46 against Topoisomerase IV and 7.50 against CYP51) and an acceptable drug score (0.53) in toxicological and pharmacokinetics studies. The orcinol derivative showed a very good docking score but a low drug score in the ADMET study. Additionally, the dye ability of the synthesized compounds was assessed by dyeing cotton and silk fabrics. The compound containing a paracetamol moiety displayed excellent performance in terms of color and rubbing fastness and is promising for use in the textile industry for dyeing clothes.

23. Paresh Patel and Abha Vyas

Pharmacophore Mapping: An Important Tool in Modern Drug Design and Discovery
Applied Computer-Aided Drug Design: Models and Methods, Bentham Science
Scopus

Abstract: Computer-Aided Drug Design (CADD) has become an integral part of drug discovery and development efforts in the pharmaceutical and biotechnology industry. Since the 1980s, structure-based design technology has evolved, and today, these techniques are being widely employed and credited for the discovery and design of most of the recent drug products in the market. Pharmacophore-based drug design provides fundamental approach strategies for both structure-based and ligand-based pharmacophore approaches. The different programs and methodologies enable the implementation of more accurate and sophisticated pharmacophore model generation and application in drug discovery. Commonly used programmes are GALAHAD, GASP, PHASE, HYPOGEN, ligand scout etc. In modern computational chemistry, pharmacophores are used to define the essential features of one or more molecules with the same biological activity. A database of diverse chemical compounds can then be searched for more molecules which share the same features located at a similar distance apart from each other. Pharmacophore requires knowledge of either active ligands and/or the active site of the target receptor. There are a number of ways to build a pharmacophore. It can be done by common feature analysis to find the chemical features shared by a set of active compounds that seem commonly important for receptor interaction. Alternately, diverse chemical structures for certain numbers of training set molecules, along with the corresponding correlate the three-dimensional arrangement of their IC50 chemical or Ki values, features can be with used the to biological activities of training set molecules. There are many advantages in pharmacophore based virtual screening as well as pharmacophore pharmacophore based QSAR, which exemplify the detailed application workflow. Pharmacophore based drug design process includes pharmacophore modelling and validation, pharmacophore based virtual screening, virtual hits profiling, and lead identification. The current chapter on pharmacophores also describes case studies and applications of pharmacophore mapping in finding new drug molecules of specific targets.

24.Priya A. Shah

A comprehensive review of Indian medicinal plants effective in diabetes management: Current status and future prospects Antidiabetic Medicinal Plants Applications and Opportunities-Elsevier Scopus

Abstract: A large number of herbs and trees are claimed to be effective in diabetes. These medicinal plants have regularly been used by different ethnic groups and traditional medical practitioners for thousands of years. In the current allopathic medical dispensation, a truly effective and safe medicine for diabetes is still elusive. Hence, scientific community started exploring the potential of the plants being used in diabetes and associated complications. Some of the findings on Gymnema sylvestres and other

plants are amazing and strongly corroborate the traditional claims. This chapter is an attempt to bring forth the available scientific data on the antidiabetic activity of plants such as Aegle marmelos, Azadirachta indica, Enicostemma littorale, Ficus species, Gymnema sylvestre, Ocimum sanctum, Pterocarpus marsupium, and Tinospora cordifolia. If these data are judiciously used to plan further necessary studies, it might pay rich dividends by enabling scientists to come up with better diabetes treatment. In the case of Pterocarpus marsupium and Enicostemma littorale, the isolated compounds exhibited impressive antidiabetic activity. These molecules may serve as chemical scaffolds for further synthesis of novel antidiabetic molecules. Some common phytochemicals with proven activities on different metabolic pathways of diabetes were also discussed. This should ignite renewed interest among phytochemists and synthetic chemists to explore options for synthesizing new drug entities. It is expected that future research will be focused in this direction.

25.Priya A. Shah

An overview of some Indian vegetables, fruits, and spices effective in diabetes and metabolic disorders: Current status and future scenarios
Antidiabetic Medicinal Plants Applications and Opportunities, Elsevier
Scopus

Abstract: The role of diet in the overall maintenance of human health has been well recognized since ancient times. Food, vegetables, fruits, and green leafy vegetables, as well as spices, play a major role in striking a balance among various metabolic pathways in the body. These vegetable foods have been proved to be of immense value in the regulation of diabetic disorders such as hyperglycemia, hyperlipidemia, insulin resistance, and obesity. Sufficient scientific evidence has emerged on some of these food plants that vouch for their safety and therapeutic utility in diabetes and metabolic disorders. An attempt is made in this chapter to enumerate the scientific validity and relevance of some common plant foods in the management of diabetes and related metabolic disorders. Evolving suitable processing methods along with fixing proper dosage regimens will definitely make these plant foods invaluable options in improving diabetes and associated complications.

26. Kaushika Patel

Nanoparticle Formulations: A Sustainable Approach to Biodegradable and Non-Biodegradable Products
Nanocarrier Vaccines: Biopharmaceutics-Based Fast Track Development– Wiley
Scopus

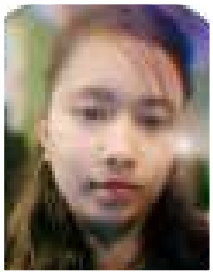
Abstract: Nanoparticle-based formulations are one of the most sought-after dosage forms in the current scenario due to the potential benefits and versatile roles in the alleviation of diseases, especially cancer. Nanoparticles bag a specialized application in targeted and tailor-made formulations due to the excellent in vivo performance apart from contributing to desired in vitro characteristics. In the present chapter, the emphasis is given to the formulation aspects involved in the nanoparticulate dosage forms. The various types of nanoparticles (NPs) prevalent are discussed along with the techniques available for the manufacturing of NPs. Nanoparticles may be synthesized by matrixing or encapsulation with different types of polymers. The role of polymers, namely, biodegradable, non-biodegradable, and natural polymers, in NP designing is discussed in depth along with the description of the research work executed utilizing these polymers. The hurdles and challenges faced in the scalability of the NP-based formulations are also described. These challenges hold back the pharmaceutical industries to undergo the scale-up and approval process for the NP-based formulations. The fabrication of such products for oral application is again a distinguished area of research. Apart from the synthetic molecules, recently, extensive research is being undertaken for the NP synthesis of natural products having potential therapeutic benefits limited by the stability and the bioavailability parameters. The present work summarizes all such products comprising NPs.

27. Jaymin Patel, Kaushika Patel & Shreeraj Shah

Natural polymers for targeted drug delivery J207to the colon: A comparative study of tamarind gum and karaya gum
Acta Pharmaceutica Sciencia, Istanbul Medipol University
Scopus: Q3

Abstract: The study aimed to create an effective colon-targeted budesonide delivery system using natural polymers. Various natural gums were assessed for their ability to develop a microbial degradation-based colon-targeted drug delivery system. The sensitivity of polymers to colonic enzymes was tested by evaluating viscosity changes in the presence of a prebiotic culture medium simulating rat cecal content. Tamarind gum and Karaya gum exhibited superior viscometric profiles. Compression coating with these gums, followed by an Eudragit S 100 coat, was employed for successful colon delivery. A 32-factorial design optimized the system, using variables like polymer to ethyl cellulose (EC) ratio and Eudragit S 100 weight gain. The design-space stipulated less than 10% drug release in 2 hours (h), less than 15% in 5 h, and over 50% in 7 h for colon targeting. The Tamarind gum batch (TM 9) released 8.91% at 5 h and 50.23% at 7 h, achieving optimal drug delivery to the colon.

28. Pratishtha Sharma



Nanotherapeutics for breast cancer using metal nanocomposites. In Metal Nanocomposites in Nanotherapeutics for Oxidative Stress-Induced Metabolic Disorders, CRC Press-Taylor and Francis Scopus

Abstract: The most prevalent malignant tumor in women globally is breast cancer (BC), which poses a major threat to both the physical and emotional health of women. Metal-based nanocomposites (MNCs) hold great potential for use in the treatment of cancer, drug delivery to cancer cells, and diagnosis of different types of cancers. Breast cancer therapy is difficult due to the disease's aggressive spread to the brain, bone, lungs, and liver. MNCs are used in cancer therapy due to their inimitable features viz. high drug-loading capacity, biocompatibility, tunable composition, accessible metal sites, and functionalization. Silver, gold, zinc, and copper are the most effective metal NPs (MNPs) developed to treat or diagnose malignancy. The generation of reactive oxygen species in cells eventually triggers the initiation of apoptotic, autophagic, and necrotic death pathways. The different MNCs include CeO2 NPs, CuO NPs, Au NPs, ZnO NPs, TiO2 NPs, IONPs, and Ag NPs employed in photothermal, photodynamic, and sonodynamic remedies for the management of BC. The MNCs include NPs, nanorods (NRs), nanofibers (NF), carbon nanotubes (CNTs), and quantum dots (QDs), which are employed as biosensors for the detection of BC. The MNCs offer the solution to overcome the multidrug resistance to treat BC as compared to conventional drugs. The MNCs have been employed as an efficient carrier for many anticancer agents against BC and triple-negative breast cancer (TNBC).

29. Jaymin Patel, Kaushika Patel & Shreeraj Shah



Quality by Design Approach for Optimization of Microbial and pH-Triggered Colon- Targeted Tablet Formulation Using Carboxymethyl Tamarind Gum
ASSAY and Drug Development Technologies
Scopus-Web of Science

Abstract: The purpose of this study was to apply the quality by design (QbD) approach in the development of a microbial and pH-triggered colon-targeted budesonide tablet. A retrospective research strategy was used to select various polysaccharide-based natural gums such as tamarind gum, gellan gum, karaya gum, gum ghutti, and khaya gum, which were then evaluated for their effectiveness in microbial degradation and targeting the colon. Viscosity profiles were generated in the presence of a prebiotic culture medium prepared by using the Velgut capsule that mimicked the impact of 4% rat cecal content and helpful in screening of natural polymer.Based on the cumulative drug release data of preliminary batches, carboxymethyl (CM) tamarind gum was identified as a superior and an excellent polymer over the tamarind gum for formulation development. The presence of water as a bridging agent in wet granulation also played an important role in the retardation of drug release. Tablets were supercoated with the enteric polymer, Eudragit S100. The Box–Behnken design was utilized, where the selected independent variables were the proportion of CM tamarind gum, % water proportion, and % weight gain of Eudragit S 100 to optimize the formulation. The optimized design space was generated with the criteria that a drug release should be of less than 5% within the first 2 h, less than 10% within the first 5 h, and more than 70% within the first 8 h, to achieve colon targeting. The optimized batch F3 was found stable as per International Council for Harmonisation guidelines. The roentgenography study for optimized formulation demonstrated that it remained intact for 5 h and, at 7 h, was disseminated completely. CM tamarind gum is efficient for colon targeting, and its proportion in 100 mg along with an enteric coating of 6% led to the optimized formulation.

30. Bhumi Shah

Exploring the mechanism of action bitter melon in the treatment of breast cancer by network pharmacology
World Journal of Experimental Medicine, Baishideng Publishing
Scopus (Q4)

Background: Bitter melon has been used to stop the growth of breast cancer (BRCA) cells. However, the underlying mechanism is still unclear. Aim: To predict the therapeutic effect of bitter melon against BRCA using network pharmacology and to explore the underlying pharmacological mechanisms.

Methods: The active ingredients of bitter melon and the related protein targets were taken from the Indian Medicinal Plants, Phytochemistry and Therapeutics and SuperPred databases, respectively. The GeneCards database has been searched for BRCA-related targets. Through an intersection of the drug's targets and the disease's objectives, prospective bitter melon anti-BRCA targets were discovered. Gene ontology and kyoto encyclopedia of genes and genomes enrichment analyses were carried out to comprehend the biological roles of the target proteins. The binding relationship between bitter melon's active ingredients and the suggested target proteins was verified using molecular docking techniques.

Results: Three key substances, momordicoside K, kaempferol, and quercetin, were identified as being important in mediating the putative anti-BRCA effects of bitter melon through the active ingredient-anti-BRCA target network study. Heat shock protein 90 AA, proto-oncogene tyrosine-protein kinase, and signal transducer and activator of transcription 3 were found to be the top three proteins in the protein-protein interaction network study. The several pathways implicated in the anti-BRCA strategy for an active component include phosphatidylinositol 3-kinase/protein kinase B signaling, transcriptional dysregulation, axon guidance, calcium signaling, focal adhesion, janus kinase-signal transducer and activator of transcription signaling, cyclic adenosine monophosphate signaling, mammalian target of rapamycin signaling, and phospholipase D signaling.

Conclusion: Overall, the integration of network pharmacology, molecular docking, and functional enrichment analyses shed light on potential mechanisms underlying bitter melon's ability to fight BRCA, implicating active ingredients and protein targets, as well as highlighting the major signaling pathways that may be altered by this natural product for therapeutic benefit.

