ARST

ANNALS OF RESEARCH IN SCIENCE AND TECHNOLOGY

CONFERENCE PROCEEDINGS & ABSTRACT BOOK

3rd International Conference 2026

Green Biotechnology and Artificial Intelligence

Organized by

Shri Shankaracharya College of Pharmaceutical Sciences (SSCPS)

Shri Shankaracharya Professional University (SSPU)

Junwani, Bhilai – 490020, Chhattisgarh, India

2026

Published as a Special Conference Supplement of ARST

Publisher:
Keka Rani Inspire Global Foundation

DOI: 10.68063/arst.2026.conf01

Publication Information

Annals of Research in Science and Technology (ARST)
Conference Proceedings & Abstract Book 2026

3rd International Conference 2026
Green Biotechnology and Artificial Intelligence

Organized by
Shri Shankaracharya College of Pharmaceutical Sciences (SSCPS)
Shri Shankaracharya Professional University (SSPU)
Junwani, Bhilai – 490020, Chhattisgarh, India

Date: January 2026

Publication Details

Publication Type: Conference Proceedings & Abstract Book
Publication Year: 2026
Publisher: Keka Rani Inspire Global Foundation
Journal: Annals of Research in Science and Technology (ARST)
Publication: Special Conference Supplement
DOI: 10.68063/arst.2026.conf01

Copyright

Editorial Note

It is a privilege to present the **Conference Proceedings & Abstract Book of the 3rd International Conference 2026 on "Green Biotechnology and Artificial Intelligence,"** organized by Shri Shankaracharya College of Pharmaceutical Sciences (SSCPS), Shri Shankaracharya Professional University (SSPU), Bhilai, Chhattisgarh, India.

The conference brings together emerging perspectives in green biotechnology, artificial intelligence, pharmaceutical sciences, biotechnology, nanotechnology, natural products, drug delivery, healthcare innovation and related areas. The abstracts included in this volume reflect the diverse scientific interests and research initiatives presented by students, researchers, academicians and professionals participating in the conference.

The present volume is published as a **Special Conference Supplement of Annals of Research in Science and Technology (ARST)** to provide a permanent scholarly record of the conference contributions.

Each contribution has been identified using its conference abstract identification number, such as **IC-2026 SSCPS/DBT/24**, which should be retained when referring to the contribution within the conference record.

It is important to distinguish this conference publication from the regular issues of ARST. The abstracts included here represent conference contributions and do not constitute full-length research articles published in the regular journal. Authors wishing to develop their conference work into full-length manuscripts may submit them separately to ARST, where they will be considered through the journal's standard editorial and peer-review process.

We thank all contributing authors, reviewers, scientific committee members, organizing committee members and participants for their valuable contributions to this conference.

We hope this volume serves as a useful scholarly record and encourages continued collaboration, innovation and research in green biotechnology and artificial intelligence.

Editor-in-Chief
Annals of Research in Science and Technology (ARST)

2026

INDEX

IC-2026 SSCPS/DBT/09	[1]Deleshwar Kumar, [1]Danish Banjare*	Combining Nanotechnology and CRISPR to Redefine Infectious Disease Management	[1]Kamla Institute of Pharmaceutical Sciences, Junwani, Bhilai, C.G.	04
IC-2026 SSCPS/DBT/10	Ms. Gayatri Dashriya and Dr. Rakesh Tirkey	Sustainable Plant Tissue Culture for Rheumatoid Arthritis Management in Chhattisgarh	University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur, CG	04
IC-2026 SSCPS/DBT/13	Manisha Majumdar	Green Biotechnology and Artificial Intelligence	Shri Shankaracharya Professional University, Bhilai C.G	05
IC-2026 SSCPS/DBT/14	Rahul Singh Bhaskar, Dr. K.P. Meena*	Formulation And Evaluation Of Linezolid Loaded Topical Niosomal Gel, Hydrogel And Natural Gel Formulations For The Treatment Of Grade1 Diabetic Foot Ulcer	Department of Pharmacy, Guru Ghasidas Vishwavidyalaya, Bilaspur, Chhattisgarh, India	05
IC-2026 SSCPS/DBT/15	Ashwani Jangade	Comparative antimicrobial activity of ethanol and aqueous extracts of Psidium Gvajava against bacteria	Department of Pharmacy, Guru Ghasidas Vishwavidyalaya, Koni, 495009, Bilaspur, Chhattisgarh, India	06

IC-2026 SSCPS/DBT/16	Rashmi Madhariya*	"Aldose Reductase: Targeted Dual-Drug Nano-in-Micro Delivery of Epalrestat and Cumin for Precision Therapy of Diabetic Complications"	Shri Shankaracharya college of Pharmaceutical sciences, SSPU, Junwani, Bhilai, 490020	06
IC-2026 SSCPS/DBT/17	Mr. Bishesar Sahu[1] , Dr. Gyanesh Kumar Sahu[2]	A Review on the Combination of Synthetic Antidiabetic Drugs with Herbal Bioactive Compounds: Synergistic Approaches for the Management of Diabetes Mellitus	[1]Rungta College of Pharmaceutical Sciences and Research, Bhilai [2]Rungta Institute of Pharmaceutical Sciences and Research, Bhilai	07
IC-2026 SSCPS/DBT/20	Jayshri sahu[1], Anshita Gupta	Exploration of herbal extract loaded gel formulation for wound healing activity	Department of Pharmacy, Guru Ghasidas Vishwavidyalaya (A Central University) Bilaspur, Chhattisgarh	07
IC-2026 SSCPS/DBT/21	Ritika Chouhan And Dr. Rakesh Tirkey	"Herbal-Extract Based Gel And Cream Formulations As Potential Anti-Inflammatory Agents"	University Institute of Pharmacy Pt Ravi Shankar Shukla University Raipur Chattisgarh 492010.	08
IC-2026 SSCPS/DBT/22	Simran Kaur	Computer-Aided Drug Design Strategies for the Identification of Novel PARP-1 Inhibitors	ISF College of Pharmacy, Moga, Panjab, India	08

IC-2026 SSCPS/DBT/23	Kajal Patel*, Dr. Vaibhav Tiwari	Design, Synthesis and Biological Evaluation of Anthraquinone Derivatives as Anti - Hyperglycemic agent	Shri Shankaracharya College of Pharmaceutical Science, Bhilai (C.G)	09
IC-2026 SSCPS/DBT/24	Sourabh Nirmalkar & Rakesh Tirkey	Artificial intelligence in Green Pharmacy: A Revolution in Pharmaceutical Sciences	University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur (C.G.)	09
IC-2026 SSCPS/DBT/25	DISHA DEWANGAN & RAKESH TIRKEY	"Nanotechnology Approaches To Effective And Safer Delivery Of Amphotericin B"	University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur (C.G.)	10
IC-2026 SSCPS/DBT/26	Chhaya Verma and Rakesh Tirkey	Artificial Intelligence-Assisted CRISPR-Cas9 for Sustainable Plant Genome Editing for Sustainable Agriculture	University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur (C.G.)	10
IC-2026 SSCPS/DBT/27	Aniket Sakharwade & Rakesh Tirkey	Effective waste management in pharmaceutical analytical procedure	University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur (C.G.)	11
IC-2026 SSCPS/DBT/28	Amit Bande & Rakesh Tirkey	Analytical Tools for the standardization of herbal drug products	University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur (C.G.)	11
IC-2026 SSCPS/DBT/30	Ashish Ekka and Rakesh Tirkey	"Artificial Intelligence and Green Biotechnology: A Safer Approach for Hypertension Management''	University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur (C.G.)	12
IC-2026 SSCPS/DBT/31	Manju Verma and Rakesh Tirkey	Integrating plant cell culture and AI driven green biotechnology for the conservation and sustainable utilization of	University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur (C.G.)	12

		endangered Gymnosperms.		
IC-2026 SSCPS/DBT/32	Mithlesh Diwan and Dr. Rakesh Tirkey	Artificial intelligence, Sustainable herbal medicine, Conservation biotechnology Exploring Herbal Remedies for Depression Using Green Biotechnology and Artificial Intelligence	University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur (C.G.)	13
IC-2026 SSCPS/DBT/33	Chandani Khare and Rakesh Tirkey	Therapeutic potential of medicinal plant in treatment of polycystic ovary syndrome	University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur (C.G.)	13
IC-2026 SSCPS/DBT/34	Anurag Verma and Rakesh Tirkey	Artificial intelligence (AI) tools for diabetes: prevention, diagnosis, and effective management	University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur (C.G.)	14
IC-2026 SSCPS/DBT/35	Chintan Bhoi and Rakesh Tirkey	Integrating Generative AI and Green Biotechnology to Accelerate the Discovery of Immunomodulatory Compounds in Medicinal Plants	University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur (C.G.)	14
IC-2026 SSCPS/DBT/36	Harkesh Dadsena, Dr. Vishal Jain	"Green Biotechnology and Natural Products as Catalysts for Sustainable Pharmaceutical Innovation."	University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur (C.G.)	15
IC-2026 SSCPS/DBT/37	Jyoti Pujari and Rakesh Tirkey	Eco-Friendly Therapeutics: The Role of Green Biotech in Urolithiasis	University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur (C.G.)	16
IC-2026 SSCPS/DBT/38	Manisha and Dr. Rakesh Tirkey	Promising Phytochemicals in Suppression of Pain Mediators	University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur (C.G.)	16
IC-2026 SSCPS/DBT/39	Kunal Veersurya and Rakesh Tirkey	Medicinal plants with antimalarial potential	University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur (C.G.)	17

IC-2026 SSCPS/DBT/40	Prachi Soni and Rakesh Tirkey	Anxiety Disorder	University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur (C.G.)	17
IC-2026 SSCPS/DBT/41	Shubham Sahu, Dr Rakesh Tirkey	Biotechnological Integration of Artificial intelligence for Screening and Development of Plant-Based Anti-Rheumatic Agents: A New Paradigm in Rheumatoid Arthritis Therapy	University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur (C.G.)	18
IC-2026 SSCPS/DBT/42	Ms. Manju patel and Dr. Rakesh Tirkey	Plant Biotechnology Strategies for Enhancing Antidepressant Potential of Medicinal Herbs	University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur (C.G.)	18
IC-2026 SSCPS/DBT/43	Pushpendra Kumar, Dr. Vishal Jain	Standardization of herbal drugs by DNA fingerprinting	University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur (C.G.)	19
IC-2026 SSCPS/DBT/44	Pooja Thakur and Rakesh Tirkey	Emerging herbal remedies for the management of hypertension	University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur (C.G.)	19
IC-2026 SSCPS/DBT/45	Aman Panda and Rakesh Tirkey	Nano-Molecular Architectonics of Andrographis paniculata: Overcoming Bioavailability Barriers for Enhanced Therapeutic Efficacy.	University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur (C.G.)	20
IC-2026 SSCPS/DBT/46	Namrata kujur and Rakesh Tirkey	"Artificial Intelligence-Enabled Innovations In Green Biotechnology''	University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur (C.G.)	20
IC-2026 SSCPS/DBT/47	Rahul Sahu & Rakesh Tirkey	Preclinical Evaluation of Hypoglycemic Activity of Herbs via Different Pharmacological Model	University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur (C.G.)	21
IC-2026 SSCPS/DBT/48	Amrita Singh & Rakesh Tirkey	Role Of Millets In Management Of Diabetes Millitus	University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur (C.G.)	21

IC-2026 SSCPS/DBT/49	Punam Singh & Rakesh Tirkey	Role of Cinchona In Management Of Malaria	University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur (C.G.)	22
IC-2026 SSCPS/DBT/50	Tripti Thakur and Rakesh Tirkey	Atherosclerotic Potenial Of Quinoa (Chenopodium Quinoa Wild): Clinical Studies Insight	University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur (C.G.)	22
IC-2026 SSCPS/DBT/51	Rakesh Kumar Borkar and Rakesh Tirkey	Phytochemicals In Cancer Therapy: Mechanism, Challenges And Progress In Personalized Treatment	University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur (C.G.)	23
IC-2026 SSCPS/DBT/52	Durgeshwari Sahu and Rakesh Tirkey	Role of Phytochemicals in Managing Depression: Mechanism, Therapeutic Potential and Future Prospective	University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur (C.G.)	23
IC-2026 SSCPS/DBT/53	Ketan Chauhan and Rakesh Tirkey	Role of phytochemicals in suppression of clinical science of epilepsy	University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur (C.G.)	24
IC-2026 SSCPS/DBT/54	Rishika Rajak and Rakesh Tirkey	Anti-Inflammatory And Antimicribial Activity Of Silver Nanoparticles Green-Synthesized Using Extracts Of Different Plants	University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur (C.G.)	24
IC-2026 SSCPS/DBT/55	Kushal Singh Baghel and Rakesh Tirkey	Herbal Inhibitors for Platelet Aggregation	University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur (C.G.)	25
IC-2026 SSCPS/DBT/56	Derhu	AI-Enabled Green Biotechnological Discovery of Antidiabetic Phytomolecules from Medicinal Plants	Department of Pharmacy, Guru Ghasidas Vishwavidyalaya, Bilaspur, Chhattisgarh, 495009, India.	25
IC-2026 SSCPS/DBT/57	Pitam Ghosh*, Vivek Asati	Design, synthesis and biological evaluation of naphthalene-pyrazoline derivatives as	Department of Pharmaceutical Chemistry, ISF College of Pharmacy, Moga, 142001, Punjab, India	26

		neuroprotective agents for Alzheimer's disease		
IC-2026 SSCPS/DBT/58	Milan Chauhan, Anjna Rani*, Rupa Mazumder	AI-Enabled Green Nanophytotechnology: Phytosomal Delivery of Plant-Based Anti Inflammatories for Precision Inflammation Management	Noida Institute of Engineering and Technology (Pharmacy Institute), 19 Knowledge Park-II, Greater Noida, 201306, Uttar Pradesh, India	26
IC-2026 SSCPS/DBT/59	Mohit sharma[1], Rupa Mazumder, Abhijit Debnath	AI-Driven Precision Targeting in Ulcerative Colitis: Integrating Multi-Omics and Digital Biomarkers for Next-Generation Therapeutics	[1]Noida Institute of Engineering and Technology (Pharmacy Institute), 19 Knowledge Park-II, Greater Noida, 201306, Uttar Pradesh	27
IC-2026 SSCPS/DBT/60	Vivekanand Yadav, Vivekananda Mandal	Cellulase based enzymatic pretreatment to enhance essential oil yield: the case of clove essential oil (Syzygium aromaticum)	Green extraction of botanical group, Department of Pharmacy, Guru Ghasidas Viswavidyalaya, Bilaspur (C.G) 495009 India	27
IC-2026 SSCPS/DBT/61	Anurima Singh	Review of Anti-inflammatory herbal medicines	Rungta International Skill University	28
IC-2026 SSCPS/DBT/62	Chittathur Midhun Krishna	Fabrication Of Brain-Targeted Prussian Blue Nanozymes Loaded With Baicalin For Egfr-Targeted Therapy Against Glioblastoma	Noida institute of engineering and technology (Pharmacy institute), Greater Noida	28
IC-2026 SSCPS/DBT/63	Gulam Jilanee & Rakesh Tirkey	Reverse Phase HPLC as a Reliable Tool for Separation and Quantitative Analysis of Complex Samples	University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur	29
IC-2026 SSCPS/DBT/64	Prashant Kushwaha*, Ms. Neha Mandle	Formulation And Charaterisation Of Polymeric Particle Loaded Gel	Shri Shankaracharya College of Pharmaceutical Sciences, Junwani, Bhilai, CG	29
IC-2026 SSCPS/DBT/65	Harsh Sahu*, Mr. Akash Dewangan	A Comparative Survey Report on Impact of Hyperthyroidism Treatment	Shri Shankaracharya College of Pharmaceutical Sciences, Bhilai, C.G.	30

IC-2026 SSCPS/DBT/66	Purvi Sharma	A Clinical View on the Safety and Effectiveness of Herbal vs. Allopathic Treatments for Acne Vulgaris	Shri Shankaracharya College of Pharmaceutical Sciences, Bhilai, C.G.	30
IC-2026 SSCPS/DBT/67	Priyanka Dewangan, Anil Sahu	Design, Synthesis and Characterization of New Coumarin Derivatives and Evaluation of Antimicrobial Activity	Shri Rawatpra Sarkar Institute of Pharmacy, Kumhari, (C.G.) India	31
IC-2026 SSCPS/DBT/68	Neelam Nain*, Dr. Suman Shrivastava	Development and Evaluation of Pulsatile Drug Delivery System for Antiarthritic Drug	Shri Shankaracharya College of Pharmaceutical Sciences, Bhilai, C.G.	31
IC-2026 SSCPS/DBT/69	Aakanchha Singh, Amber Vyas*	Integrative Nanocarrier–Phytochemical Approaches for Targeted Atopic Dermatitis Management	University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur	32
IC-2026 SSCPS/DBT/70	Umesh Kumar Chandra	Industrial & Pharmaceutical Applications of Green Biotechnology and Artificial Intelligence	Shri Shankaracharya Institute of Pharmaceutical Sciences and Research	32
IC-2026 SSCPS/DBT/71	Manish Singh	Formulation and Evaluation of Gastro-retentive Drug Delivery System Using Bio-Responsive Polymers for Sulfasalazine in the Treatment of Inflammatory Bowel Disease	Noida institute of engineering and technology Pharmacy Institute, Greater Noida, Uttar Pradesh	33
IC-2026 SSCPS/DBT/72	Jitendra Yadav	Green Analytical Method Development for Quantitative Estimation of Ranolazine in Pharmaceutical Dosage Forms"	University institute of Pharmacy, Pt. Ravishankar Shukla university, Raipur, Chhattisgarh	33
IC-2026 SSCPS/DBT/73	Nevee Singh Rathore and Rakesh Tirkey	Polymeric nanoparticles drug delivery system for cancer treatment: current	University Institute of Pharmacy, Pt. Ravishankar Shukla	34

		status and future perspective	University, Raipur, (C.G.)- India	
IC-2026 SSCPS/DBT/74	Shruti Tamrakar and Rakesh Tirkey	Artificial Intelligence–Assisted Enzyme Engineering for Green Industrial Biocatalysis	University of pharmacy Pt. Ravishankar Shukla University Raipur Chhattisgarh	34
IC-2026 SSCPS/DBT/75	Priyanka Sinha[1]*, Anil Kumar Sahu[2]	Rational Development Of Some Novel Pharmacotherapeutically Active Diversely Substituted Chalcone Compounds	[1]Shri Rawatpura Sarkar Institute of Pharmacy, Kumhari 490042, Dist. Durg, Chhattisgarh, India Department of Pharmaceutics, Royal College of Pharmacy, Raipur 492099, Chhattisgarh, India	35
IC-2026 SSCPS/DBT/76	Umakant Sahu[a], Vishal Jain*[a]	Simultaneous HPTLC method development and validation of marker compound trans -Ferulic acid and Piperine in Classical Ayurvedic Formulation Hingavastak Churna	University Institute of Pharmacy, Pt. Ravishankar Shukla University, G. E., Raipur-492010	35
IC-2026 SSCPS/DBT/77	Pragya Tiwari, Sayani Maji, Vivekananda Mandal	Contact-Less Microwave Pretreatment as a Single-Step Strategy to Enhance Steam Distillation Efficiency and Essential Oil Quality of Lemongrass (Cymbopogon citratus)	Department of Pharmacy, Guru Ghasidas Vishwavidyalaya, Bilaspur C.G. 495009 India	36
IC-2026 SSCPS/DBT/78	Akshay Kumar	Artificial Intelligence as an Enabler of Green Biotechnology in Sustainable Pharmaceutical Research	Noida Institute of Engineering & Technology (Pharmacy Institute), Greater Noida, UP- 201306	36
IC-2026 SSCPS/DBT/79	Alka Sahu, Preeti K. Suresh*	Approaches to nano-immunomodulators for immune-mediated oral disease management	University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur, CG	37
IC-2026 SSCPS/DBT/80	Ankita Sahu[1], Amber Vyas[1]*	Formulation and Physicochemical Evaluation of Dual Drug–Encapsulated	Pt. Ravishankar Shukla University, University Institute of Pharmacy,	37