31. Bhumi Shah, Palmi Modi

Exploring Triazole Derivatives as DPP IV Inhibtors: Advancing Type II Diabetes Treatment via Molecular Structure Investigation & Pharmacophore Modelling
Chemistry Africa, Springer
Scopus (Q3)

Abstract: Purpose: Diabetes is a serious global health concern attributable to high rate of morbidity and mortality. Fortuitously, recent research has revealed the potential of glucagon- like peptide-1 (GLP-1) to regulate glucose homeostasis in type 2 diabetes patients. However, the dipeptidyl peptidase-IV (DPP-IV) enzyme degrades GLP-1, making it a target for anti- diabetic drug development.

Methods: In this scientific expedition, we set out on a quest to discover the novel potential DPP-IV inhibitors using cutting-edge pharmacophore modelling and molecular docking approaches. Our findings demonstrate a harmonious fusion of scientific advancement and therapeutic potential.

Results: The four-point pharmacophore model (AAHR_1) was developed using previously reported compounds, and a statistically significant 3D-QSAR model with an R2 value of 0.94 and Q2 value of 0.72 was generated using the best pharmacophore hypothesis. New triazole- linked phenylacetamide derivatives were predicted, synthesised and evaluated for their DPP IV inhibitory activity. Compound 8i showed interactions with S1 (Tyr666), S1' (Tyr547), S2 (Glu205), and S2' (Tyr547) subsites on the active site of the DPP-IV enzyme, making it a promising candidate for drug development.

Conclusion: Compounds 8d, 8f, 8 h, and 8i demonstrated significant invitro DPP-IV inhibitory activity in the range of 8.76 nM to 31.74 nM. These findings offer exciting possibilities for the development of new and effective treatments for type 2 diabetes.

Research Publications

School of Management
L.J.Institute of Managment Studies

1. Sweety Shah

Factors shaping the adoption of sustainable vegan diets International Journal of Consumer Studies, Wiley
ABDC-A, ABS-2, Scopus Q1, Web of Science

Abstract: The quality and choices of food contribute significantly to human well-being and support the development of healthy communities worldwide. Despite being the world's largest vegetarian nation, India predominantly follows lacto-vegetarianism, allowing dairy consumption and creating a distinct dietary landscape shaped by influences from religious, social, and cultural beliefs. This complexity, where dairy and cultural-religious factors play pivotal roles, makes India a compelling and unique case for understanding the intricacies of adopting vegan dietary preferences. In the present study, an integrated model derived from the health belief model (HBM), the value attitude behavior (VAB) model, and social stigma was adopted as the theoretical framework. The study analyses the interactive effect of perceived benefits, barriers, environmental beliefs, health beliefs, and anti-speciesism values, with the novel inclusion of social stigma as an independent variable affecting attitudes and intentions toward adopting a vegan diet. To achieve its objective, the study employed a quantitative methodology, recording consumers' responses through a structured questionnaire. The analysis encompassed 504 valid responses from Indian consumers from diverse backgrounds and varied locations

2. Kinjal Jethwani & Kumar Ramchandani

Can Hens Save Dodiya Farms?
Case Study: The North American Case Research Association (NACRA), Harvard Business Review (Listed)

Case synopsis: In May 2021 Ranjit Dodiya, owner of Dodiya Farms in Gujarat India, realizes crop farming brings many risks. Much of the 2018 harvest was ruined due to heavy rain, the 2019 harvest was hurt by a drought, and a 2020a locust attack caused further losses. Seeking a reliable second income stream, he considers whether to launch an egg-laying business. Is this a good idea? How much time will it take to recoup his initial investment? What if sales are not as high as he hopes? What if chicken feed or other operating costs are higher than planned? If he takes out loans, will the business be sufficiently profitable to service them? How likely is it that he will be able to set aside some profits from this business to insure

against future floods, droughts, and other crop calamities? The case gives students an opportunity to analyze a current agribusiness operation and a proposed new operation (a Go/No-Go decision). Based on financial and operational analysis, including consideration of foreseeable adverse events that threaten crops and other foreseeable adverse events that threaten egg-laying, how attractive is this proposition? The case gives students an opportunity to analyze the case through both quantitative and qualitative technique, debate the business implications of their analyses, and offer recommendations.

3. Priya Shah, Neha Mehta & Sweety Shah



Exploring the factors that drive millet consumption: Insights from regular and occasional consumers
Journal of Retailing and Consumer Services, Elsevier
ABDC-A, ABS-2, Scopus Q1, Web of Science

Abstract: Understanding consumer perceptions and motivations for millet consumption is crucial as millets gain popularity as a healthier alternative. However, little research has focused on diverse millet consumer groups, and a theory-driven approach is often missing. To address this gap, we conducted semi structured interviews with 29 participants, analysing data using the Goal Framing Theory (GFT). Our findings highlight three critical insights. Firstly, regular consumers demonstrated a strong awareness of the environmental benefits of millet cultivation, while occasional consumers showed limited awareness and motivation. Secondly, regular consumers actively engaged in dependent consumption, introducing millets to their families, and preparing millet-based meals for parents with lifestyle diseases. Conversely, occasional consumers, who are typically family members of regular consumers, relied on millet-based meals prepared by others for convenience. Thirdly, both regular consumers and occasional consumers expressed dissatisfaction with millet marketing, which predominantly portrays millets as medicinal foods for managing health conditions or weight loss. They believe millets are suitable for anyone and feel stigmatized by this stereotype. Our novel findings offer significant implications for promoting millet consumption and fostering sustainable food systems. Understanding these motivations and perceptions can guide targeted interventions and marketing strategies. Our study contributes to the growth of the millet industry and supports societal and environmental well-being.

4.Priya Shah, Neha Mehta & Siddarth Singh Bist



What are the Barriers to the Consumption of Millet-based Foods in India? An Innovation Resistance Theory (IRT) Perspective
Journal of International Food and Agribusiness Marketing, Taylor and Francis
Scopus Q1 (SJR 0.41) with ABDC: (B)

Abstract: This research article addresses a significant knowledge gap by investigating the barriers that hinder millet consumption among consumers. Millet, with its potential to contribute to sustainable and diverse diets, remains underutilized despite its numerous benefits. To fill this gap, we employed a rigorous mixed-methods approach, combining qualitative essays and thematic analysis, alongside a survey of 300 consumers using structural equation modeling for data analysis. Our findings reveal two primary barriers impacting consumer choices: limited availability of millet-based products and the influence of prevailing consumption norms. To gain deeper insights into these barriers, we applied Innovation Resistance Theory (IRT) for a novel perspective on the study. This research helps policymakers, entrepreneurs, and retailers build targeted millet consumption strategies and sustainable food system initiatives. Addressing these barriers can promote better dietary habits, traditional food cultures, food security, and environmental sustainability. The paper provides evidence-based advice to boost millet consumption and improve global food systems.

5. Neha Mehta & Sweety Shah


An Empirical Study on Consumer Attitude and Intention to adopt Digital Payment in India
International Journal of Electronic Finance, Inderscience
Scopus (Q4), ABDC- C

connectivity, and technology adoption. With recent government moves, India's digital payment system might be a success tale for emerging economies. The current study uses the unified theory of acceptance and use of technology (UTAUT) to determine the elements that drive digital payment adoption in India. Primary data were acquired from 412 Indian respondents using a structured questionnaire. The data was analysed using AMOS structural equation modelling (SEM) that indicated

that performance expectancy and effort expectancy positively affect the attitude towards technology of an individual, leading to behavioural intention. The facilitating conditions are another important contributor that impacts behavioural intentions. The moderating factors of age and income suggest that younger consumers with higher incomes are more likely to embrace digital financial transactions. This study helps economists, policymakers, and digital payment service providers understand digital payment system usage.

6. Sweety Shah, Neha Mehta, Anitha Sunil



Investigation of e-learning adoption in higher education based on the unified theory of acceptance and use of technology model
E-Learning and Digital Media, Sage Publications
Scopus- Q2

Abstract: The use of information technologies has increased significantly in developing countries like India. Many educational institutes have adopted information and communication technology for academic and administration purposes. While technological devices on college campuses are ubiquitous, students' readiness for E-learning in India has yet to be thoroughly explored. The study intends to investigate students' intention to adopt E-learning using the Unified Theory of Acceptance and Use of Technology (UTAUT) model. This research was exploratory, and data was collected online from 410 students (of a single university). The findings suggest that 'performance expectancy,' 'effort expectancy,' and 'social influence' support 'behavioral intention,' while 'facilitating conditions' are not favorable to support usage. Behavioral intention shows positive support for the usage of E-learning platforms. The moderating factors gender, graduation background, and region do not have an impact on behavioral intention or usage of E-learning. The study has positive implications for increasing the adoption of E-learning by the students in educational institutes, universities, and the Government.

7. Neha Shah & Anitha Sunil


Approach for Sustainable Food Waste Management: A Study on Food Entrepreneurs
Empirical Economics Letters
ABDC- C

Abstract: The world is struggling to eliminate hunger by 2030 (SDG-2) on one side and almost one third of the food is either lost or wasted on the other side. India too faces the same contrast as it ranks 94 in the global hunger index and wastes 68760163 tones food per year (UNEP Food Waste Index Report 2021). Any food waste is a lost opportunity to attain the SDG to eliminate hunger and minimize emission of greenhouse gases. Food service sector contributes 23 percent to the total wasted food globally. Plate waste from restaurants and trimmings like food scraps from food preparation are the major sources of food waste. The FAO notes that there is little evidence to suggest that businesses can increase profits, hence they do not have much incentive to proactively take actions to reduce food waste (FAO-2019). In this backdrop, this study explores perception of the food entrepreneurs regarding the cost and benefits associated with food waste generated in their business, and practices adopted by them. The study finds that restaurant owners adopt the preventive measures to minimize waste more proactively as that also has implications on their costs. But there are very little efforts to gainfully use wasted food. Changing social practices associated with food consumption is a making issue more complex. This study is based on in-depth interviews of food entrepreneurs of Ahmedabad.

8. Sweety Shah

Khushboo Pouch and Packaging -"adapt to change": a case on succession planning
Emerald Emerging Markets Case Studies- Emerald
Scopus: Q4

Case synopsis: Khushboo Pouch and Packaging was the first-generation initiative of Mr Bhavesh Udeshi. Mitesh Udeshi, son of Bhavesh Udeshi and the business's sole successor, joined the firm in 2019 after graduating with a Master of Business Administration degree. Mitesh had desired to join his family firm since he was a teenager and aid the business with emerging business ideas. As a fresher, he applied his newly acquired theories to the company's operations. He initiated several changes in the company; however, his actions were ineffective.

He introduced modifications to the business premises, production units, marketing tactics, accounting department and product line extension for two years. Mitesh had intended to restructure his traditional firm in rational and innovative ways, but none of his plans had come to fruition. He failed because the firm's change management was confronted with denial, rage, bargaining and melancholy from both his father and the employees. Amidst non-acceptance and inconsistency, he found himself in a quandary. He had two options: remain in the family firm and persevere in making his ambitions a reality or resign, find a job and embark on a new path. Unfortunately, leaving would indicate surrendering defeat after a two-year struggle.

9. Meetali Saxena

Mobile Vulnerabilities and Countermeasures
Liberal Studies Journal
UGC-CARE

Abstract: Communication technologies are advancing at a very rapid pace. With the increased internet penetration and advancement in mobile hardware technologies, mobile phones have become an important part of our daily life. Our dependence on these devices is growing day by day. Awareness of mobile security threats and best practices has become a matter of great importance due to the increased use of mobile devices and the associated security risks. To cope with this predominant issue, this paper aims to help the readers understand and analyse existing threats and identify best practices to ensure device and data safety against each risk factor.

10. Neha Shah & Anitha Sunil

A Case on Food Entrepreneurs Alliance
Searching Alternatives: Case Studies in Management and Entrepreneurship
Routledge, Taylor and Francis
Scopus

Case synopsis: The purpose of this case is to review possible roles that social media collaborative platforms present in the entrepreneurial ecosystem can and are unable to play in supporting industrial players. The rationale of the case is that many digital platforms have emerged in the entrepreneurial ecosystem with the primary objective of cooperation and collaboration, as digital technology provides ease

in initiating such activities. Many digital groups are working on social media platforms with the idea of supporting each other. They are easy to start as they do not require any formal registration. This case is about Food Entrepreneurs Alliance (FEA) – a social media platform from Ahmedabad, India, intending to support players in the food industry with knowledge sharing and networking. A few individuals initiated it to support small players in a highly fragmented food service sector in their capacity. The case is situated at a stage where members, especially small players in the market, want the mentors of the group to extend the scope of their activities and do advocacy of their concerns before the policymakers. Many of these members are not members of any formal association; hence consider such a platform as their representative. The case is set in the backdrop of the Pandemic crisis in India, during which the food service sector faced a severe shock, and many small food outlets closed down.

11. Neha Mehta

Pune Insurance Advisors: Concerns and Challenges in Handing Over the Reins of the Firm from the First Generation to the Second Generation Searching Alternatives: Case Studies in Management and Entrepreneurship
Routledge, Taylor and Francis

Case synopsis: The case describes the quandary faced by Mr Prakash Pawar, founder and an insurance agent of Pune Insurance Advisors, whether to withdraw immediately or later (after 3 or 5 years) and give the firm's reigns to his son Mr Saurabh Pawar. Saurabh is a young MBA graduate with 2.5 years of insurance industry experience. He has the skills and aptitude required to work in insurance, but there are certain shortcomings. Mr Prakash faces a dilemma regarding succession planning as there are concerns regarding brothers who are also involved in the business. Students of the management program get to empathise with Mr Prakash Pawar and envisage, analyse the situation, generate options with proper evaluation, decide, and develop action plans related to the decision dilemma. The decision is to be made, and alternatives to be identified in entrepreneurship (family business and succession planning), strategic leadership and change management, and strategic decision- making. Participants of case analysis are required to weigh the consequences of each perspective as there are pros and cons related to withdrawing immediately or later and accordingly make their choice of decision with valid rationale.

12. Meetali Saxena & Jignesh Vidani


A Case on MBA Chai Wala
Searching Alternatives: Case Studies in Management and Entrepreneurship
Routledge, Taylor and Francis
Scopus

Case synopsis: This case describes the situation faced by Prafull Billore, the owner of MBA Chai Wala tea café, when he had to decide whether to open up another outlet of MBA Chai Wala on his own or to open up a franchise outlet through Yuvraj. Yuvraj was an investor who owned a cafe and had been successfully managing it for the past three years. He also had the experience of managing a food delivery company in the past. It provides an opportunity for the participants of a management education programme to get into the shoes of Prafull Billore, analyse the situation, evaluate the options, decide, and think through an action plan. There are choices to be made between options of steady or rapid growth, shortages and availability of capital, short-term profits and long-term expansion of the tea cafés, having complete control over the business of leveraging the value of the brand and dealing with other managers of franchisors. In addition, other personality factors and organisational resources need to be evaluated. There are advantages in terms of opportunity for expansion, immediate financial gains and access to new competencies. However, there is the risk of losing independence in decision-making and diluting MBA Chai Wala as a brand. Besides, many other organisations and personality factors need to be evaluated by a small business owner. This may help in anticipating the key business requirements at various points—e.g., the inordinate time commitment for owners, the need for delegation, changes in managerial roles, strategic planning and budgeting to achieve coordination and operating control.

13. Sweety Shah

Cronos Industries Pvt Ltd: Strategic Alliance Essential to Grow?
Searching Alternatives: Case Studies in Management and Entrepreneurship
Routledge, Taylor and Francis
Scopus

Case synopsis: This case describes the situation faced by Mr Siddharth Iyer, founder of Cronos Industries Pvt Ltd when he had to decide whether to accept the strategic equity alliance offered by Mr Subodh Sahay.

Mr Sahay was a business associate of Siddharth from Delhi and had a trading business experience of 20 years in the FMCG sector. It provides an opportunity to the participants of entrepreneurship education or small business programmes to get into the shoes of Siddharth Iyer, analyse the situation, evaluate the options, decide, and think through an action plan. Siddharth has to decide whether he should accept the offer or not. Participants in case analysis are required to weigh the consequences of each perspective as there are pros and cons related to acceptance and rejection of the offer, including the financial implications

14. Ranjana Dureja & Sweta Patel

A Case on Satira Water Tech Private Limited Searching Alternatives: Case Studies in Management and Entrepreneurship
Routledge, Taylor and Francis
Scopus

Case synopsis: The case provides an opportunity for the participants of a management education programme to get into the shoes of Mr Rajesh Kathiriya to analyze the situation, evaluate the options and strategize an action plan. There are choices between sales, profit, ethical or professional decisions, competition or catering to a niche market and retaining brand image. There are advantages in terms of durability, quality and health. However, there was a risk of losing sales, profitability, business and dilution of vision and core values by the brand 'Satira Water Tech Private Limited.

15. Dhara Shah & Himani Sheth

A Case on Ms Thakkar at Build Well Searching Alternatives: Case Studies in Management and Entrepreneurship
Routledge, Taylor and Francis
Scopus

Case synopsis: On December 29, 2017, Ms Rinku Thakkar, 29, Human Resource Manager at Build Well, was to decide whether to continue to stay in the company or resign to start her consultancy service to provide recruitment services like executive search, temporary and permanent placement, recruitment process outsourcing and bulk-hiring in the city of Ahmedabad. She aspired to start a business of her own which would help her increase her net worth, develop a sense of ownership, and lead an economically

independent life. She had thought through a business plan. She was reluctant to implement the business plan immediately because she had only a few months of corporate experience, and there was an element of risk. She had been doing her job for the last 1.2 years in the field of recruitment consultancy. She worked as a management trainee at Personage Consultancy for six months. She then started working with Build Well as a Human Resource Manager, where she has worked for the last eight months. Ms Rinku Thakkar was drawing a fixed salary of Rs 20,000 per month and a performance-based variable component with a maximum limit of Rs 3,000 per month. She was appreciative of the fact that the Human Resource department at Build Well provided a very sound and healthy working culture to its employees. Employees were provided rewards and recognitions to felicitate their achievements, and the superiors were very warm and cooperative.

16. Kinjal Jethwani & Kumar Ramchandani

Sahjanand Electronics: What Next?
Searching Alternatives: Case Studies in Management and Entrepreneurship
Routledge, Taylor and Francis
Scopus

Case synopsis: This case describes the situation faced by Karan Chawla, the promoter of Sahjanand Electronics, when he had to decide whether to enter into the non-branded segment of electronics goods and develop his brand. It provides an opportunity for the participants of a management education program to get into the shoes of Karan Chawla, analyze the situation, evaluate the option, decide, and think through an action plan. There are choices to be made between continuing the existing branded white goods retail business or starting its brand in a non-branded space. Developing a brand has advantages in terms of better margins, a steady flow of income, and less competition with lucrative opportunities. However, there is the risk of additional debt burden and heavy supplier dependency.

17. Sweety Shah

Insourcing vs. Outsourcing: A Case of CarOwlers
Searching Alternatives: Case Studies in Management and Entrepreneurship
Routledge, Taylor and Francis
Scopus

Case synopsis: This case describes the situation faced by the founders of CarOwlers, Mr Ajit and Mr Himanshu. They had to decide whether to appoint their drivers or use the drivers of the service station to bring the client's car to the service station and drop it back to the client after the car spa. It provides an opportunity to the participants of MBA semester II in Operations Management to understand the process of car spa services, the challenges faced by the start-ups and aggregator-based services, analyze the situation, evaluates the options, decide, and think through an action plan. There are choices to be considered between our resources or outsourcing the resources. Participants in case analysis are required to weigh the consequences of each option as there are advantages and disadvantages related to selecting either of the options and various implications of the same.

18. Hiteshi Ajmera & Rucha Naldurgakar

Prelude Restaurant: The Cuisine Decision
Searching Alternatives: Case Studies in Management and Entrepreneurship Routledge, Taylor and Francis
Scopus

Case synopsis: This case describes the dilemma of Mr Rushi Patel, 25, an aspiring entrepreneur who had intended to set up a restaurant in Ahmedabad and was not sure whether to offer Indian regional cuisine or Western multi-cuisine as a part of his menu. It was his dream to offer Indian regional cuisine to diners in Ahmedabad. However, he did not have the adequate skills for preparing various authentic Indian regional cuisines, nor was there sufficient availability of chefs with skills. There was also a major budgetary constraint on his part. On the other hand, Western cuisine was relatively easier to offer as he had the advantage of fund availability and personal competence in cooking basic western dishes. However, he was not sure whether he would be able to sustain it competitively. The case provides an opportunity for the participants of a management education programme to get into the shoes of Mr Rushi Patel and decide upon the best alternative. The case has information on cash inflows and investment in both options.

19. Rajanibala Shah

A Case on ECOrrect Pvt. Ltd.
Searching Alternatives: Case Studies in Management and Entrepreneurship
Routledge, Taylor and Francis
Scopus

Case synopsis: This case describes the situation Miss Bindi Patel, Founder and CEO of ECOrrect Private Limited faced when she had to decide whether to create her capacity for production (Make) or outsource it in the form of job work (Buy). There are advantages in terms of saving money by purchasing or renting land and procuring and maintaining machines, and limited requirements for hiring candidates. However, there is the risk of losing the confidentiality of the patented process and dependency on others. It provides an opportunity for the participants of a management education programme to get into the shoes of Miss Bindi Patel, analyze the situation, evaluate the options and decide on the optimum option. There are choices between short-term and long-term benefits and low and high costs.

20. Bilva Desai & Kinjal Parikh

A Case on Ruturaj Pencils Private Limited
Searching Alternatives: Case Studies in Management and Entrepreneurship
Routledge, Taylor and Francis
Scopus

Case synopsis: This case describes the situation faced by Mr Vasant Patel and Laxmikant Patel, Directors of Ruturaj Pencils Private Limited. They have to decide whether to accept a Proposal from an outside investor Mr Gautam Sharma and allow outsiders to enter into their family business or keep the business within the family and allow their sons to take charge of the company. It provides an opportunity for the participants of a Family Business management programme to get into the roles of Directors of Ruturaj Pencils, analyse the situation, evaluate the choices critically, and think through an action plan. There are choices to be made between fund offered by an investor or strengthening their family business by involving their sons, creating a new culture, new strategy, new fund and new brand or focusing on the existing brand Ruturaj with full family support, maintaining the same quality with new ideas for marketing from their sons. Few advantages are there of accepting the proposal like in terms of new investment of 4 crores, new member on board who has experienced working with leading pencil brand in India. However, there is the risk of loss of independence, ownership and control, which can lead to the dilution of the family business in future.

21. Siddharth Das

A Case on Oxygen Healthcare Research Discovery Private Limited Searching Alternatives: Case Studies in Management and Entrepreneurship
Routledge, Taylor and Francis
Scopus

Case synopsis: This case describes the dilemma Bhargavi Jansari, Senior Operations and HR Manager at Oxygen Healthcare Research Discovery Pvt. Ltd. (o2h discovery), experienced when deciding whether to continue or cease the company's talent retention policy. Despite the company's efforts to retain them by providing them with what they expected, many left. The scientists in the company's chemistry and biology divisions were referred to be "gifted." Scientists were considered vital, and attempts were made to retain them through wage increases, incentives, and other means. However, it had become necessary to comprehend why the retention strategy was not always successful. It is worth noting that "efforts" refers to using retention methods. This provides an opportunity for the students of a management education programme to get into the shoes of Bhargavi Jansari, study the situation, analyze and weigh the options, and decide and outline an action plan.

22. Kiran Khatri & Rutuja Joshi

A Case on Akshar Travels
Searching Alternatives: Case Studies in Management and Entrepreneurship
Routledge, Taylor and Francis
Scopus

Case synopsis: The case describes the situation faced by Mr Suhag Modi, Director at Akshar Travels, in 2013-2014 when he had to decide the segment of customers Akshar travels should cater to. Since the arrival of online travel agencies offering different package options at competitive prices to all the customers, Akshar travels started losing customers because a specific segment of customers was getting attracted to these online travel agencies. He realized that the company's customers were segmented based on their age. The customers of the younger age group were tech-savvy and used the online options to analyze the pricing of the packages, and the customer belonging to older age groups were not comfortable with the online travelling sites and were instead booking directly from Akshar travels. Mr Modi realized there was a need to effectively identify the right customer segment to develop

develop an integrated pricing strategy that achieves business goals and widens the customer base. This case provides an opportunity for the participants to understand the core marketing concepts of Segmentation, Target, and Positioning in the context of the travel and tourism sector.

23. Harleen Mahajan & Nidhi Sompura

A Case on Ozone Biotech
Searching Alternatives: Case Studies in Management and Entrepreneurship
Routledge, Taylor and Francis
Scopus

Case synopsis: The case narrates the board discussion between the owner Mr Manpreet Singh, the company's project head Mr Navdeep Singh and the company's marketing head Mr Saurabh Mishra about floriculture and Government Green House projects. The case describes the profile of Mr anpreet Singh, the inception of the company and its products. It then describes the company's presence in greenhouse projects, agricultural growing systems and solutions, and ozone's past diversification process. It mentions the perspective of Mr Navdeep Singh and Mr Saurabh Mishra on Floriculture and Government Greenhouse projects. In this case, the head of the project stated that the company could get the advantage of its expertise in handling the projects if an investment in floriculture is made. On the other side, the head of the marketing stated that a lot of government projects were coming up, so if the company could focus on these, it could get the advantage of its multi-locational presence. Singh had noted that both businesses had disadvantages in terms of risk attached and initial investments to be made, which had to be around 1.5cr as the surplus with Ozone Biotech. The participants are required to read the case and examine both diversification options in the hands of the director of the company. They need to give recommendations to the owner and his team members about which diversification option is in the best interest of the company.