		Lipid Nanocarriers for Atopic Dermatitis	Raipur, Chhattisgarh, India, 492010	
IC-2026 SSCPS/DBT/81	Diksha Sahu, and Rakesh Tirkey	Herbs with immunosuppressive potential for the management of asthma	University Institute of Pharmacy at Pt Ravi Shankar Shukla University Raipur CG	38
IC-2026 SSCPS/DBT/82	Priyam Kumar	Artificial Intelligence–Enabled Green Biotechnology for Sustainable Pharmaceutical Innovation	Department of Pharmaceutics, Noida Institute of Engineering and Technology(Pharmacy Institute), Knowledge Park-II, Greater Noida, 201306, Uttar Pradesh	38
IC-2026 SSCPS/DBT/83	Prachi Bisen	Sodium Alginate Beads In Mucoadhesive Drug Delivery Sysytem Dosage Form And Characterization Method	Shri Shankaracharya College of Pharmaceutical Sciences, SSPU, Bhilai, 490020, CG	39
IC-2026 SSCPS/DBT/84	Bhavesh Namdeo[1], Deependra Singh[2], Manju Rawat Singh[2]	Development of Biogenic Silver Nanoparticle-Infused Bioinspired Polymer-Based Hydrogel for Chronic Wound Management	1Rungta College of Pharmaceutical Sciences and Research, Rungta International Skills University, Bhilai, C.G. 2University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur, C.G.	39
IC-2026 SSCPS/DBT/85	Jamuna, Rakesh Tirkey	Bovine mastitis: Green Alternatives to Antibiotics	University Institute of Pharmacy, Pandit Ravishankar Shukla University, Raipur	40
IC-2026 SSCPS/DBT/86	Rupanjali kumari	Chromoprotien: Visible Tools For Advancing Synthetic Biology And Chemistry	Shri Shankaracharya College of Pharmaceutical Sciences, SSPU, Bhilai-490020, CG	40
IC-2026 SSCPS/DBT/87	Rishikesh Singh	Development and evaluation of Chronic inflammation using sulfosalzine drug loaded patch used in treatment of psoriasis	Noida institute of engineering and technology Pharmacy Institute, Greater Noida, Uttar Pradesh	41
IC-2026 SSCPS/DBT/88	Ayushi Bisen	Floating Drug Delivery System – Hydro	Shri Shankaracharya College of Pharmaceutical Sciences, Shri	41

		Dynamically Balanced DDS	Shankaracharya Professional University, Bhilai-490020, Chhattisgarh, India	
IC-2026 SSCPS/DBT/89	Sangeeta Rathia and Rakesh Tirkey	Leveraging Artificial Intelligent for Waste Reduction in Pharmaceutical Industries	University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur, Chhattisgarh	42
IC-2026 SSCPS/DBT/90	Manish Agrawal	Artificial Intelligence in Drug Discovery	Shri Shankaracharya Institute of Pharmaceutical Sciences and Research	42
IC-2026 SSCPS/DBT/91	[*1]Vashvi Kumar Sahu, [2]Kajal Verma, [2]Vasu Dev Sahu, [3]Akta Sinha, [3]Rashmi Sahu, [3]Daminee Sahu	Integrating Al-Powered Biosensors with Plant Systems for Environmental Monitoring	Kamla Institute of Pharmaceutical Sciences, Shri Shankaracharya Professional University (SSPU), Bhilai, Junwani	43
IC-2026 SSCPS/DBT/92	Monali Chauhan and Rakesh Tirkey	"Evaluation of the wound healing efficacy of Antigonon leptopus leaf extract"	University Institute of Pharmacy Pt. Ravishankar Shukla University, Raipur, Chhattisgarh.	43
IC-2026 SSCPS/DBT/93	Narayan Hemnani[1]*, and Preeti K Suresh	"Dual Drug-Loaded Nanostructured Lipid Carriers for Enhanced Ocular Drug Delivery"	1University Institute of Pharmacy Pt. Ravishankar Shukla University Raipur C.G., 492010	44
IC-2026 SSCPS/DBT/94	Prince Nikhil Rathore[1*], Alpana Ram[1]	Next-Generation Vesicular Skin Drug Delivery System Approaches Driven by Artificial Intelligence Integrating Multi-Omics Analysis for Precision Treatment of Vitiligo	[1*]Department of Pharmacy, Guru Ghasidas Vishwavidyalaya, Koni, Bilaspur, C.G. 495009, India	44
IC-2026 SSCPS/DBT/95	Nidhi Agrawal*, S.K. Lanjhiyana, Meenakshi Jaiswal	Colon-Targeted Drug Delivery: Evolution from Traditional Approaches to Advanced Therapeutic Platforms	Department of Pharmacy, Guru Ghasidas Vishwavidyalaya, Koni, Bilaspur, C.G. 495009, India	45
IC-2026 SSCPS/DBT/96	Shipra Singh and Rakesh Tirkey	Phytochemical constituent of medicinal plants used for the regulation and	University institute of pharmacy,pt. Ravishankar Shukla University, Raipur (C.G.) india 492010	45

		management of hypertension		
IC-2026 SSCPS/DBT/97	Pooja Thakur and Rakesh Tirkey	Herbal Approach for the Treatment of Hypertension	University institute of pharmacy,pt. Ravishankar Shukla University, Raipur (C.G.) india 492010	46
IC-2026 SSCPS/DBT/98	Prachi Soni and Rakesh Tirkey	Plant-Derived Anxiolytics: Exploring the Therapeutic Potential of Medicinal Plants in the Treatment of Anxiety Disorder	University institute of pharmacy,pt. Ravishankar Shukla University, Raipur (C.G.) india 492010	46
IC-2026 SSCPS/DBT/99	Priya Namdeo*, Dr. Amber Vyas	Formulation and Evaluation of Nanolipid Carrier–Loaded Phytoconstituent Ursolic Acid for the Treatment of Non-Melanoma Cancer	University institute of pharmacy,pt. Ravishankar Shukla University, Raipur (C.G.) india 492010	47
IC-2026 SSCPS/DBT/100	Ravi parashar and Preeti K Suresh	Dual-Drug Nanoliposomes with Surface Functionalization for Topical Ocular Therapy: A Novel Strategy to Target Early and Advanced Diabetic Retinopathy	University institute of pharmacy,pt. Ravishankar Shukla University, Raipur (C.G.) india 492010	47
IC-2026 SSCPS/DBT/101	Punam Singh & Rakesh Tirkey	Role of Cinchona In Management of Malaria	University institute of pharmacy, Pt. Ravishankar Shukla University, Raipur	48
IC-2026 SSCPS/DBT/102	Saket Singh Rajput*, Dr. Rashmi Madhariya	Development And Evaluation Of Pulsatile Drug Delivery System For Antidiabetic Drug	Shri Shankaracharya College of Pharmaceutical Sciences (SSCPS) SSPU, Junwani, Bhilai (C.G)	48
IC-2026 SSCPS/DBT/103	Sakshi Gupta[1], Dr. S.K. Lanjhiyana[1]	An AI-Enabled Approach for the Design and Targeted Delivery of siRNA Therapeutics Against Driver Gene Mutations in Colorectal Cancer	[1]Department of Pharmacy, Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.)- 495009	49

IC-2026 SSCPS/DBT/104	Swapnil Deshmukh,[1] Vaibhav Tiwari [2]	In- Silico Study of Some New Benzopyranone Derivative As An Nephroprotective Agents	[1.]Kamla institute of pharmaceutical sciences junwani bhilai Chhattisgarh [2.]Shri shankracharya professional university, junwani, Bhilai	49
IC-2026 SSCPS/DBT/105	Kanti, Neeli Rose Beck	Sustainable nanoparticle synthesis: A critical review of green approaches and applications	Department of Pharmacy, Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.) 495009 India	50
IC-2026 SSCPS/DBT/106	[1]*Mr. Victor Dey, [2]Dr. Vinay Sagar Verma, [3]Ms. Aakansha Pandey	In-Silico Drug Design Screening, Molecular Docking & Admet Analysis For Multi-Targeting Therapeutic Activity To Treat Whooping Cough (Pertussis) And Its Typical Symptoms By Adapting Green Chemistry With Biological Evaluation	Kamla Institute of Pharmaceutical Sciences (KIPS), SSPU, Junwani, Bhilai-490020 (C.G.), India	50
IC-2026 SSCPS/DBT/107	Tripti Kshatri and Preeti K. Suresh*	Physicochemical and Compatibility Profiling of Dual Drug-Loaded Nanostructured Lipid Carriers Enriched In-Situ Gelling System for Dry Eye Disease Management	University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur, Chhattisgarh, India 492010	51
IC-2026 SSCPS/DBT/108	Rohan Kumar Rathore*, Ms. Bulbul Dewangan	Assessing The Impact of Antibiotic Overuse And Misuse On Public Health In Korba City	Shri Shankaracharya College of Pharmaceutical Sciences, Bhilai, C.G.	51
IC-2026 SSCPS/DBT/109	Bulbul Dewangan	Formulation and characterization of transferosomes for ocular delivery of tonabersat	Shri Shankaracharya College of Pharmaceutical Sciences Bhilai	52
IC-2026 SSCPS/DBT/110	Kusum Dhankar	Formulation, Development and Evaluation of Oral fast	Shri Shankaracharya College of Pharmaceutical	52

		dissolving film of Yohimbine Hydrochloride	Sciences, SSPU, Bhilai, 490042	
IC-2026 SSCPS/DBT/111	Renu pal	Artificial intelligence in formulation and clinical trials	Shri Shankaracharya institute of pharmaceutical sciences and research, Bhilai	53
IC-2026 SSCPS/DBT/112	Divya Jaiswal	Sustainable AI-Optimized Phyto-Nanocarriers for Enhanced Skin Targeting in Fungal Infections	Department of pharmacy, GGV, bilaspur (C.G.)	53
IC-2026 SSCPS/DBT/113	Satendra Kumar Patle*, Dr. Swarnali Das Paul	To formulate and evaluate a floating drug delivery system of Moringa Gum	Shri Shankaracharya College of Pharmaceutical Sciences, Bhilai, C.G.	54
IC-2026 SSCPS/DBT/114	[1]Deleshwar Kumar*, [2] Dr. Saurabh Shrivastava	"Enhanced Therapeutic Efficacy of Beta-Sitosterol in Leishmaniasis Treatment via Nanostructured Lipid Carrier Delivery Systems"	[1]Shri Shankaracharya Professional University, Junwani, Bhilai, C.G. [2]Shri Shankaracharya College of Pharmaceutical Sciences, Junwani, Bhilai, C.G.	54
IC-2026 SSCPS/DBT/115	Shipra Singh and Rakesh Tirkey	Phytochemical Constituent of Medicinal Plants Used for the Regulation and Management of Hypertension	University institute of pharmacy, Pt. Ravishankar Shukla University, Raipur (C.G.) India 492010	55
IC-2026 SSCPS/DBT/116	Neha Mandle*, Jaya Shree	The Future of Rheumatoid Arthritis Treatment: Molecular Innovations in Anti-Rheumatoid Drug Development	Shri Shankaracharya College of Pharmaceutical Sciences, Bhilai	55
IC-2026 SSCPS/DBT/117	Hemlata Mahant [1], Gitanjali Kashyap [2]	Structure-Based Drug Design of Kinase Inhibitors for Targeted Cancer Therapy	[1]Shri Shankaracharya College of Pharmaceutical Sciences, SSPU, Junwani, Bhilai-490020, Chhattisgarh, India [2] Kamla Institute of Pharmaceutical Sciences, Junwani, Bhilai, CG	56