Research Publications

School of Management
L.J. Integrated Management Program (MBA)

1. 24. Sonam Arora

An Empirical Study on Influence of Demographic Variables on Mental Accounting Process in Indian Households
Seybold Report, Seybold Publications
Scopus: Q3

Abstract: A number of studies have identified the various behavioral aspects of investment and financial decision making. Mental Accounting is one of behavioural aspects used by individual, households to organize, track and evaluate their income and spending. This study aims to identify the presence of mental accounting process in Indian households. The research first determines the existence of mental accounting system by replicating the concept of reference point through integration and segregation of gain and loss in Indian households with the help of vignettes. The results showed that mental accounting induce integration of losses and gains which occur at same time, also segregate small losses from higher gains. Secondly, it investigates whether there are any differences in mental accounting processes based on different demographic variables i.e. gender, age, education, income and occupation. The result shows different education level and income levels have a significant influence on the process of Mental Accounting.

25. Sonam Arora & Yash Shah

Exploring the Effect of Convergence from IND-GAAP to IND-AS on the Financial Statements of Indian Industries
Journal of Commerce and Accounting Research, Publishing India Group
ABDC- C

Abstract: The Ministry of Corporate Affairs of India made it mandatory to prepare the financial statements by following International Financial Reporting Standards converged accounting standards, that is, Ind AS, for Indian listed companies as well as non-listed companies having shareholder's funds (net worth) equal to or above INR 500 Cr for the financial year commencing on 1st April, 2016. The present research provides an insight into the impact of IND-AS adoption on the financial statements of Indian listed companies across industries. The study attempts to find the statistically significant differences between companies' Indian Generally Accepted Accounting Principles (GAAP)-based and IND-AS-based financial statements in terms of shareholder's funds. The value of shareholders' funds is obtained from the standalone financial statements constituted according to the two sets of accounting

standards for the year in which the company adopted Ind AS. We attempted the secondary quantitative research in two steps: first, we tried to identify whether there was a percentage change in shareholder funds from GAAP to IND-AS. Secondly, we identify the percentage change is significant or not. The result of the research revealed a percentage change in the majority of the companies' shareholder's funds, that is, 87% of the sample size (1,288 companies). Further, it was also observed that the percentage change in shareholder's fund was not significant.

26. Ms. Abhigna Dholakia (Vaishnav)

A Study on Purchase preference and Repurchase intention towards E-Commerce platform
Parikalpana, KIIT Journal of Management
UGC-CARE

Abstract: Purpose: The paper focuses on shift from home-basket to E-basket and customer behaviour related to that, hence the research aims to study the Customer online buying behaviour, the factors affecting Customers' Purchase preference criteria towards E Commerce platform and the reasons that can lead to Customers' Repurchase intention towards E Commerce platform.

Design/methodology/approach: As the study aims to study the significance between independent and dependent variables with respect to purchase preference and Repurchase intention towards E Commerce platform, the researchers have applied Multiple regression model to test the hypothesis using IBM SPSS-22 software. The researchers have also checked the reliability and normality of the data using the mentioned software.

Findings: The study suggests there is significant influence of Coordinated marketing factors, functional benefits, Reference group triangle and trust on Purchase preference towards E Commerce platform and there is significant impact of personal benefits with respect to Repurchase intention with customers having intention to buy related products more compare to same product and higher priced products.

Originality/value: Earlier researches have focused on marketing factors and functional benefits, influencing factor separately, whereas this study has taken the combined and coordinated impact of marketing factors, functional benefits and instead of single influencing factor, the study has taken into consideration the reference group triangle along with trust as an independent variable instead of mediating variable which the other studies have considered earlier.

Further Research: Research give direction that people having repurchase intention would be willing to buy more of related products, then same products and few people are willing to buy higher priced products, which can further be researched as Cross buying habits of customers on E commerce platform.

27. Susmita Suggala, Richa Mandan & Parita Unadkat



Medkart: Contemplating the Business Strategy
Searching Alternatives: Case Studies in Management and Entrepreneurship
Routledge, Taylor and Francis
Scopus

Case synopsis: This case describes the dilemma faced by Ankur Agarwal, the founder of Medkart Pharmacy Pvt Ltd. Ahmedabad. He had to decide whether to stay invested in Medkart as a social venture or accept the reality and change his business strategy. Ankur started Medkart as a social entrepreneurship venture, a movement to educate the poor (SEC C, D and E) about generics and reduce prescription bills. However, in reality, the educated and affluent SEC A and B customers showed interest. They visited his store rather than his target group SEC C, D and E. Ankur always dreamt of doing a business which made a difference in society. He had to choose to give up his dream of running a social enterprise due to bootstrap financing or accept reality, cater to the SEC A and B, and create new customer segments. There were advantages in kickstarting his business, scale-up, and slowly trickling down the movement to the target group. Nevertheless, there was always the risk of not being able to fulfil his dream if the new strategy was unsuccessful. It would lead eventually close the venture in the long run if not effectively communicated to the new segment identified; there was also a possibility of the business ending up as another regular pharmaceutical store.

28. Sonam Arora & Yash Shah


Searching Alternatives: Case Studies in Management and Entrepreneurship
Routledge, Taylor and Francis
Scopus

Case synopsis: This case describes the situation faced by Parth Shah, Founder of Clock Travel LLP, when he had to decide whether to continue with the existing structure of Limited Liability Partnership (LLP) or reboot the whole firm and take a fresh start as a Proprietorship Concern. It provides a prospect to management students to get into the shoes of Parth Shah, analyse his situation, evaluate the options, and decide and think through the best action plan to attempt the best possible alternative.

There is a choice that is dependent mainly upon firms' existing credit lines with Financial Institutions, International Credit cards issued in the name of firms, and the brand name and image that the firm has created over the years. Tax and statutory liabilities are other important aspects that affect the present structure of LLP.

29. Hardik Solanki

Searching Alternatives: Case Studies in Management and Entrepreneurship
Routledge, Taylor and Francis
Scopus

Case synopsis: This case describes the situation faced by Dipesh Shah, writer, director and producer of the Gujarati film 'Chal Man Jeetva Jaiye' when he had to decide whether to put extra effort into screening the film or wait and watch. If he decided in favour of continuity, what should he do to increase theatre footfalls? He could choose between the traditional channels of putting up hoardings, radio or television advertising, and social media channels. It provides an opportunity for management students to get into the shoes of Dipesh Shah, analyse the post-release situation, evaluate the marketing options (i.e., Digital and Social Media promotion or conventional promotion), decide, and think through an action plan. He had to resolve the dilemma urgently as the big Hindi film releases had already begun penetrating the dilemma of choosing modern marketing methods, including Digital and social media promotion over traditional methods (like a paper ad, poster etc.) after releasing the film.

Research Publications

School of Engineering and Technology
L.J. Institute of Engineering & Technology

1. Akhil Khajuria

A review of composite materials based on rice straw and future trends for sustainable composites
Journal of Cleaner Production, 10-June-2024 – Elsevier
Scopus Q1 (SJR 2.06) with 11.1 IF (Clarivate)

Abstract: Rice straw is an agricultural waste, disposal of which through open burning is an emerging challenge for the ecology, especially in under developed countries. Green composites manufactured using rice straw as reinforcement material provides a more avant-grade technique that not only nurtures environmental stewardship by reducing waste and carbon footprint but also fosters prosperity through innovative economic opportunities for rice cultivators. While earlier published reviews are focused on rice husk-based composites and their properties, this review attempts to critically examine the effect of fiber content, fiber size, fiber surface modification, compatibilizer addition, micro and nanofillers, hybridization, etc., on mechanical, thermal, morphological properties, etc. Of rice straw based composite materials. Review has been specifically categorised according to the type of matrix materials which include conventional polymers, bio degradable polymers, recycled polymers. Review also dwells upon various applications of rice straw-based composites as that is essential for sustainable upcycling of agricultural wastes like rice straw. Novel methods like manufacturing rice straw-based composites using 3D printing are also compiled in the review along with future potential of rice straw composites in the sustainable filler-based biocomposites manufacturing sector.

2. Hardik Joshi

Numerical Analysis of Compound Biochemical Calcium Oscillations Process in Hepatocyte Cells
Advanced Biology, Wiley
Scopus (Q1), Web of Science

Abstract: The hepatocyte cells regulate the wide range of liver function by moderating cellular activities such as lipid, protein metabolism, carbohydrate, and interact with other cells for proliferation and maintenance. In hepatocyte cells, the concentration of calcium uptake is quite extensive from various agonists such as active Gα subunit, active phospholipase C, free calcium in the cytosol, and endoplasmic reticulum. The overproduction and degradation of calcium signals can cause homeostasis, liver inflammation, and liver diseases. The spatiotemporal behavior of calcium oscillation reveals the

physiological role of these cellular entities in understanding the process of production and degradation.No computational attempt has been registered to date on the compound calcium regulation of these cellular entities including the memory of cells. Hence, the authors proposed a fractional order compartmental model that systematically simulates the exchange of calcium intake in cellular entities. The nonlinear equations of the rate of changes in the active Gα subunit, active phospholipase C, free calcium in the cytosol, and endoplasmic reticulum are coupled to form a nonlinear fractional order initial value problem. The existence and uniqueness, stability analysis of the model is performed that validate the theoretical results and explore the dynamic behaviour of calcium oscillation in each compartment.

3. Hardik Joshi

Mechanistic insights of COVID-19 dynamics by considering the influence of neurodegeneration and memory trace
Physica Scripta
Scopus (Q2)

Abstract: COVID-19 has been declared a global pandemic as it disturbs education, society, agriculture, the economy, poverty, death rate, social development, mental psychology, and many more. Neurodegenerative disease is a brain disorder associated with several pathological factors along with mental psychology. This paper introduces a mathematical model to inspect mechanistic insights into COVID-19 dynamics by considering the influence of neurodegeneration and memory trace. The analysis of the proposed model and the existence and uniqueness of the model are derived using the fixed-point criteria. A numerical experiment is presented to validate the theoretical results and examine the impact of various biological parameters, the influence of neurodegeneration, and memory trace on the transmission dynamics of COVID-19.

4. Shefa Shah and Nimish Das

Design and Analysis of Wide-Band Planar Antenna Using Meta-material for S-Band Applications
International Conference on Computing Science, Communication and Security
Cham: Springer
Scopus

Abstract: A patch antenna is a low-profile antenna that may be mounted on a surface and comprise of a flat sheet metal or "patch" placed above a larger metal sheet known as a ground plane. The sheet might be rectangular, round, triangular, or any other geometric shape depending on the use. This work proposes and investigates a patch antenna with meta-surface influence for S-band applications. To reduce size and improve bandwidth performance, the recommended antenna features a single-fed architecture and is equipped with a slew of meta-surfaced unit cell. Examined and illustrated with simulated results are the precise antenna radiation characteristics. Using Ansoft HFSS software, antenna is constructed on FR4 substrate at 2.5 Ghz for S band Frequency with loss tangent of 0.02 and εr is 4.4. The obtained simulation results include 10.4% (2.34–2.62 GHz) for a return loss bandwidth of 10 db, which outperforms antenna without meta surface by 4%, 6.7 dBi for performance in gain and 29% decrease in the patch's size while making utilization of a meta-surface. Applications for S-band Radar using this antenna include wide range of radar systems such as weather, surface ship and space borne type radar.

5. Nimish Das

Crowd Size Estimation: Smart Gathering Management.
International Conference on Emerging Global Trends in Engineering and Technology
Springer
Scopus

Abstract: Linear increase in population which results in overcrowding has become an unavoidable element in any public gathering. Public safety under such condition has become a very vital problem in areas like streets, malls and railway stations during weekends, festive seasons, holidays, concerts, etc., normally or in any pandemic situation. The massive disasters that can occur includes numerous instances of fatality where people gather in form of throng. In present time, surveillance cameras are deployed to maintain peace, security and manage crowd, as surveillance videos for proper analysis of crowd activities is an important issue for communal harmony and security; however, some major limitations in video surveillance system are that includes picture getting blurred, peculiarities among person cannot be identified automatically with respect to surroundings during live video streaming, along with that to save the information a lot of storage spaces is also required and hence it becomes costly to run and maintain. The present study proposes a method that is based on principle of Histogram of Oriented Gradients (HOG) and OpenCV that efficiently keeps in track count of the people in the scene which helps in efficient crowd management. OpenCV-based method used for crowd estimation written in Python used in this study in order to count the number of heads in live streaming and helps in crowd management according to requirement in an economical way.

6. Anilkumar Suthar

Challenges in Security and Privacy in Wireless Networks and Mitigation Methods Using Blockchain Technology
Computer Science Engineering and Emerging Technologies, CRC Press, Taylor & Francis
Scopus

Abstract: With blockchain technology, the digital database may be transferred via the internet without the need for duplicating any of the information. It serves as a public ledger accessible to anybody, decentralized from any one source of authority. It's a tool that can help businesses and individuals work together more effectively, build trust, and boost transparency in their digital dealings. With the advent of blockchain technology, businesses may now benefit from more openness, security, and traceability of their transactions. As a result, developers may create new marketplaces and transfer cash by predetermined guidelines. Blockchain's primary benefits are its decentralization, immutability, and accelerated transactions and confirmation times (measured in seconds). Blockchain's impressive problem-solving power in commercial contexts stems from its decentralized nature. All of a blockchain transaction's past and present interactions are encrypted using cryptography. Algorithms running on the nodes of a blockchain validate the legitimacy of transactions. Since a single party cannot initiate a transaction, blockchains enable transparency by giving each participant the ability to monitor the trade at any moment. Smart contracts enable encrypted exchanges, which protect users from fraudulent activities of third parties. The two decentralized features of blockchain, create dependability and reduce risk when joining a commercial partnership with an unknown party. To ensure its integrity, the blockchain is developed and maintained by a distributed network of computers using encryption that is both intelligent and decentralized.

7. Anilkumar Suthar

Impact of leadership development in improving workplace communication and working environment
Journal of Informatics Education and Research, Center for Research and Management Services
ABDC- C

Abstract: This research examines how leadership development programmes may affect workplace communication and climate. Strategic leadership development investments are expected to grow as organisations realise the importance of leadership in navigating the current corporate landscape. The

research will examine the complex relationships between leadership development, communication, and the workplace. Studying the context and relevance of leadership development, including Situational Leadership and Transformational Leadership theories, is expected. Success will depend on leaders' adaptation to their teams' needs and preparedness and imaginative communication. The research will also focus on active listening, dispute resolution, feedback, and ongoing development to enhance workplace communication. Leadership development is intended to be a strategic investment that promotes professional advancement, employee happiness, and work-life balance. Leadership development programmes face organisational opposition and budget restrictions, but the research will recognise their merits. A comprehensive literature study will examine current academic papers to identify leadership development program-influenced transformational patterns. Researchgate, MDPI, ScienceDirect, and Google Scholar were searched for "leadership development" and "workplace communication." During data extraction, authorship, publication year, research methods, and findings were documented. This study concludes that leadership development may shape organisational communication and the work environment, helping organisations navigate the changing business landscape.

8. Hardik Joshi

A Fractional Calculus Model to Depict the Calcium Diffusion for Neurodegenerative Disease

Computational and Analytic Methods in Biological Sciences (River Publishers)

Abstract: Neurodegenerative disease is widely spread across the world in recent times. There are several factors associated with that to reach up to these conditions such as oldest age, environmental effects, protein structure, misfolded gene, calcium dysfunction, and so on. Out of all listed factors, calcium dysfunction is the common target for various neurodegenerative diseases like Alzheimer's, Parkinson's, Huntington's, and many others. In the present chapter, we have developed the fractional calculus model to study the calcium diffusion in the cells. A several physiological parameters such as diffusion coefficient, advection, velocity, and amplitude source are taken into consideration correspond to the physical conditions of the cells. The analytic solution of the proposed model is derived by the use of the similarity and Laplace transform. The obtained results are shown the importance of the calcium diffusion in the neurodegenerative disease due to the global behavior of the fractional calculus.

9. Dharam Unadkat

Influence of annealed glass powder and polypropylene fibers on strength properties of clayey soil
AIP Conference Proceeding, 2023- AIP Publishing
Scopus

Abstract: Construction on clayey soil has generated problems for a variety of civil engineering projects around the world, including roadways, buildings, trains, and foundations. When clayey soil is wet, it expands and shrinks, causing foundation cracks and fractures. As a result, it's critical to treat this soil and make it construction-ready. Because of the current COVID-19 pandemic, many countries, including India, have made it essential to wear single-use face masks as a protective barrier. The disposal of these face masks poses a serious environmental risk. This study looks into a novel way of dealing with the problem by using polypropylene fibres from single-use face masks to improve the shear strength of clayey soil. In addition to polypropylene fibres, we added damaged annealed glass in a crushed form derived from industrial waste to help improve clay strength. Annealed glass and polypropylene fibres are non-biodegradable waste that takes a long time to degrade, therefore using them would not only aid with waste management but also improve the strength attributes of clayey soil.

10. Vismay Shah

Development of Rubber Mould Paver Blocks Using Textile Effluent Treatment Plant Sludge
Lecture Notes in Civil Engineering, Springer
Scopus (Q4)

Abstract: An important and long-standing sector in India is the textile industry. Its numerous operations result in an enormous quantity of liquid waste being produced. During textile wastewater treatment, sludge is generated in the effluent treatment plant (ETP). The government has designated a specific location for its waste disposal. The majority of the generated sludge is disposed of in landfills or dumped in designated locations by the government. The improper disposal of textile sludge contributes to environmental damage. As a result, the disposal of textile sludge has become a major environmental concern. An extensive overview of the literature review on the utilization of textile effluent treatment plant sludge as concrete, blocks, paver blocks and bricks is discussed. Using textile ETP sludge as a cement replacement in M30 grade rubber mould paver blocks (RMPB) is the goal of this work. As a cement

replacement material, rubber mould paver blocks made from textile sludge may be used at a weight percentage of 0, 5, 10, 15, 20, 25, 30, 35, and 40%. Compressive and abrasion resistance decreases with increasing sludge concentration. When ETP sludge replaces cement to a greater or lesser extent, it falls short of the desired esteem.

11. Vismay Shah

Examining Different Job-Site Layout Strategies and Their Effects on Construction Productivity
Lecture Notes in Civil Engineering, Springer
Scopus (Q4)

Abstract: After the bid wins and the contractors receive the notice to continue or a letter of commencement, the job-site layout is routinely established and designed for construction project delivery. Temporary offices, sanitary facilities, worker rest spaces, crane sites, storage and workshop areas, access points and access roads, utilities, and other key characteristics are all considered while planning the layout of the job site. These worksite design decisions have an impact on the site's operational capabilities and, through productivity, have a direct impact on cost and schedule. This study will look at several worksite layout design and optimization methodologies that have been used in practice and proposed through research. The influence on worksite productivity and contract delivery is examined and evaluated using the factors and variables considered in the identified methodologies. Through a survey of working professionals in India important elements for job-site layout are investigated further. The results of the survey are reported, analyzed, and discussed in connection to the factors, and essential parameters identified, as well as their impact on job-site performance and contract success. A discussion of potential directions for job-site perks concludes the study.

12. Vismay Shah

Comparative Study for Compressive and Split Tensile Strengths of Low-Sludge Concrete
Lecture Notes in Civil Engineering, Springer
Scopus (Q4)

Abstract: The waste and by-products of today's industries are used as supplemental cementitious materials for cement concrete and serve to strengthen portions made of reinforced concrete. Concrete has advanced to new levels because of its continued development to meet the demanding requirements of the construction industry. The sludge that is produced by the paper industry is referred to as hypo sludge. It has been shown that trash is superior to conventional construction materials. It is possible to make the case that it is an opportunity for growth. To meet the challenge, all domains will need to collaborate and make concentrated efforts to adopt the categorization of waste into co-products. Only then we will be able to rise to the occasion. This research explores how 0, 10, 20, 30, and 40% of hypo sludge is replaced with cement in M25 grade of concrete. The following tests were performed to test the mechanical qualities, such as compressive strength (CS) and split tensile strength 28, 56, and 90. The research discovered that affordable composites containing low-cost hypo sludge in infrastructure applications deliver sufficient strength and lower expected costs. Hypo sludge concrete improves the compressive and split tensile strength of concrete.

13. Hardik Joshi

A fractional approach to Study of Calcium Advection Distribution and VGCC in Astrocyte
2023 International Conference on Fractional Differentiation and Its Applications (ICFDA). IEEE
Scopus

Abstract: Calcium oscillations have vivid functions in the different cells like neuron, astrocyte etc. of central nervous system. Only to a certain extent have the mechanics behind the activities that take place inside the brain been uncovered. Calcium, a second messenger, is crucial in the transformation of different types of information. The study of calcium signaling in the presence of buffers and advection diffusion and voltage gated calcium channel (VGCC) on boundary has been considered to construct a mathematical model. This fractional approach by Caputo definition on time differentiation is applied to investigate this model. Integral transform is applied and the green's function is taken for fundamental solution. This solution done for the different parameters of buffer and spatial, temporal behavior. Different buffer concentration and space time dimension simulated to show calcium distribution and effect of flow. Advection also shows the significant effect on the astrocyte calcium distribution. Different Exogenous buffer is considered to know the behavior of calcium oscillation.

14. Vismay Shah

Influence of BIM on work breakdown structure in the construction industry
AIP Conference Proceeding, 2023- AIP Publishing
Scopus

Abstract: One of the most significant sources of the country's economic growth and development is the construction industry. Construction projects are also critical for accomplishing the country's socio-economic development goals of housing, infrastructure, and employment creation. However, construction projects face several pitfalls in managing projects to be delivered within budget and on time by project managers. To overcome these problems, a systematic method of planning a project can be implemented, which is known as a work breakdown structure (WBS). Our studies found that by using Building Information Modelling (BIM) in every infrastructure project, project managers can generate a more robust WBS and improved project definition that can reduce project contradictions and provide a better response to project risks.

Research Publications

School of Engineering and Technology
LJ Polytechnic

1. Vipul Shukla

Thickness dependent studies on p-type K-doped ZnS nanostructured films grown via colloid-based solution route for ambipolar optoelectronic applications
Physica B: Condensed Matter, Elsevier
Scopus: Q2, Web of Science

Abstract: Potassium-doped Zinc Sulphide (K:ZnS) nanostructured films were deposited on silica substrates using a colloid-based solution method, with varying thicknesses from 3 to 6 coats. The films exhibited p-type electrical conductivity and favorable optical properties for ambipolar and optoelectronic device fabrication. X-ray analysis confirmed a polycrystalline cubic phase in all the films, with crystallite sizes of 7–27 nm. Scanning electron micrographs revealed spherical globular grains of sizes 1.20–2.84 μm, leading to improved compactness with thicker films. UV/VIS analysis demonstrated a red-shifted band gap with increasing thickness. Photoluminescence under UV excitation revealed a peak at 477 nm attributed to K-induced trap levels. The electrical resistivity (1.34–6.00) × 10^2 Ω·cm, carrier concentration (4.63–13.33) × 10^{15} cm^{-3}, and mobility (2.25–3.50) $cm^2/V{\cdot}s$ varied with film thickness. The minimum resistivity of 1.34 × 10^2 (Ω·cm), maximum conductivity of 7.46 × 10^{-3} ($\Omega^{-1}{\cdot}cm^{-1}$), and highest mobility of 3.50 ($cm^2/V{\cdot}s$) were obtained for K:ZnS-6 film.

Research Publications

School of Applied Sciences
L.J. Institute of Applied Sciences

1. Vamangi Pandya

Pinpointing top inhibitors for GSK3β from pool of indirubin derivatives using rigorous computational workflow and their validation using molecular dynamics (MD) simulations
Scientific Reports, Nature Publishing Group
Scopus: Q1, Web of Science

Abstract: Glycogen synthase kinase-3β (GSK3β) is a pivotal protein kinase implicated in a spectrum of debilitating diseases, encompassing cancer, diabetes, and neurodegenerative disorders. While the therapeutic potential of GSK3β inhibition is widely recognized, there remains an unmet need for a rigorous, systematic analysis probing the theoretical inhibition dynamics of a comprehensive library of indirubin derivatives against GSK3β using advanced computational methodologies. Addressing this gap, this study embarked on an ambitious endeavor, leveraging indirubin—a renowned scaffold—as a template to curate a vast library of 1000 indirubin derivatives from PubChem. These were enriched with varied substitutions and modifications, identified via a structure similarity search with a Tanimoto similarity threshold of 85%. Harnessing a robust virtual screening workflow, we meticulously identified the top 10 contenders based on XP docking scores. Delving deeper, we gauged the binding free energy differentials (ΔGBind) of these hits, spotlighting the top three compounds that showcased unparalleled binding prowess. A comparative pharmacophore feature mapping with the reference inhibitor OH8, co-crystallized with GSK3β (PDB ID: 6Y9R), was undertaken. The binding dynamics of these elite compounds were further corroborated with 100 ns molecular dynamics simulations, underlining their stable and potent interactions with GSK3β. Remarkably, our findings unveil that these indirubin derivatives not only match but, in certain scenarios, surpass the binding affinity and specificity of OH8. By bridging this research chasm, our study amplifies the therapeutic promise of indirubin derivatives, positioning them as frontrunners in the quest for groundbreaking GSK3β inhibitors, potentially revolutionizing treatments for a myriad of ailments.