\

IC-2026 SSCPS/DBT/118	Malti Sao*, Rajesh Choudhary	Pharmacognostic and phytochemical screening of Barleria grandiflora	Shri Shankaracharya College of Pharmaceutical Sciences, SSPU, Bhilai	56
IC-2026 SSCPS/DBT/119	Umashankar Nirmalkar*, Dr. Rajesh Choudhary	Green tea catechins protect against diabetogenic cataract by reducing aldose reductase activity and lens oxidative stress	Shri Shankaracharya College of Pharmaceutical Sciences (SSCPS), SSPU, Junwani, Bhilai, Chhattisgarh	57
IC-2026 SSCPS/DBT/120	Dr. Laxmi Koshle	Design, Synthesis And Evaluation of Chromone Derivatives As Aromatase Inhibitors For The Treatment of Breast Cancer	Shrishankaracharya Institute of Pharmaceutical Science and Research, Junwani, Bhilai	57
IC-2026 SSCPS/DBT/121	Siddharth Kumar Sahu*, Swarnali Das Paul**	PDE-4 Inhibition Meets Nanotechnology in Glaucoma Management	Shri Shankaracharya Professional University, Junwani – Bhilai, CG.	58
IC-2026 SSCPS/DBT/122	Jhakeshwar Prasad*, Rajesh Choudhary, Jaya Shree, Swarnali Das Paul	Antioxidant and Anti-inflammatory Effect of Genistein against Pharmacological Experimental Models	Shri Shankaracharya College of Pharmaceutical Sciences, Junwani – 490020, Bhilai, Chhattisgarh, India	58
IC-2026 SSCPS/DBT/123	Rashmi Suryavanshi	Alcohol as a Risk Factor for Cancer: Existing Evidence in a Global Perspective	Shri Shankaracharya Institute of Pharmaceutical Sciences and Research, Bhilai	59
IC-2026 SSCPS/DBT/124	Prachi Agrawal	Comparative Evaluation of Granisetrone And Ondansetrone In The Management of Chemotherapy Induced Emesis	Shri Shankaracharya Institute of Pharmaceutical Sciences and Research, Junwani, Bhilai, Chhattisgarh	59
IC-2026 SSCPS/DBT/125	Anshul Ram*, Dr. Rajesh Choudhary	Phloretin protects against diabetogenic cataract by reducing aldose reductase activity and lens oxidative stress	Shri Shankaracharya College of Pharmaceutical Sciences, Junwani, Bhilai, Chhattisgarh, SSPU, Junwani, Bhilai	60
IC-2026 SSCPS/DBT/126	Vicky Soni	Comparative Evaluation of Cimetidine And Rabeprazole In The Management of chemotherapy Induced Gastric Ulcer	Shri Shankaracharya Institute of Pharmaceutical Sciences and Research	60

IC-2026 SSCPS/DBT/127	Sunita singh	ROS-Responsive Bilayer Microneedles Loaded with Cyclosporine A and Cerium Oxide Nanoparticles for Synergistic Treatment of Psoriasis	Shri Shankaracharya Institute of Pharmaceutical Sciences and Research	61
IC-2026 SSCPS/DBT/128	RAKESH KUMAR NAIK	Design, Synthesis and Evaluation of Antiurease Activity of Cinnamic Acid Derivatives	Shri shankaracharya institute of pharmaceutical sciences and research, Bhilai	61
IC-2026 SSCPS/DBT/129	Gita Sahu[1] , Shashikant Chandrakar [2] , Sanjib Bahadur[3]	Novel Xanthan Gum-g-Polyacrylamide Graft Copolymer based Sustained Release Tablets of Metformin: Development and in Vitro Evolution	[1,2]Columbia Institute of Pharmacy, Raipur, Chhattisgarh [3]Himalayan Pharmacy Institute, Sikkim, India	62
IC-2026 SSCPS/DBT/130	Sarita Sahu*, Dr. Jaya Shree	Design, Synthesis and Biological Evaluation of Novel Cinnamaldehyde Derivatives as Aldose Reductase Inhibitors	Shri Shankaracharya College of Pharmaceutical Science, (SSPU), Junwani, Bhilai, CG	62
IC-2026 SSCPS/DBT/131	Tanya Sahu	Anti-inflammatory activities of Synedrella nodiflora (L.) Gaertn. (Asteraceae)	Shri Shankaracharya College of Pharmaceutical Science, (SSPU), Junwani, Bhilai, CG	63
IC-2026 SSCPS/DBT/132	Noor Afrin	"Synthesis, Molecular Docking, and Antimicrobial Evaluation of Mannich Bases Derived from (Z)-3-(Benzylimino)-6-Methylindolin-2-one"	Shri Shankaracharya Institute of Pharmaceutical Sciences and Research, Bhilai	63
IC-2026 SSCPS/DBT/133	Mansi Sen*	Application of artificial intelligence in biotech drug delivery and product development	Ritee College of Pharmacy, Chhatauna Mandir Hasaud (C.G), Pincode-492101	64
IC-2026 SSCPS/DBT/134	Meenakshi Nag* & Dr. Rakesh Tirkey	Herbs in the treatment & management of Atherosclerosis	University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur, Chhattisgarh.	64

IC-2026 SSCPS/DBT/135	Nidhi Chaturvedi	Green Biotechnology and Artificial Intelligence	Noida institute of Engineering and technology, pharmacy institute	65
IC-2026 SSCPS/DBT/136	Devid Patel	Preparation And Evaluation of Dentifrices	Rungta Institute of Pharmaceutical Sciences, Bhilai	65
IC-2026 SSCPS/DBT/137	Princy Kashyap, Manoj Kumar*	Recent Trends in Transdermal Delivery of Biologics and Peptides	Department of Pharmacy, Guru Ghasidas Vishwavidyalaya, Bilaspur, Chhattisgarh	66
IC-2026 SSCPS/DBT/138	Qusai Malak	Green Biotechnology and artificial intelligence	Niet Pharmacy institute, greater noida	66
IC-2026 SSCPS/DBT/139	Renuka Sahu	Formulation and Characterization of Diclofenac & Aceclofenac Pain Relieving and Skin Healing Gel For Diabetic Persons	Rungta Institute of Pharmaceutical Science, Bhilai	67
IC-2026 SSCPS/DBT/140	Radha Rani Verma	Legal And Regulatory Concerns Facing Nanotechnology	Rungta Institute of Pharmaceutical Sciences and Research,Kurud road Kohka, Bhilai (C.G.)	67
IC-2026 SSCPS/DBT/141	Shubham Sahu, Dr Rakesh Tirkey	Biotechnological Integration of Artificial intelligence for Screening and Development of Plant-Based Anti-Rheumatic Agents: A New Paradigm in Rheumatoid Arthritis Therapy	University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur, Chhattisgarh	68
IC-2026 SSCPS/DBT/142	Hemsagar Patel*, Dr. Saurabh Shrivastava	Formulation And Evaluation Of Polyherbal Skin Cleansing Preparation	Shri Shankaracharya College of Pharmaceutical Sciences, Bhilai, C.G.	68
IC-2026 SSCPS/DBT/143	S. Nandini	CRISPR CAS9: A Propitious Tool for Therapeutics Development	Shri Shankaracharya Institute of pharmaceutical Sceinces and Reseach,Bhilai (C.G)	69
IC-2026 SSCPS/DBT/144	Aarti Tiwari*, Pradeep Kumar Samal	The Dual Role of Astrocytes in CNS	Department of Pharmacy, Guru Ghasidas	69

		Homeostasis and Dysfunction	Vishwavidyalaya, (Central University), C.G	
IC-2026 SSCPS/DBT/145	Aarti Tiwari, Pradeep Kumar Samal*	Poly Cystic Ovarian Syndrome	Department of Pharmacy, Guru Ghasidas Vishwavidyalaya, (Central University), C.G	70
IC-2026 SSCPS/DBT/146	Shubham Patel*, Mr. Akash Dewangan	Formulation And Evaluation Of Nano Carrier Drug Delivery System	Shri Shankaracharya College of Pharmaceutical Sciences, Bhilai, C.G.	70
IC-2026 SSCPS/DBT/147	Narendra kumar Cherukury	"Development And Evaluation Of Phytoactive Loaded Vesicles For The Treatment Of Vector-Borne Disease"	University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur, Chhattisgarh	71
IC-2026 SSCPS/DBT/148	Rupendra Kumar Sahu, NANDINI	Unlocking the Code: An Introduction to Gene Editing	Shri Shankaracharya Institute of pharmaceutical Sciences and Research, Bhilai (C.G)	71
IC-2026 SSCPS/DBT/149	Kavita Sahu, Ankita Damahe*	Effect of magneto therapy for the treatment of Rheumatoid Arthritis	Apollo College of Pharmacy, Durg	72
IC-2026 SSCPS/DBT/150	Kavita Patel	"*Allium cepa* as a Cytological Model for Understanding Mitotic Dynamics in Eukaryotic Cells"	Shri Shankracharya College of Pharmaceutical Sciences, SSPU, Junwani, Bhilai	72
IC-2026 SSCPS/DBT/151	BHUMIKA SAHU*	Impact Of Regulatory Changes On Generic Drug Approval	Shri Shankaracharya College of Pharmaceutical Sciences, SSPU, Bhilai	73
IC-2026 SSCPS/DBT/152	Turkane Dhanush Ram[1], Hemant Badwaik	"Extraction And Assessment Of Herbal Leaf Extract's Gastric Ulcer Activity In Wistar Rats"	Shri Shankaracharya Institute of Pharmaceutical Sciences Research, SSPU, Bhilai, C. G. India	73
IC-2026 SSCPS/DBT/153	Banafar Alisha[1], Shukla Shiv Shankar[1], Tiwari Sandip Prasad[2]	Enhancement Of Bioavailability Of Anti-Hypertensive Drug By Novel Drug Delivery System	[1]Department of pharmaceutics, Columbia Institute of Pharmacy, Raipur (C.G) [2]Department of pharmaceutics, Faculty of Pharmacy, Kalinga University, Raipur (C.G)	74