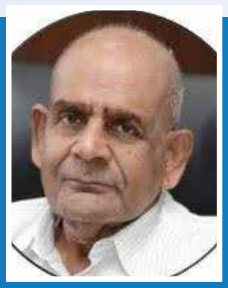
2. Niketan Deshmukh

In silico screening of potential inhibitors from Cordyceps species against SARS-CoV-2 main protease
Journal of Biomolecular Structure and Dynamics, Taylor and Francis
Scopus

Abstract: Coronavirus disease 2019 (COVID-19) is a result of a retroviral infection of SARS-CoV-2. Due to its virulence and high infection rate, it is a matter of serious concern and a global health emergency. Currently available COVID-19 vaccines approved by regulatory bodies around the world have been shown to provide significant protection against COVID-19. But no vaccine is 100% effective at preventing infection, also they have varying efficacy rates and different side effects. However, the main protease (Mpro) of SARS-CoV-2 has been identified as a key drug target due to its essential role in viral infection and its minimal similarity with human proteases. Cordyceps mushrooms have been found to have various therapeutic properties that could effectively combat SARS-CoV-2, including improve lung functioning, anti-viral, immunomodulators, anti-infectious, and anti-inflammatory. The present study aims to screen and evaluate the inhibitory potential of the bioactive molecules from the Cordyceps species against the Mpro of SARS-CoV-2. The bioactive molecules were screened based on their docking score, molecular interactions in the binding pocket, ADME properties, toxicity, carcinogenicity, and mutagenicity. Among all the molecules that were tested, cordycepic acid was the most effective and promising candidate, with a binding affinity of −8.10 kcal/mol against Mpro. The molecular dynamics (MD) simulation and free binding energy calculations revealed that the cordycepic acid-Mpro complex was highly stable and showed fewer conformational fluctuations. These findings need to be investigated

3. Chandramauly Sharma, Nirav Pandya and Viral Shukla, Yadvendra Agrawal



Microfluidic Device for Forensic Body Fluid Examination
BioNanoScience, Springer
Scopus: Q3, Web of Science

Abstract: The current investigation focuses on the creation of a paper microchip engineered to identify DNA and saliva. Traditional bioassays typically rely on controlled lab settings and delicate reagents to generate outcomes. In a bid to streamline these cumbersome and time-intensive procedures, a paper-based bioassay employing nanocomposite colorimetric analysis has been innovated. To enhance the efficiency, PMMA-Au nanocomposite clusters were strategically positioned on the substrate for DNA sensing assays, capitalizing on DNA-AuNP cross-linking. This arrangement facilitated the establishment of both hydrophobic and hydrophilic channels, essential for substrate analysis. Remarkably, these channels exhibited exceptional thermal resilience, enduring temperatures as high as 130 °C.

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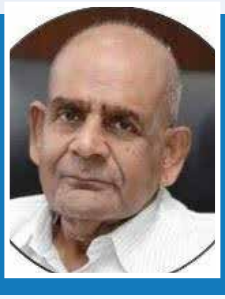
4. Vamangi Pandya

Dweipayan Biopolymer hydrogel matrices for the stabilization and in-vitro delivery of anti-cancer polyoxometalate [CoW11039(CpTi)]7-
Journal of Macromolecular Science, Part -A Pure and Applied Chemistry, Taylor and Francis
Scopus (Q2)- 2.5 IF (Clarivate)

Abstract: In the present study, the polyoxometalate (POM), $[CoW_{11}O_{39}(CpTi)]^{7-}$, known for its significant anti-cancer activity and relatively low toxicity compared to established organic drugs such as CP and 5FU, is investigated. However, it is acknowledged that POMs inherently exhibit toxicity to living cells due to the presence of heavy and toxic metal ions within their core structures and their limited selectivity toward biological targets. Consequently, a methodology to mitigate this toxicity is sought by encapsulating these POMs within hydrogel matrices, with the intention to facilitate slow, sustained release and enhanced target specificity. In this study, the hydrogel of the well-researched anti-cancer POM, $K_6H[CoW_{11}O_{39}(CpTi)]$ (hereafter abbreviated as $CoW_{11}CpTi$), is synthesized through the electrostatic interaction of the positively charged carboxymethyl chitosan (CMC), carboxymethyl cellulose (CMCell), and gelatin, which serve as hydrogelators. Subsequent characterization of the resultant CMC-$CoW_{11}CpTi$, CMCell-$CoW_{11}CpTi$, and gelatin-$CoW_{11}CpTi$ gels is performed utilizing Fourier Transform Infrared Spectroscopy (FT-IR), Differential Scanning Calorimetry/ Thermogravimetric Analysis (DSC/TGA), Electron Spin Resonance (ESR) Spectroscopy, Scanning Electron Microscopy (SEM), and Tgel analysis. Among these, the gelatin-CoW11CpTi gel demonstrates the highest stability, retaining its structural integrity for in excess of 10 days. In addition, cytotoxicity assays are conducted on an assortment of cell lines including NRK52e (Rattus norvegicus kidney cell line), MDA-MB-231 (human breast adenocarcinoma), and MCF-7 (human breast epithelial adenocarcinoma). It is observed that the release of POM from the hydrogel matrices under physiological pH conditions exhibits a slow and sustained profile. This study therefore offers a promising approach for the effective delivery of POMs in cancer therapy.

5. Chandramauly Sharma & Yadvendra Agrawal

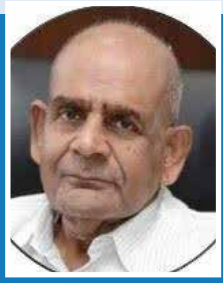


Sequential separation, ICP – MS trace determination of as (III), Sb (III), and Bi (III) in the alloys, water, environmental and human samples
International Journal of Environmental Analytical Chemistry, Taylor and Francis
Scopus (Q3) with 2.6 IF (Clarivate)

Abstract: New approach for liquid-liquid extraction, speciation, sequential separation, and ICP – MS trace detection of As, Sb, and Bi utilising synthetic p-carboxycalix [6] benzo crown hydroxamic acid (PCCBCHA) is described. As, Sb, and Bi are extracted into dichloromethane at pH 5.5, 1.5 and 2.0 M HCl, respectively, and determined in nanogram by ICP – MS in the presence of cations and anions. The distribution constant varies with changes in PCCBCHA concentration, pH/molarity of HCl, ionic strength, and temperature. As absorbs at λmax 395 nm with a molar absorptivity 1.15 × 104 L mol−1 cm−1, Sb has λmax 425 nm with a molar absorptivity 1.10 × 104 L mol−1 cm−1 and Bi has λmax 425 nm with molar absorptivity 1.36 × 104 mol−1 L cm−1. The extract followed Beer's Law for as (III) (0.99–8.916 µg mL−1, RSD 2.4%), Sb (III) (0.99–15.84 µg mL−1, RSD 2.5%), and Bi (III) (1.50–11.76 µg mL−1, RSD 2.6%) and increased. The sensitivity is increased with a factor of 60 folds by injecting the extracts directly into the plasma for ICP – MS measurement with LOD for as 2.0 mg mL−1, Sb 0.5 ng mL−1 and Bi 0.10 ng mL−1. Trivalent and pentavalent forms of As, Sb, and Bi were estimated. This method may be used to determine As, Sb, and Bi in a wide variety of alloys, water, environmental and human samples.

6. Nirav Pandya, Chandramauly Sharma & Yadvendra Agrawal





Studies of thermoluminescence properties of liquid crystalline N-phenyl substituted phenyl polysiloxane hydroxamic acids
Luminescence, Wiley
Scopus Q2 (SJR 0.45) with 2.9 IF (Clarivate)

Abstract: The investigation of thermoluminescence (TL) glow curves in liquid crystalline side chain N-phenyl-substituted phenyl polysiloxane hydroxamic acids (PHAs) has yielded significant insights. These polymers demonstrated TL behavior when exposed to β-radiation between 0 and 220°C, indicating inherent luminescent properties when irradiated. Notably, a dose-dependent relationship was observed in reported derivatized polymers; this study elucidates the diverse TL characteristics exhibited by various liquid crystalline side chain N-phenyl-substituted phenyl PHAs when exposed to β-radiation. Understanding these dose-dependent and dose-independent behaviors enhances the knowledge of their luminescent properties and potential applications in radiation detection.

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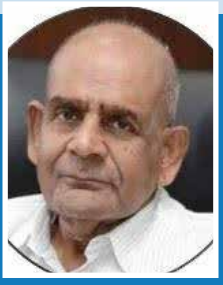
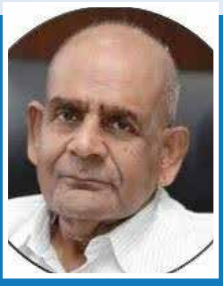
7. Chandramauly Sharma, & Yadvendra Agrawal

Extraction, separation, recovery, transportation, ICP-AES trace determination of thorium(IV) with calix[4]resorcinarene-2, 8, 14, 20-tetrakis [N-phenylbenzo]-hydroxamic acid
Chemical Papers, Springer
Scopus

Abstract: A novel method for extraction, separation, and trace determination of thorium(IV) with calix[4]resorcinarene-2, 8, 14, 20-tetrakis[N-phenylbenzo]-hydroxamic acid (C4RATHA) is described. The thorium (IV) is extracted from an n-octanol solution of C4RATHA at a pH of 4.5, as colorless extract with a maximum absorption at 375 nm and molar absorptivity of 1.5 × 104 L mol−1 cm−1. The extract is then analyzed using ICP-AES, and a linear calibration graph is obtained between 35.88 and 309.40 ng mL−1 with a detection limit of 20 ng mL−1. The method is applied be used to measure thorium (IV) in monazite sand and rare earth sand in the presence of other diverse ions. The thorium is recovered from seawater and analyzed.

8. Chandramauly Sharma, & Yadvendra Agrawal

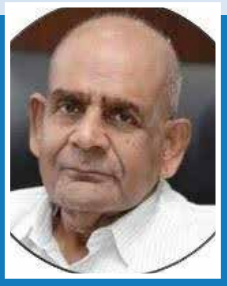



Solvent Extraction, Sequential Separation and Trace Determination of La (III), Ce (III), Nd (III) and Gd (III) with 2, 14-bis[m-nitrophenyl]-Calix [4] Resorcinarene-8, 20-bis[N-phenylbenzo]-dihydroxamic Acid
Solvent Extraction and Ion Exchange, Taylor and Francis

Abstract: A novel reagent 2,14-bis[m-nitrophenyl]-calix[4] resorcinarene-8,20-bis[N-phenylbenzo]-dihydroxamic acid (NPC4RADHA) is reported for the liquid-liquid extraction, separation, and simultaneous trace determination of La(III), Ce(III), Nd(III), and Gd(III). The method involves optimizing various parameters such as the concentration of NPC4RADHA, pH, solvent, and extraction time to achieve maximum purity (99.98%) extraction of these rare earths. The stability constant, molar absorptivity, and Beer's law have been studied. The extracted samples were directly analyzed by ICP-AES, which improves sensitivity with determination limits of 0.020 ng/mL, 0.028 ng/mL, 0.018 ng/mL and 0.025 ng/mL for La, Ce, Nd, and Gd, respectively. The method has been applied to the determination of these elements in monazite sand and standard geological samples. The separation and determination mixture of a Ce(III) and Ce(IV) has been reported.

9. Chandramauly Sharma, Bignesh Thakur, Vamangi Pandya, Yadvendra Agrawal



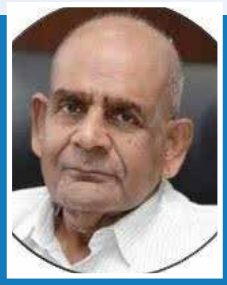



Trace detection of La (III), Ce (III), Ce (IV), Nd (III), and Gd (III) using 2, 8, 14, 20-tetramethyl-5, 7-dinitro calix [4] resorcinarene polyhydroxamic acid by solid-phase extraction and separation
Reactive and Functional Polymers, Elsevier

Abstract: The quantitative trace determination and separation from individual rare earths is a difficult task, with this view a new synthesized and functionalised Calix[4] resorcinarene polyhydroxamic acid is used for sorption, speciation, sequential separation and trace determination of La (II), Ce (III), Ce (IV), Nd (III) and Gd (III). The rare earths are quantitatively separated and trace determination in the range of 2–15 ng with the selectivity order La (III) > Ce (III) > Nd (III) > Gd (III). The column parameters like pH, flow rate and distribution were evaluated. The effect of various electrolytes and diverse metal ions in separation are studied. The present method is applied for estimation of rare earths in monazite and other geological specimens. Suitable eluents were used to effectuate the separations of the binary and ternary combinations.

10. Chandramauly Sharma, Viral Shukla, & Yadvendra Agrawal



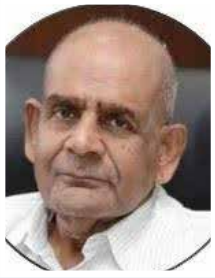


Estimation of time since death using cardiac troponin I in case of death due to asphyxia and cardiotoxicity of acebutolol
Forensic Science, Medicine and Pathology, Springer Nature
Scopus (Q2) with 1.8 IF (Clarivate)

Abstract: The objective of this study was to investigate the degradation pattern of cardiac troponin I in rats in vivo, and to determine whether the pattern was dependent on the cause of death,

for the purpose of estimating the postmortem interval. The rats were categorized into three distinct groups depending on the factors leading to their demise: the control group, the group experiencing acebutolol-induced cardiotoxicity, and the group affected by asphyxia. The analysis encompassed the isolation and segregation of the protein, subsequently employing Western blotting as a means of visualizing the results. The results revealed a distinct degradation pattern of cTnI into smaller fragments over time, indicating that cardiac troponin I can serve as a reliable marker for estimating the postmortem interval. Furthermore, noteworthy variations were noted in the degradation pattern of cardiac troponin I among the different causes of death, which suggests that this method can also be used to determine whether cardiac failure was the cause of death or not.

11. Chandramauly Sharma, Yadvendra Agrawal



Sequential separation, ICP – MS trace determination of As (III), Sb (III), and Bi (III) in the alloys, water, environmental and human samples
Journal of Analytical Chemistry, Springer
Scopus: (Q4), Web of Science

Abstract: A novel method for extracting and measuring trace amounts of indium, gallium, and thallium using a synthesized rotaxane hydroxamic acid is proposed. The method involves extracting the elements at specific pH levels using chloroform and measuring them using spectrophotometry and inductively couples plasma atomic emission spectrometry (ICP-AES). The extraction mechanism and the factors that influence the extraction process are also discussed. The method is shown to be effective for measuring these elements in a variety of samples, such as alloys, environmental samples, minerals, water, and biological samples. The sensitivity of this method is enhanced 60 times by ICP-AES measurements, which makes it useful for trace determination of In, Ga, and TI.

12. Chandramauly Sharma

Investigating the photosensitized reaction of methylene blue with toluidines: A spectroscopic and kinetic analysis
Vietnam Journal of Chemistry, John Wiley
Scopus: Q3

Abstract: The photosensitized reaction of isomeric Toluidines was investigated in an alkaline medium under visible light, utilizing methylene blue (MB) as a photosensitizer. The reaction starts with an exciplex forming between nitrogen and the dye, and when it is exposed for a while, it breaks apart, creating photoproducts. UV–visible spectroscopy was used to study the reaction. To see how oxygen affects it, the reaction was conducted without oxygen, and methanol was added to check if it removes harmful particles. Additionally, factors like pH, the amount of dye, the amount of the substance under study, and the brightness of the light were examined for their impact on the reaction rate. The efficiency of the reaction in using light was calculated.
Finally, a possible explanation of how the reaction works was formulated in the proposed mechanism.
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Research Publications

School of Computer Applications

L.J.Institute of Computer Applications

1. Shanti Verma

A Novel Speech to Sign Communication Model for Gujarati Language
Compendium of articles of 2021 Third International Conference on Inventive Research in Computing Applications (ICIRCA)
Scopus

Abstract: Deaf Culture is important for deaf community as it is everywhere in the world. Deaf people are using Visual language (Sign language) for communicating. There are around 300 different types of sign languages are available in the globe like British Sign Language, Indonesian Sign Language, American sign language, etc. Each sign language has its own syntax and semantics. Some sign languages are using one hand gesture, some are using two hand gesture as they have their own rules for communication. There is a need of one standard form of sign language so it will be easier to understand. There are so many challenges and problems are facing by deaf community. Different sign languages are provided different solutions for speech to sign language and sign language to speech conversion. As there is no solution is provided by anyone for Gujarati Sign Language, we proposed a one communication model for Speech to Sign language. Speech will be recognized and convert into text, text will give the HamNoSys Notation (Sign language Notation) from a database and then it converts in SiGML format and then it display a sign animation (Avatar). That model will be helpful to Gujarat region deaf and dumb people for communicating with normal people.

2. Shanti Verma

Real-Time Intelligent Information Protection Using AI and Machine Learning Mode
Compendium of articles of Published in: 2023 Eighth International Conference on Science Technology Engineering and Mathematics (ICONSTEM)
Scopus

Abstract: Machine learning (ML) and Artificial intelligence (AI) are crucial components in the field of information security due to their capacity for rapid analysis of millions of events and identification of a wide variety of threats. Malware that takes use of zero-day vulnerabilities is just one type of cyber threat; others include detecting potentially dangerous behavior before it results in a phishing attempt or the download of malicious software.AI and ML are indispensable because of their capacity for rapid analysis of millions of even. Through time and experience, these systems have the ability to recognize previously

unseen threats. Users, assets, and networks may all be profiled based on their behavior histories, giving AI the ability to spot and react to outliers.

3.Shanti Verma

Early Prediction and Detection of Anxiety Level Using Support Vector Machine
International Conference on Data Analytics & Management, 2023
Lecture Notes in Networks and Systems, Springer
Scopus: Q4

Abstract: According to the National Library of Medicine, anxiety is a physiological and behavioral status induced in humans by an intimidation to interests or survival. It is typify by increased provocation anticipation, autonomic and immunologic establishment, and specific behavior patterns. The role of these changes is to cope with an unsympathetic or unpredicted condition. Social media is now a companion of every human. It is also considered as the basic necessity of humans. Social media usage has dark and light sides, but nowadays with excessive usage of social media, there are many dark sides seen in humans. Anxiety is one of the dark sides of excessive usage of social media. In this paper, authors try to build a classification model based on demographics and psychological factors using a Support Vector Machine (SVM). Authors used a secondary dataset available on kaggle.com. The result of the study claims the model accuracy of 95.31% to classify anxiety level. Authors also compare the results of SVM with other classification algorithm, Decision Tree, Naïve Bayes, and K-Nearest Neighbor (KNN), and found that SVM model accuracy is higher than other classification algorithms.

4.Shanti Verma

Navigating the Complexities of Cryptography: Trends, Problems, and Solutions
International Conference on ICT for Sustainable Development, 2023
Springer
Scopus

Abstract: Cryptography is a complex field that has evolved significantly over the years. It is essential for the secure communication of sensitive information online. However, with the increase in cyber-attacks, keeping up with the latest trends, and identifying potential problems has become more important than ever. In this paper, authors try to explore the latest trends in cryptography, highlighting the problems that come with them, and discussing potential solutions for each. From

quantum computing to blockchain technology, authors will delve into the complexities of cryptography, providing you with the knowledge and tools to navigate through this essential field with confidence.

5.Shanti Verma

Association between Students English Proficiency Exam Score and their Parental Education Level Using Chi-Square Test
2023 3rd International Conference on Pervasive Computing and Social Networking (ICPCSN)- IEEE
Scopus

Abstract: Support and Compliancy from parents towards teacher helps a lot to bond, be aware of and work towards child. Parents are also called the first "GURU" for children. As mother language is very easy to understand by any children because of frequent usage in home. In India "Hindi" is our mother language. The students who want to study in some of the foreign countries must know English language. According to records it is found that approximately 1.3 to 1.4 billion Indian students applied for English proficiency exams to further study in foreign universities in the year 2022. It is also found that the average Indian student score of English proficiency is 5.5 to 6 bands. In this paper the author wants to study the impact of Students parental education on their English reading and writing score. Author takes a data sample of 1000 graduate students who applied for the English proficiency exam available in kaggle.com. The objective of study is to find that there is any relationship between independent (Reading/Writing score) factor and dependent (Parental education) using the Chi-Square test of independence. The results of the research showed Indian students' reading/writing score of English proficiency exam is dependent on their parental education at 1% level of significance.

6.Shanti Verma

Early Detection and Prediction of Diabetes Using Ensemble Classifier
2023 14th International Conference on Computing Communication and Networking Technologies (ICCCNT). IEEE
Scopus

Abstract: Diabetes is a chronic disease that affects millions of people worldwide. It is a complex condition that can be caused by a variety of factors, including pregnancy, blood pressure, glucose levels, and BMI. Identifying individuals who are at risk of developing diabetes is crucial in the prevention and

management of this disease. According to a World Health Organization (WHO) report, in India 8.7% of the population suffers from diabetes in the 20 to 70 years. India is also the second most affected country in the world from this disease. Early detection and prediction from this disease is necessary to help citizens of the county to reduce the adverse conditions. In this paper authors try to build an ensemble classification model based on demographics, pregnancy, blood pressure, glucose levels, and BMI using bagging, boosting and averaging methods. . Authors used a secondary dataset available on kaggle.com. The results of the study says that classification models built using random forest algorithms have higher accuracy than other algorithms which is 81.1%. The accuracy of the model is not satisfactory so authors applied ensemble learning methods averaging, bagging and boosting and found the averaging method has less error than other methods. The results of the study are helpful in the healthcare industry for early prediction and detection of this disease.

7.Shanti Verma

Automated AI Research On Cyber Attack Prediction And Security Design
2023 6th International Conference on Contemporary Computing and Informatics (IC3I)- IEEE
Scopus

Abstract: A fast-expanding topic of study on automated AI is focused on the prediction and prevention of cyber-attacks using machine learning algorithms. In this study, we examined the research on applying machine learning algorithms to the problems of strategic cyber defense and attack forecasting. We also provided a technique for assessing and choosing the best machine learning models for anticipating cyber-attacks. Our findings show that machine learning methods, especially random forest and neural network models, are very accurate in predicting cyber-attacks. Additionally, we discovered a number of crucial characteristics, such as source IP, packet size, and malicious traffic that are strongly associated with the likelihood of cyber-attacks. Our results imply that automated AI research on cyber-attack prediction and security planning has tremendous promise for enhancing cyber-security and averting cyber-attacks.

Research Publications

School of Physiotherapy

L.J. Institute of Physiotherapy

1. Priyal Bhatt

Comparison of fatigue and functional status in elderly type 2 diabetes patients versus age and gender matched individuals
Aging Medicine, Wiley
Scopus Q3

Abstract: Introduction: Fatigue is a common yet not frequently explored complication of diabetes. There are fewer studies available on the impact of diabetes on the severity of fatigue and the functional status of patients.

Methods: Fifty individuals meeting the inclusion criteria were included. The individuals were divided into two groups: group A (diabetic elderly individuals) and group B (nondiabetic age and gender-matched individuals). An observational analytical study was conducted. Outcome measures used were: fatigue severity scale (FSS), lower extremity functional scale (LEFS), 6-minute walk distance (6MWD), and 30-second chair stand test. SPSS 16 was used to analyze data.

Results: As per the normality test, a between-group comparison of fatigue severity scale (FSS) score, chair stand test score, and LEFS score was carried out by a nonparametric Mann–Whitney test, which showed a statistically significant difference between the groups ($P < 0.05$). Between-group comparison of 6MWD was carried out by parametric unpaired t test. The results showed a statistically significant difference in the distance walked by both groups.

Conclusion: Higher levels of fatigue and impaired functional status along with reduced strength and function of lower limbs was seen in elderly patients with type 2 diabetes Inclusion of symptom assessment and strategies to reduce the burden of fatigue in diabetes patient should be incorporated.