IC-2026 SSCPS/DBT/154	Ajit Kumar Pandey, Gitanjali Kashyap*	"In Silico Screening and Analysis of Coumarin Derivatives for Rheumatoid Arthritis"	Shri Shankaracharya Professional University, Junwani, Bhilai, C.G. 490020.	74
IC-2026 SSCPS/DBT/155	Punam Singh & Rakesh Tirkey	Role Of Cinchona In Management Of Malaria	University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur, CG	75
IC-2026 SSCPS/DBT/156	Mansi Soni, Dr. Deependra Singh, Dr. Manju Singh	Platanus-Derm: A Transdermal Herbal Patch from Platanus orientalis for Sustained Pain and Inflammation Relief	University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur, Chhattisgarh	75
IC-2026 SSCPS/DBT/157	Rishikesh Singh	Development and evaluation of Chronic inflammation using sulfosalzine drug loaded patch used in treatment of psoriasis	Noida institute of engineering and technology Pharmacy Institute, Greater Noida, Uttar Pradesh	76
IC-2026 SSCPS/DBT/158	Ms. Gayatri Dashriya and Dr. Rakesh Tirkey	Sustainable Plant Tissue Culture for Rheumatoid Arthritis Management in Chhattisgarh	University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur, Chhattisgarh	76
IC-2026 SSCPS/DBT/159	Mousmi Sahu*, Anju Daharia[a]	Antioxidant Properties of Natural Bioactive Compounds: Sources, Mechanisms, and Applications	[a]Kamla Institute of Pharmaceutical Sciences, Bhilai, 490020	77
IC-2026 SSCPS/DBT/160	Dr. Rajesh Chaudhary*	Effect of flavonoids on eye disorders	Shri Shankaracharya college of Pharmaceutical Sciences, SSPU, Junwani, Bhilai, CG, India	77
IC-2026 SSCPS/DBT/161	Sahil patel	Role of Medicinal Herbs in Supporting Muscle Growth, Strength, and Recovery	Shri Shankracharya College of Pharmaceutical Sciences, SSPU, Junwani, Bhilai	78
IC-2026 SSCPS/DBT/162	Jayant sahu	Preparation and Evaluation of Quinine Ointment	Shri Shankracharya College of Pharmaceutical Sciences, SSPU, Junwani, Bhilai	78

IC-2026 SSCPS/DBT/163	Vikas Kumar*, Dr. Alpana Ram	Multiple Unit Particulate System Of A Bronchodilator For The Treatment Of Chronic Obstructive Pulmonary Disease	Department of Pharmacy, Guru Ghasidas Vishwavidyalaya (A Central University), Koni, Bilaspur, C.G. India,	79
IC-2026 SSCPS/DBT/164	Chanchal Sahu	''Formulation and pharmacological evaluation of shankhpushpi-based polyherbal syrup for neuroprotective and nootropic activity in stress-induced cognitive impairment''	Rungta Institute of Pharmaceutical Sciences (RIPS) Kohka Bhilai Chhattisgath, 490024	79
IC-2026 SSCPS/DBT/165	Nikita Singh Banafar	"Phytoconstituents for Targeted Metabolic Regulation in Diabetes"	Kamla Institute of Pharmaceutical Sciences, Bhilai, 490020	80
IC-2026 SSCPS/DBT/166	Rakesh Tirkey	Puerarin as a potential immunomodulator: Mechanistic insights from in silico and in vitro assessment	University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur, Chhattisgarh 492010	80
IC-2026 SSCPS/DBT/167	Preeti Sen*, Dr. Manju Rawat Singh, Dr. Deependra Singh	Formulation and Evaluation of Aspirin Orodispersible Films for Post-Stroke Dysphagia: A Preliminary Investigation	University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur, Chhattisgarh, India	81
IC-2026 SSCPS/DBT/168	Ms. Manju patel and Dr. Rakesh Tirkey	Plant Biotechnology Strategies for Enhancing Antidepressant Potential of Medicinal Herbs	University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur, Chhattisgarh	81
IC-2026 SSCPS/DBT/169	Tanuj Pandey[1], Prerana Sahu[1]	Radiolabeled nanomaterials for biomedical applications	Rungta Institute of Pharmaceutical Sciences	82
IC-2026 SSCPS/DBT/170	Gunja sahu*, Siddharth sahu**	Formulation of an ocular drug delivery system of Roflumilast	Shir Shankaracharya College of Pharmaceutical Sciences, Junwani	82
IC-2026 SSCPS/DBT/171	Jyoti Pujari and Rakesh Tirkey	Eco-Friendly Therapeutics : The Role of Green Biotech in Urolithiasis	University institute of pharmacy, Pt. Rvishankar Shukla University Raipur, Chhatishgarh	83

IC-2026 SSCPS/DBT/172	Shan Ansari, Rakesh Tirkey	NANO-BIOREMEDIATION: SYNERGISTIC USE OF NANOPARTICLES AND MICROBES TO REMOVE INDUSTRIAL DYES	University Institute of Pharmacy, Pandit Ravishankar Shukla University, Raipur	83
IC-2026 SSCPS/DBT/173	Pankaj Kumar	Formulation and evaluation of herbal balm	Columbia Institute of Pharmacy Raipur	84
IC-2026 SSCPS/DBT/174	Veena Verma*, Dr. Swarnali Das Paul**	Development of Thermosensitive In-situ gel of Flavonoid Bioactive	Shri Shankaracharya College of Pharmaceutical Sciences, Junwani, Bhilai	84
IC-2026 SSCPS/DBT/175	Mayank Garhewal[1], Yogesh Vaishnav[1,*]	Nanoinformatics-Based Metal–Quinazoline Nanoarchitectures for Epigenetic Targeting and Radiotherapy-Synergized Anticancer Activity	[1]Department of Pharmacy, Guru Ghasidas Vishwavidyalaya (A Central University), Bilaspur 495009, Chhattisgarh, India	85
IC-2026 SSCPS/DBT/176	Deepti Patel[1*], Dr. Ajit Pandey[1]	Development of a validated first order derivative spectroscopic method for Faropenem	Kamla institute of pharmaceutical sciences, Bhilai, CG	85
IC-2026 SSCPS/DBT/177	Ashwary Jain[1], Dr. Gyanesh Sahu[2]	CLINICAL ADVANCES IN RADIOPHARMACEUTICAL THREAPY IN CANCER	[1]Rungta Institute of Pharmaceutical Sciences, [2]Rungta Institute of Pharmaceutical Sciences & Research	86
IC-2026 SSCPS/DBT/178	Gyanjyoti Pant[1*], Dr.Ajit Pandey[1]	Development of a Validated Analytical Method of Linezolid by First Order Derivative Spectroscopy	Kamla institute of pharmaceutical sciences, Bhilai, Durg-491001, Chhattisgarh, India	86
IC-2026 SSCPS/DBT/179	Chumman Lal Sahu*, Dr. Rajesh Choudhary	FORMULATION AND CHARACTERISATION OF POLYHERBAL MICRO-SUSPENSION FOR DIABETIC COMPLICATIONS	Shri Shankaracharya College of Pharmaceutical Sciences, Junwani, Bhilai	87
IC-2026 SSCPS/DBT/180	Deepak Kumar Yadav	Formulation development and optimization of floating	Shri Shankaracharya Professional University,	87

		microballoons for oral delivery of diltiazem hydrochloride	Bhilai, Junwani Road, Pin Code-490020	
IC-2026 SSCPS/DBT/181	Astha Verma[1#], Chanchal Deep Kaur[2]	Dual ROS/pH-Responsive Glycyrrhetinic Acid–Encapsulated Chitosan Nanocarriers for Targeted Rheumatoid Arthritis Treatment	[1]Rungta College of Pharmaceutical Sciences and Research, Bhilai [2]Rungta College of Pharmaceutical Sciences and Research, Raipur	88
IC-2026 SSCPS/DBT/182	Deepak Kumar Biswas	Ethical Considerations and Model Selection in Osteomyelitis Treatment	Kamla Institute of Pharmaceutical Sciences – Shri shanharacharya Technical campus, Bhilai	88
IC-2026 SSCPS/DBT/183	Ms. Riya Mandal, Dr. Parakh Sehgal	Exploration Of Mushroom Biodiversity And Sustainable Cultivation Practices In Surajpur District, Chhattisgarh, India	Shri Shankaracharya Professional University, Bhilai Chhattisgarh-490020	89

IC-2026 SSCPS/DBT/01

Determination of cadmium in different groundwater samples by microfluidic device

Shefali Suhane, Vivek Asati
Department of Pharmaceutical Analysis, ISF College of Pharmacy, Moga, 142001, Punjab, India
Email: suhaneshefali03@gmail.com

Abstract
This study, presents a colour change of a novel microfluidic cloth-based analytical device (μCAD) based on a simple complexometric principle. To provide a user-friendly platform for quick measurement of analyte concentration in aqueous samples, the device was made by applying an indicator solution to cotton cloth that had been dipped in wax. Within minutes of loading the sample, the reagents that have been deposited interact with the analytes to produce color change zones that vary in intensity in proportion to the analyte concentration. By comparing color intensities to printed scales associated with analyte levels, the Image software is used to quantify these color zones. Cadmium was found in both standard and groundwater samples from a neighboring location using the complexometric principle applied to the μCAD. To improve color intensity, the cloth was pretreated with EDTA, lead nitrate, citric acid, and the xylenol orange indicator while keeping the pH at 10. A reddish-brown hue that was exactly proportional to the Cd 2+ concentration in the range of 20 to 60 ppm appeared when cadmium ions (Cd 2+) were placed into the apparatus. The obtained limit of quantitation (LoQ) 11.60 ppm and the limit of detection (LoD) 3.84 ppm. The developed method was tested on real groundwater samples, and the results were consistent with those obtained using atomic absorption spectroscopy.
Keywords: Heavy metal, AAS, microfluidic cloth-based device, complexometric principle

IC-2026 SSCPS/DBT/02

Microfluidic thread-based analytical device for quantification of vitamin A

Md Khuster Ali[1], Vivek Asati[2]
Department of Pharmaceutical Analysis, ISF College of Pharmacy, Moga, 142001, Punjab
Email: khusterali323@gmail.com, vivek.asati@isfcp.org

Abstract
This study introduces simple analytical methods based on colorimetric reactions for visual detection using a newly developed microfluidic thread-based analytical device. The device was fabricated by employing a wax-dipping technique on cotton thread, which was then impregnated with reagent solutions to form an easy-to-use platform for rapid analyte determination in aqueous samples. Upon interaction with analytes, distinct color zones appeared within minutes, and their intensity correlated with analyte concentrations. The color changes were quantified using Image software by comparing them with reference scales of known concentrations. This device was successfully applied to quantify vitamin A in tablet formulations. Before analysis, the thread was pretreated with trifluoroacetic acid, and the reaction was optimized at pH 3.5 to enhance color formation. The application of the sample generated a Prussian blue colouration, with intensity proportional to the vitamin A concentration. The method showed a linear working range of 20–100 ppm, a detection limit of 4.22 ppm, and a quantification limit of 12.79 ppm. The results obtained were consistent with those from reverse-phase high-performance liquid chromatography (RP-HPLC), demonstrating the accuracy and efficiency of this simple and cost- effective analytical approach.
Keywords: vitamin A, Reverse-phase high-performance liquid, microfluidic thread-based device, colorimetric reaction

IC-2026 SSCPS/DBT/03

Green Synthesis of Cadmium Oxide Nanoparticles

Seema Mishra[1]*, Dr. Sumita Sengupta[2]
[1]Shri Shankaracharya Professional university, Junwani, Bhilai, Chhattisgarh, India
[2]Department of Physics, Shri Shankaracharya Professional University, Junwani, Bhilai, Chhattisgarh, India
Email: seemamishra0611@gmail.com

Abstract: Environmental concerns associated with conventional chemical synthesis methods have prompted the exploration of eco-friendly alternatives in nanomaterial production. This study presents a green biotechnology approach to synthesize cadmium oxide (CdO) nanoparticles using plant extract-mediated methods, integrated with artificial intelligence (AI) for process optimization and characterization. CdO nanoparticles were synthesized via green chemistry principles utilizing aqueous extracts from plant sources (e.g.,plant leaf extracts, turmeric) as bio-reducing and bio-stabilizing agents. The plant phytochemicals facilitated the reduction of cadmium nitrate without employing toxic chemical reagents. Synthesized nanoparticles will be characterized using different techniques.
Keywords: CdO nanoparticles, Plant extract, Green biotechnology

IC-2026 SSCPS/DBT/04

α-Glucosidase Inhibition by Benzimidazole Derivatives: Current Progress and Future Prospects

Mansa Shrivastava[a]*, Anju Daharia[a]
[a]Kamla Institute of Pharmaceutical Sciences, Bhilai, 490020
Email: mansashriwas108@gmail.com

Abstract
Benzimidazole derivatives are a prominent class of nitrogen-containing heterocyclic compounds that have garnered considerable attention for their diverse pharmacological properties. Structurally, the benzimidazole nucleus forms by the fusion of a benzene and an imidazole ring, resulting in a planar aromatic system that serves as a versatile pharmacophore in drug discovery. Over the years, benzimidazole-based compounds have shown a wide spectrum of biological activities, including antimicrobial, anticancer, antiviral, anticonvulsant, anti-inflammatory, antihypertensive, and antidiabetic effects. Notably, growing evidence highlights the potential of benzimidazole derivatives as effective α- glucosidase inhibitors. α-Glucosidase is a key carbohydrate-hydrolysing enzyme that breaks down oligosaccharides and disaccharides into absorbable monosaccharides, leading to postprandial hyperglycemia. Inhibition of this enzyme delays carbohydrate digestion and glucose absorption, thereby playing a crucial role in the management of type 2 diabetes mellitus. Although clinically used α-glucosidase inhibitors such as acarbose, miglitol, and voglibose are effective, their use is often limited by gastrointestinal side effects, including abdominal discomfort, bloating, diarrhoea, and flatulence. Consequently, the development of novel α-glucosidase inhibitors with improved efficacy and safety profiles remains a significant research priority. This review summarizes recent advances in the design, synthesis, biological evaluation, and structure-activity relationships of benzimidazole derivatives as α-glucosidase inhibitors and discusses their future prospects in antidiabetic drug development.
Keywords: Benzimidazole; α-glucosidase inhibition; Diabetes mellitus; Antidiabetic agents;
Heterocyclic compounds.

IC-2026 SSCPS/DBT/05

Phytosomal Delivery of Barleria lupulina Constituents: Smart Herbal Targeted Drug Delivery System for Breast Cancer

Shibangi Mukhopadhyay
Guru Ghasidas Vishwavidyalaya, Bilaspur, Chhattisgarh, 495009, India.
Email: shibangiliza1998@gmail.com

Abstract; **Objective:** The antitumor effects of a new phytosome drug delivery system based on soy lecithin and Barleria lupulina extract were looked at in this work. **Background:** Phytomedicines such as phenolic compounds are mostly preferred for their potent anti-cancer property. Novel phytosome delivery systems improve the bioavailability and therapeutic efficacy of phytocompounds and herbal extracts. These are advanced forms of herbal drug formulations. **Methodology:** For, Barleria lupulina extract the thin-film hydration process was used. Energy-dispersive X-ray spectroscopy, the Zetasizer method, X-ray diffraction, and scanning electron microscopy were also used. **Results:** They were 57.24 ± 0.12% effective at enclosing things, had a mean width of 135 ± 0.29 nm, and had a zeta potential of -56 ± 1.16 mV. Once the drug was released for the first time, it continued to be released over time in a two-phase rhythm. BLSP not only decreased reactive oxygen species and mitochondrial membrane potential in a concentration-dependent way, but it also showed the ability to kill cells from MCF-7 breast and HeLa cervical cancers. BLSP decreased the amount of B-cell lymphoma-2, but increased the amounts of B-cell lymphoma-2-associated-X protein, caspase-8, caspase-9, and cluster of differentiation-95. Phytosomes (lipid–plant-polyphenol complexes) increase solubility, stability and bioavailability of phytoconstituents — making them attractive anticancer carriers. However, even phytosomes face challenges such as non-specific biodistribution and limited accumulation at the diseased site. **Conclusion**: BLSP had a cytotoxic potential against MCF-7 breast and HeLa cervical cancers and demonstrated a concentration-dependent reduction of reactive oxygen species and mitochondrial membrane potential.

Keywords: Barleria lupulina; phytosome; soy lecithin; breast cancer; antiproliferation; apoptosis

IC-2026 SSCPS/DBT/06

Antioxidant Properties of Natural Bioactive Compounds: Sources, Mechanisms, and Applications

Mousmi Sahu*, Anju Daharia
Kamla Institute of Pharmaceutical Sciences, Bhilai, 490020
Email: mousmisahu967@gmail.com

Abstract: Natural bioactive compounds derived from medicinal plants have gained significant attention due to their potent antioxidant properties and their crucial role in health promotion and disease prevention. Traditionally, medicinal plants have been widely used in folk medicine for the management of cardiovascular disorders, inflammatory conditions, and cancer risk reduction. These plants are rich sources of bioactive phytochemicals, such as phenolics, flavonoids, alkaloids, terpenoids, and vitamins, which are extensively explored by the pharmaceutical industry for drug development. In addition to their therapeutic applications, natural antioxidants play a crucial role in the food and cosmetic industries as preservatives, due to their ability to inhibit oxidative degradation and microbial growth. Several plant families are recognized for their high antioxidant potential, including Lamiaceae (rosemary, sage, oregano, marjoram, basil, thyme, mint, and lemon balm), Apiaceae (cumin, fennel, and caraway), and Zingiberaceae (turmeric and ginger). The antioxidant activity of natural bioactive compounds is influenced by various factors such as plant species, environmental and climatic conditions, geographical origin, seasonal variations, stage of maturity at harvest, cultivation practices, and postharvest processing. Furthermore, the concentration, composition, and synergistic interactions of antioxidant constituents, particularly phenolic compounds, are key determinants of their efficacy. Accurate evaluation of antioxidant potential requires careful consideration of extraction methods, solvent selection, extraction conditions, and the choice of analytical assays. This review provides a comprehensive overview of natural bioactive compounds with antioxidant potential, highlighting their sources, influencing factors, and relevance in health protection and industrial applications.

Keywords: Natural bioactive compounds; Antioxidant potential; Medicinal plants; Phenolic compounds; Oxidative stress.

IC-2026 SSCPS/DBT/09

Combining Nanotechnology and CRISPR to Redefine Infectious Disease Management

[1]Deleshwar Kumar, [1]Danish Banjare*
[1]Kamla Institute of Pharmaceutical Sciences, Junwani, Bhilai, C.G.
Email: banjaredanish73@gmail.com

Abstract: Infectious diseases remain a leading cause of global morbidity and mortality, worsened by multidrug-resistant (MDR) pathogens and new viral outbreaks. While CRISPR-Cas systems have revolutionized molecular biology by targeting specific genetic sequences, their clinical applications are often limited by delivery challenges, off-target effects, and host immune responses. Nanotechnology presents a viable solution by acting as a versatile delivery vehicle and diagnostic enhancer. This review discusses the collaboration between nanocarriers—such as lipid nanoparticles and inorganic materials—and CRISPR components to improve their stability and cellular uptake. In therapeutic settings, nanotechnology allows for the precise release of CRISPR tools into infected cells, enabling targeted disruption of viral genomes (like HIV and SARS-CoV-2) and reversing antibiotic resistance in bacteria. Furthermore, combining CRISPR with nanomaterials has resulted in highly sensitive point- of care diagnostics that meet WHO standards for affordability and speed. By addressing biological barriers and improving targeting precision, the integration of nanotechnology and CRISPR transforms infectious disease management from a reactive to a proactive approach, bridging laboratory innovations with scalable global solutions.