2. Ruchi Desai and Manali Shah

Prevalence of Scapular Dyskinesis in Primipara and Multipara Lactating Mothers
Indian Journal of Natural Sciences
WEB OF SCIENCE

Abstract: Many studies have found the presence of scapular dyskinesis (SD) in lactating mothers but none have shown its difference in primipara and multipara. The aim of the study was to find out SD prevalence in primipara and multipara lactating mothers. An observational study was undertaken using convenient sampling for 60 Lactating mothers the age of 18 to 35 years, breastfeeding for 1 month or

convenient sampling for 60 Lactating mothers the age of 18 to 35 years, breastfeeding for 1 month or more from various pediatric clinics of Ahmedabad were assessed for type and number of deliveries, postural awareness while feeding, test for SD using Yes/No test, scapular balance angle (SBA) and the lateral scapular slide test (LSST) and kyphosis on observation. Descriptive data analysis was done. Out of 60 participants (38 primipara, 22 multipara) 42% of Primipara and 36% of multipara were diagnosed with SD. 60% of the subjects were positive for kyphosis on observation. 57% of primipara and 45% of multipara lactating mothers were unaware of their correct posture.15%, 42% primipara and 18%, 36% multipara were found positive for SBA and LSST respectively. The percentage of type-IV SD was found more in primipara and multipara followed by type II, type-I & type - III SD. Statistically, there was a significant prevalence rate of SD in lactating mothers, and for breastfeeding techniques, Primipara mothers required more Physiotherapist's support and guidance. Raising awareness of the role of physiotherapists in managing SD in lactating mothers helps to reduce the impact of discomfort and will be helpful for future pregnancies.

3. Srishti Banerjee

Effect of Kinesio Taping on Posture, Balance and Gait in Spastic Cerebral Palsy – A Systematic Review
Medical Journal of Dr. D.Y. Patil Vidyapeeth
Scopus (Q4)

Abstract: Background: Cerebral palsy (CP) is a nonprogressive developmental disorder characterized by motor deficits, such as abnormal posture, balance, and gait impairments leading to deformities, affecting activities daily and, therefore, the quality of life. The application of Kinesio taping (KT) in patients with CP has emerged as a choice of adjunct treatment. Therefore the objective of this review was to evaluate the effectiveness of KT as an addition to conventional physiotherapy (CPT) interventions on posture, balance, and gait in spastic cerebral palsy.

Materials and Methods: A bibliographic search was done in various databases. Only randomized controlled trials on KT in CP were included. The risk of bias in included studies was evaluated by using the RoB 2.0 tool. Downs and Black checklist was used to determine the overall quality of studies.

Results: A total of five studies were eligible, out of which two studies reported a low risk of bias and three studies reported some concerns on RoB 2.0. The overall methodological quality of the studies ranged from fair to good. Out of five studies in three studies, KT was more effective as adjunct CPT than CPT alone on sitting posture, balance, and standing balance. In one study, KT was equally effective as ankle foot orthosis on gait. Lastly, one study showed a significant improvement with KT application over CPT alone, but the effects of neuromuscular electrical stimulation were more significant than KT on postural control and sitting.

Conclusion: KT is a noninvasive, inexpensive, and compliant adjunct to physiotherapy in patients with spastic CP for better outcomes regarding posture, balance, and gait.

Research Publications

School of Commerce and Professional Education

New L.J. Commerce College

1. Mruga Joshi

Bibliometric and Thematic Analysis of the Indian Journal of Marketing: A Study of 13 Years
Indian Journal of Marketing (IJM)
Scopus: Q3 & ABDC: (C)

Abstract: Purpose: It is necessary to do a bibliometric assessment of the Indian Journal of Marketing (IJM). This highly regarded peer-reviewed and referenced publication disseminates genuine and empirical research in marketing across the broad purview of the management domain. A bibliometric overview, diagrammatic mapping, and thematic analysis of IJM from 2010 to 2022 were the main objectives of this study.

Methodology: A total of 731 papers published in IJM were examined in this bibliometric analysis. We took the necessary information out of Scopus and saved it as CSV. Biblioshiny was used to do bibliometric analysis. Using methods like co-citation, co-authorship, and co-occurrence, Vosviewer software was used to visualize the data.

Findings: The number of papers published was trending downward, but the number of citations obtained was trending upward. The most well-known and highly referenced authors in IJM are respected figures in the field. Due to Indian Journal of Marketing being chosen as the preferred forum for their research, developing nations and the institutions connected with them made comparatively large contributions to the journal. In terms of author, nation, and institute co-authorship patterns, this is accurate. The journal took into account the majority of marketing-related issues, even some that had just developed, as evidenced by highly frequent terms and keyword co-occurrence patterns.

Practical Implications: The findings of this study may help the Indian Journal of Marketing editorial board and editorial team make decisions about its future direction and may also make it easier for practitioners and researchers who are interested in the subject of marketing to interact with and contribute to the journal.

Originality: The current study provided insights into various new and recent facets associated with the area of Indian Journal of Marketing. Previously, similar analysis with the bibliometric technique has rarely been done with the present Scopus database for the journal.

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Book Publications

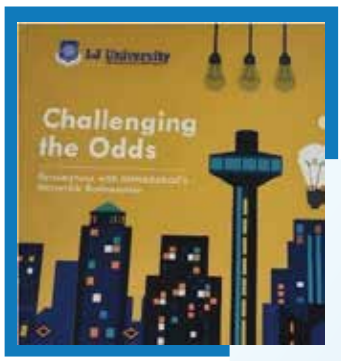
Name of the school: L.J. Institute of Management Studies, School of Management Studies

Title of the Book: Searching Alternatives: Case Studies in Management and Entrepreneurship

Indexing: Scopus (January, 2024)

Editors' Name: Prof. M R Dixit, Siddarth Singh Bist & Sweety Shah

Publisher: Routledge, Taylor and Francis
ISBN: 978-1-032-39879-2 (pbk)
ISBN: 978-1-003-35182-5 (ebk)
DOI: 10.4324/9781003351825



Name of the school: Integrated MBA, School of Management Studies

Title of the Book: Challenging the odds: Rendezvous with Ahmedabad's Maverick Businessmen

Publishing Date: November, 2023

Editors' name: Susmita Suggala & Viral Shah

ISBN: 978-81-950054-1-3

Research Projects

ICSSR- Indian Council of Social Science Research

Category: Short-term Empirical Research 2023-24

School: L.J. Institute of Management Studies, School of Management

Project Tenure: 6 Months

Project Team:

Neha Mehta | Siddarth Singh Bist | Sweety Shah

Ranjana Dureja | Rajani Shah

Sanctioned research fund: ₹ 15,00,000

Title: "Meeting Industry Demand: Assessing the Skill India Mission's Impact on Industry demanded skills and its contribution to Industry and Workforce Development: A Study of Gujarat State"

Status: Final Report Submitted

LJ University

Category: Internal Research Project

School: L.J. Institute of Management Studies, School of Management

Project Tenure: 1 year

Project Team:

Priya Shah | Neha Mehta | Sweety Shah

Sanctioned research fund: ₹ 38,000

Title: "Exploring the factors that drive millet consumption: Insights from regular and occasional consumers"

Status: Completed

Research Projects

LJ University

Category: Internal Research Project

School: L.J. Institute of Pharmacy, School of Pharmacy

Project Tenure- 1 year

Project Team:

Sheetal Trivedi

Sanctioned research fund- INR 24,100

Title- "Development and Evaluation of Modified Release Oral Iron Formulation"

Status: Completed

LJ University

Category: Internal Research Project

School: L.J. Institute of Pharmacy, School of Pharmacy

Project Tenure: 1 year

Project Team:

Kaushika Patel

Sanctioned research fund- INR 47,000

Title- "Development of Oral formulations using spray dried solid dispersion technology"

Status: Completed

Research Projects

LJ University

Category: Internal Research Project

School: L.J. Institute of Pharmacy, School of Pharmacy

Project Tenure- 1 year

Project Team:

Jaymin Patel

Sanctioned research fund- INR 35,310

Title- "Formulation and Evaluation of Colon targeted oral drug delivery system using natural polymers and methacrylic acid co-polymer"

Status: Final Report Submitted

LJ University

Category: Internal Research Project

School: L.J. Institute of Management Studies, School of Management

Project Tenure: 1 year

Project Team:

Priya Shah | Neha Mehta

Sanctioned research fund- INR 23,000

Title- "What are the drivers of millet-based food consumption in India? A theory of consumption (TCV) perspective"

Status: Completed

Research Projects

LJ University

Category: Internal Research Project

School: L.J. Institute of Management Studies, School of Management

Project Tenure- 1 year

Project Team:

Dr. Priya Shah | Dr. Neha Mehta | Dr. Siddarth Singh Bist

Sanctioned research fund- INR 15,000

Title- "What are the Barriers to the Consumption of Millet-based Foods in India? An Innovation Resistance Theory (IRT) Perspective"

Status: Final Report Submitted

Candidates Pursuing PhD at **LJ University** (2023-24)

Ar. Taha Hatimbhai Padrawala

University: College of Architecture - SVIT, Vasad
Current position: Assistant Professor
Topic: Voices of the City: Community Participation in Urban Planning in Gujarat
Guide: Dr. Ketan Shah Co-Guide: Dr. C N Ray

Sonika Nim

Department: Directorate of Education, Delhi
Current position: Lecturer (English)
Topic: An analytical study of the Philosophical Concept of education in Madhyasth Darshan Sah-astitvvaad (Co-existential) in the light of Vision and Mission of NEP-2020
Guide: Prof. Surendra Pathak

Archana Sengar

Current position: Freelancer
Topic: The philosophical study of behavioral orderliness and interconnectedness in cell and cell constituent bodies (with reference to Madhyastha Darshan)
Guide: Dr. Surendra Pathak

Pratishtha Sharma

University: LJ University
Current position: Assistant Professor
Topic: Evaluation of various Indigenous Herbs against Diabetes mellitus and Inflammation
Guide: Dr. Dipa Israni

Bignesh Jawahar Thakur

University: LJ University
Current position: Assistant Professor
Topic: Pollution Status of Industrial Areas of Ahmedabad
Guide: Dr. C R Sharma Co-Guide: Dr. Y K Agrawal

Ruchi Satishkumar Pathak

University: LJ University
Current position: Assistant Professor
Topic: Design, Synthesis, Characterization and Evaluation of Anticancer Agents
Guide: Dr. Paresh Patel

Disha Amish Joshi

University: LJ University
Current position: Assistant Professor
Topic: Development of novel formulation for nose-to-brain delivery of phytoconstituents for combating neurodegenerative disorders
Guide: Dr. Sheetal Aacharya

Dev Prakash Sharma

University: Directorate of Education, Delhi
Current position: Lecturer
Topic: Conceptual study of Parivar Mulak Gram Swarajya Vyavastha and Village Prosperity in the light of Madhyasth Darshan Sah-Astitvavaad
Guide: Dr. Surendra Pathak

Arpita Sharma

Topic: Ldwyh f'k{kk dk ekuohdj.k NEP 2020 ds lanHkZ e—
Guide: Dr. Sunil Chanwal

Shweta Ankitkumar Gandhi

University: LJ University
Current position: Assistant Professor
Topic: Pharmacological screening and investigation of different biologically active phytoconstituents on CNS disorders
Guide: Dr. Palmi Modi

Zenab Shokat Presswala

University: LJ University
Current position: Assistant Professor
Topic: Novel Nanoformulation based delivery for the treatment of Brain arcinoma
Guide: Dr. Sheetal Acharya

Hirenkumar Darji

Organisation: SimSon pharma Ltd
Current position: Group leader
Topic: Design, Synthesis & Biological evaluation of some new chemical entities as potential Anti-Tubercular Agents
Guide: Dr. Palmi Modi

Bhargavi Kanubhai Chauhan

University: Indus University
Current position: Assistant Professor
Topic: Performance Analysis and Optimization of Blockchain Technology: Scalability Issue in Cintext of Throughput and Latency
Guide: Dr Shanti Verma

1

Mr. Sunil Kumar (Pursuing Ph.D. in Pharmacy)

Title: Selection of different factors for the calculation of similarity factor (f2) and dissimilarity factor (f1) as per different countries' regulatory recommendations for the biowaiver study: A systematic review, in Research Journal of Pharmacy and Technology (Ready for March 2024, Vol. 17 publication)
Co-author: Dr. Dilip Maheshwari).

2

Kamiya Sharma (Pursuing Ph.D. in Computer Science)

Title: "A comprehensive survey on security aspects of using blockchain technology for digital degree verification solutions, Lecture Notes in Network and Systems,2367-3370,
December -2023, Co-Author: Dr. Monica Gahlawat.

3

Archana Sengar (Pursuing Ph.D. in Philosophy and Theology)

Behavioral orderliness and interconnectedness in cell and cell constituting bodies with reference to madhyastha darshan.

Team Directorate of Research (DoR)

Dr. Priya Shah (I/C Director, DoR)

Dr. Sweety Shah

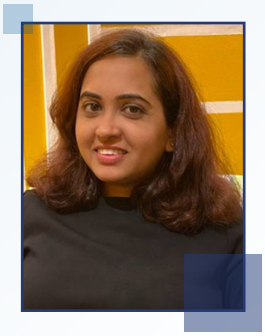
Ms. Meghana Vaishnav

Dr. Jalpa Parikh

Mr. Ishvar Prajapati

Mr. Vijay Kevlani

Dr. Shanti Verma



Dr. Priya Singh Rangey

Mr kanubhai Vaghela