Keywords: CRISPR-Cas9, Nanotechnology, Infectious Diseases, Gene Editing, Nanoparticles (NPs), Drug Delivery Systems, Antimicrobial Resistance (AMR).

IC-2026 SSCPS/DBT/10

Sustainable Plant Tissue Culture for Rheumatoid Arthritis Management in Chhattisgarh

Ms. Gayatri Dashriya and Dr. Rakesh Tirkey
University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur, Chhattisgarh
Email: dashriyagayatri@gmail.com

Abstract

Rheumatoid arthritis (RA) is a chronic autoimmune inflammatory disease that primarily affects joints, causing persistent synovial inflammation that can progress to cartilage destruction and joint ankylosis. In many cases, RA arises from the interaction between genetic predispositionand environmental factors, particularly tobacco exposure. Long-term use of conventional anti-rheumatic drugs is often associated with adverse effects, highlighting the need for safer and sustainable therapeutic alternatives. Medicinal plants with anti-inflammatory, antioxidant, and immunomodulatory properties show significant potential in RA management but are limited by seasonal availability and overexploitation. Plant tissue culture techniques such as micropropagation, callus culture, cell suspension culture, and in vitro secondary metabolite production offer a sustainable and eco-friendly solution for the large-scale production of bioactive compounds with uniform quality. Chhattisgarh, rich in medicinal plant diversity, provides several seasonal and rare species with proven anti-arthritic potential, including Semecarpus anacardium (Bhallataka), Asparagus racemosus (Shatavari), Vitex negundo (Nirgundi), Gymnema sylvestre (Gudmar), and Andrographis paniculata (Kalmegh). This sustainable approach promotes biodiversity conservation while ensuring continuous availability of therapeutic resources for future phytopharmaceutical development.

Keywords: Rheumatoid arthritis, medicinal, herb, plant tissue culture, micropropagation, Chhattisgarh.

IC-2026 SSCPS/DBT/13

Green Biotechnology and Artificial Intelligence

Manisha Majumdar
Shri Shankaracharya Professional University, Bhilai C.G
Email: manishamajumdar3@gmail.com

Abstract

Rationale: Sustainable agriculture, environmental preservation, and effective utilization of biological resources are all greatly aided by green biotechnology. However, conventional analytical methods face substantial difficulties due to the growing complexity of biological and environmental data. Artificial intelligence (AI) integration can improve the efficacy and scalability of green biotechnology systems by providing sophisticated data-processing and decision-support capabilities. **Objective:** This project aims to investigate how artificial intelligence may improve agricultural yield, optimize bioprocesses, lessen environmental effect, and promote sustainable development goals in order to advance green biotechnology. **Method:** The use of AI methods in green biotechnology, including machine learning, deep learning, and predictive analytics, is examined in this article. Precision agriculture, crop improvement, disease detection, and bioresource management are supported by the application of these techniques to extensive biological, agricultural, and environmental datasets. **Results:** Improved crop breeding accuracy, early plant disease diagnosis, effective resource use, and a decreased dependency on chemical inputs are all examples of how AI is incorporated into green biotechnology. AI-driven models improve decision-making, boost output, and advance eco-friendly biotechnology solutions. **Conclusion:** A potent paradigm for tackling global issues including food security, climate change, and ecosystem sustainability is provided by the intersection of green biotechnology and artificial intelligence. AI greatly increases the impact of green biotechnology and helps create a more resilient and sustainable future by allowing data-driven, efficient, and environmentally beneficial solutions.

IC-2026 SSCPS/DBT/14

FORMULATION AND EVALUATION OF LINEZOLID LOADED TOPICAL NIOSOMAL GEL, HYDROGEL AND NATURAL GEL FORMULATIONS FOR THE TREATMENT OF GRADE1 DIABETIC FOOT ULCER

Rahul Singh Bhaskar, Dr. K.P. Meena*
Department of Pharmacy, Guru Ghasidas Vishwavidyalaya, Bilaspur, Chhattisgarh, India.
Email: rahulsinghbhaskar@gmail.com

Abstract

Objective: To develop and comprehensively evaluate novel topical formulations of Linezolid including niosomal gel, hydrogel, and natural gel through in vitro, ex vivo, and in vivo studies for enhanced treatment of skin infections, with particular focus on diabetic wound healing. **Methods:** Niosomes were prepared using modified hand-shaking method with Span 60/cholesterol (2:1) and incorporated into three gel bases. Formulations were characterized for physicochemical properties, in vitro drug release, and ex vivo skin permeation. In vivo efficacy was evaluated in diabetic wound infection model in Wistar rats (n=6/group) with induced S. aureus infection. Histopathological, immunohistochemical (IL-6, TNF-α, TGF-β), and biochemical (MDA, SOD, GSH) analyses were performed. **Results:** Niosomal gel exhibited superior characteristics: vesicle size 180 ± 15 nm, PDI 0.18 ± 0.03, EE 89.3 ± 2.1%, sustained release (89.2% over 8h), and flux 15.8 ± 1.2 μg/cm²/h. In vivo, niosomal gel showed 92.5 ± 3.2% wound contraction at day 14 vs. 68.7 ± 4.1% for marketed gel (p<0.001). Bacterial load reduction was 3.8-log vs. 2.1-log. Histopathology revealed complete re-epithelialization, organized collagen deposition (Masson trichrome score: 4.2 ± 0.3), and reduced inflammatory markers. Natural gel showed enhanced angiogenesis (CD31+ vessels: 28.5± 2.1/hpf). **Conclusion:** Linezolid niosomal gel demonstrated superior wound healing, antibacterial efficacy, and histopathological outcomes, making it a promising formulation for diabetic wound management. The natural gel showed complementary benefits in angiogenesis and anti-inflammatory effects.

IC-2026 SSCPS/DBT/15

Comparative antimicrobial activity of ethanol and aqueous extracts of Psidium Gvajava against bacteria

Ashwani Jangade
Department of Pharmacy, Guru Ghasidas Vishwavidyalaya, Koni, 495009, Bilaspur, Chhattisgarh, India
Email: jangadeashwani1608@gmail.com

Abstract

Background: Psidium guajava is a medicinal plant known by its potential antioxidant activities. Its fruits, leaves, and roots have been employed to treat various diseases, including inflammation, diabetes, hypertension, wounds, pain relief, fever, diarrhoea, lung diseases and ulcers. **Objective:** This study investigates the antibacterial activities of aqueous and ethanol extracts from the root part of Psidium guajava against a range of bacterial strains. Three bacterial strains (Escherichia coli, Pseudomonas, and Streptococcus oralis) were tested. **Methods:** Water and ethanol, two solvents with different polarities, were used in the Soxhlet extraction procedure. Fourier Transform Infrared Spectroscopy (FTIR) was used to determine the phytochemical analysis of the ethanol extract. By using the agar well diffusion experiment to determine each extract's zone of inhibition, antimicrobial activity was assessed. **Results:** Three harmful bacterial strains were used to test each extract sample antibacterial efficacy. Both the ethanolic and aqueous root extracts of Psidium guajava demonstrated notable zones of inhibition against every microbe that was tested. At a concentration of 100 g/ml, the bacterial strain Streptococcus oralis (3.92mm) exhibited the largest inhibitory zone, followed by Pseudomonas (3.5 mm) and E. coli (3.2 mm). The ethanolic root extract significantly suppressed the growth of the investigated microbial strains. The presence of a bioactive molecule with a wide spectrum of therapeutic properties is confirmed by the FTIR and HPTLC analyses. **Conclusion:** These results confirm the traditional use of Psidium guajava in treating bacterial, demonstrating the activity of its extracts against a wide range of pathogens.

IC-2026 SSCPS/DBT/16

"Aldose Reductase: Targeted Dual-Drug Nano-in-Micro Delivery of Epalrestat and Cumin for Precision Therapy of Diabetic Complications"

Rashmi Madhariya*
Shri Shankaracharya college of Pharmaceutical sciences, SSPU, Junwani, Bhilai, 490020
*Email: rashmimadhariya21@gmail.com

Abstract:

Diabetic microvascular and macrovascular complications remain a leading cause of morbidity despite effective glycemic control, highlighting the need for mechanism-targeted and tissue- specific therapeutic strategies. Aldose reductase (AR), the rate-limiting enzyme of the polyol pathway, acts as a central metabolic amplifier of oxidative stress, inflammation, and advanced glycation end-product (AGE) formation in hyperglycemic tissues, yet clinically available AR inhibitors have shown limited translational success due to poor tissue bioavailability and monotherapeutic inadequacy. In this work, we propose a next-generation dual-drug nano-in- micro delivery platform integrating epalrestat, a clinically approved AR inhibitor, with cumin, a pleiotropic phytochemical modulator of oxidative and inflammatory signaling. Polymeric nanocarriers co-encapsulating both agents are embedded within pH-responsive microspheres to achieve gastrointestinal protection, lymphatic transport, and sustained release, thereby maximizing peripheral nerve, retinal, renal, and cardiac tissue exposure. Mechanistically, this system enables simultaneous suppression of polyol flux, redox imbalance, AGE–RAGE activation, and NF-κB-driven inflammation, transforming AR inhibition from a single-pathway intervention into a network-modulating disease-modifying therapy. Compared with conventional AR inhibitor monotherapy, the dual-delivery nano-in-micro platform is expected to provide superior pharmacokinetic stability, lower dose requirements, and enhanced therapeutic predictability while minimizing systemic toxicity. This integrated strategy establishes a translationally viable framework for precision nanomedicine in diabetic complications, bridging molecular pharmacology, biomaterials engineering, and clinical relevance.

Keywords: Aldose reductase, Nano-in-micro delivery, Epalrestat, Cumin and Polyol pathway

IC-2026 SSCPS/DBT/17

A Review on the Combination of Synthetic Antidiabetic Drugs with Herbal Bioactive Compounds: Synergistic Approaches for the Management of Diabetes Mellitus

Mr. Bishesar Sahu[1] , Dr. Gyanesh Kumar Sahu[2]
[1]Rungta College of Pharmaceutical Sciences and Research, Bhilai
[2]Rungta Institute of Pharmaceutical Sciences and Research, Bhilai
Email: bishesarsahu@gmail.com

Abstract:
Diabetes mellitus (DM) is a growing global health concern characterized by chronic hyperglycaemia due to either impaired insulin secretion or insulin resistance. The management of diabetes often involves the use of synthetic antidiabetic agents, but the limitations and adverse effects associated with long-term use have spurred the exploration of alternative therapies. Among these, the combination of synthetic antidiabetic drugs with herbal bioactive compounds has garnered significant attention due to the potential synergistic effects and reduced side effects. One such herbal compound is berberine, a natural alkaloid with proven antidiabetic properties. This review examines the current literature on the combination of synthetic antidiabetic drugs with berberine, highlighting their mechanisms of action, therapeutic outcomes, and potential clinical applications. The review also discusses the benefits, challenges, and future perspectives in developing such combination therapies for improved management of diabetes.

Keywords: Combination Therapy, Diabetes mellitus; Anti-diabetic drugs; Herbal medicine; Insulin resistance; Glycaemic control.

IC-2026 SSCPS/DBT/20

Exploration of herbal extract loaded gel formulation for wound healing activity

Jayshri sahu[1], Anshita Gupta
Department of Pharmacy, Guru Ghasidas Vishwavidyalaya (A Central University) Bilaspur, Chhattisgarh, India, 495009
Email: Jayshrisahu01@gmail.com

Abstract : There are only herbal formulations that can only as effective as their ability to deliver phytoactive at adequate levels and this challenge can be tackled by using novel drug delivery system that improve delivery, bioaccessibility and stability of plants phytoconstituents for controller therapeutic effects a handful of new herbal delivery system have been developed including phytosomes, liposomes, lipid nano particles, ethosomes, microemulsions and other vesicular carriers ,transferosomes are vesicular system similar in structure to liposome but possess superior skin penetration ,allowing delivery of drug into deeper skin layer, their ultra deformable nature makes transferosome more efficient drug delivery carriers, especially for transdermal and dermal application. This study target to optimize extract loaded transferosomes using box-Behnken design applied to formulations prepared by a modified rotary evaporation - sonication method with tween 80 and soya lecithin as surfactant. Athree level response surface methodology was employed to evaluate the effects of formulation variables and resulting transferomal formulations were characterized for vesicle morphology, particle size, entrapment efficacy ,stability and in vitro permeation performance.

Keywords: Transferosomes, Transdermal delivery, Skin permeation, Nanocarriers

IC-2026 SSCPS/DBT/21

"Herbal-Extract Based Gel And Cream Formulations As Potential Anti- Inflammatory Agents"

Ritika Chouhan And Dr. Rakesh Tirkey
University Institute of Pharmacy Pt Ravi Shankar Shukla University Raipur Chattisgarh 492010.
Email: ritikac1580@gmail.com

Abstract :
Inflammation is a natural defense mechanism of the body that occurs in response to injury, infection, or harmful stimuli. However, when inflammation becomes chronic, it can lead to several diseases such as arthritis, cardiovascular disorders, diabetes. Globally, inflammatory and chronic inflammatory diseases affect millions of people and account for a major proportion of disease-related morbidity worldwide. Although synthetic anti-inflammatory drugs like non-steroidal anti-inflammatory drugs (NSAID) and corticosteroids are commonly used, their prolonged use is often associated with side effects. Due to these limitations, there is a growing interest worldwide in herbal medicines as safer and effective alternatives. Many medicinal plants have shown significant anti-inflammatory activity, including melilotus officinalis, aloe vera, withania somnifera (ashwagandha), calendula officinalis, azadirachta indica (neem). Herbal gel and cream for topical anti-inflammatory application are formulated. The formulations were evaluated for their physicochemical properties, stability, and safety. The anti-inflammatory activity was assessed using an in vivo carrageenan-induced rat paw edema model along with in silico molecular docking studies. This showed that the gel formulation exhibited significant anti-inflammatory activity comparable to hydrocortisone, without causing any dermal irritation. Herbs-based topical formulations appear to be safe, stable, and effective herbal alternatives for the management of inflammatory skin conditions.

Keyword: Inflammatory disorders; Herbal drug development; Topical formulations; Anti-inflammatory efficacy; In vivo studies.

IC-2026 SSCPS/DBT/22

Computer-Aided Drug Design Strategies for the Identification of Novel PARP-1 Inhibitors

Simran Kaur
ISF College of Pharmacy, Moga, Panjab, India
Email: simrankaursaini5585@gmail.com

Abstract
Poly (ADP-ribose) polymerase-1 (PARP-1) is a key nuclear enzyme involved in DNA damage recognition and repair, playing a critical role in maintaining genomic integrity. Targeting PARP-1 has emerged as a well-established therapeutic strategy in cancer therapy. In the present study, a comprehensive computer-aided drug design approach was employed to identify novel PARP-1 inhibitors by integrating pharmacophore-based virtual screening, molecular docking, molecular dynamics (MD) simulations, density functional theory (DFT) and toxicity prediction. A total of ten pharmacophore hypotheses were generated and evaluated by ROC analysis to assess their predictive performance. The best-ranked pharmacophore model (Hypothesis 1) was applied to screen the ZINC database, resulting in the identification of promising inhibitory hits. The stability of ligand-protein complexes was further examined via MD simulations, supported by trajectory analyses such as root mean square deviation (RMSD), root mean square fluctuation (RMSF), and hydrogen bond interactions. Furthermore, the safety profiles of the top candidates were assessed through in silico toxicity prediction and compared with the reference drug Olaparib. Among the screened compounds, Compound S-22 emerged as a potential lead candidates for further optimization and experimental validation as PARP-1 inhibitor.

IC-2026 SSCPS/DBT/23

Design, Synthesis and Biological Evaluation of Anthraquinone Derivatives as Anti -Hyperglycemic agent

Kajal Patel*, Dr. Vaibhav Tiwari

Shri Shankaracharya College of Pharmaceutical Science, Bhilai (C.G)
Email: patelkajal2295@gmail.com

Abstract

Diabetes mellitus, a global health challenge, demands innovative therapeutic agents with minimal side effects and enhanced efficacy. This study explores the antihyperglycemic potential of anthraquinone, a bioactive compound traditionally used for its laxative effects, through advanced silicon-based computational techniques. Molecular docking and dynamic simulations were employed to assess its interaction with pivotal enzymes implicated in glucose regulation, such as α- glucosidase and dipeptidyl peptidase-4 (DPP-4). The increasing prevalence of diabetes has necessitated the exploration of novel therapeutic agents with enhanced efficacy and reduced side effects. This study investigates the potential antihyperglycemic properties of anthraquinone through a silicon-based computational approach. Molecular docking and simulation studies revealed a significant interaction between anthraquinone and the active sites of these enzymes, suggesting its inhibitory potential. Furthermore, ADMET (Absorption, Distribution, Metabolism, Excretion, and Toxicity) profiling highlighted its favorable pharmacokinetic properties and low toxicity risk. These findings indicate that anthraquinone may serve as a promising lead compound for the development of novel antihyperglycemic agents. Further in vitro and in vivo studies are required to validate these results and elucidate the underlying mechanisms of action. The analysis demonstrated strong binding affinities of anthraquinone to these enzymes, suggesting its potential to inhibit their activity and regulate blood glucose levels. ADMET profiling further highlighted its promising pharmacokinetic characteristics and low toxicity. These results indicate that anthraquinone could serve as a lead compound for developing novel antihyperglycemic agents. Further experimental studies are recommended to validate its efficacy and therapeutic potential in diabetes management.

IC-2026 SSCPS/DBT/24

Artificial intelligence in Green Pharmacy: A Revolution in Pharmaceutical Sciences

Sourabh Nirmalkar & Rakesh Tirkey
University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur (C.G.)
Email: Itsmesourabh23@gmail.com

Abstract

Background: The pharmaceutical industry plays a vital role in global healthcare but is also responsible for environmental challenges such as chemical waste generation, high energy consumption, and pharmaceutical pollution. Green Pharmacy aims to minimize these environmental impacts through sustainable drug design, eco-friendly manufacturing, and responsible pharmaceutical practices. Artificial Intelligence (AI) has emerged as a powerful technological tool to support these objectives by improving efficiency and reducing resource utilization. **Objective:** The objective of this study is to highlight the role of Artificial Intelligence in promoting Green Pharmacy practices and to discuss globally used AI tools that support sustainable pharmaceutical development. **Methodology:** This work is based on a comprehensive review of international research articles and review papers related to AI applications in pharmaceutical sciences and green pharmacy. Various AI techniques used in drug discovery, pharmaceutical analysis, manufacturing, and environmental safety assessment were analyzed. **Analysis:** AI tools such as Machine Learning, Deep Learning, Artificial Neural Networks, QSAR modeling, Computer-Aided Drug Design, chemometrics, and predictive analytics help reduce trial-and-error experimentation, minimize chemical and solvent usage, and optimize energy- efficient processes. These tools also assist in predicting toxicity, biodegradability, and environmental risks of pharmaceutical compounds. **Conclusion:** Artificial Intelligence significantly strengthens Green Pharmacy initiatives by enabling eco- friendly drug development, sustainable manufacturing, and safer healthcare practices. The integration of AI with green pharmacy principles offers a promising global approach for achieving sustainable and environmentally responsible pharmaceutical sciences.

Keywords: Artificial Intelligence, Green Pharmacy, Sustainable Pharmaceutical Sciences,

IC-2026 SSCPS/DBT/25

"NANOTECHNOLOGY APPROACHES TO EFFECTIVE AND SAFER DELIVERY OF AMPHOTERICIN B"

DISHA DEWANGAN & RAKESH TIRKEY
University Institute of Pharmacy, Pt. Ravi Shankar Shukla University, Raipur (C.G)
Email: dishu0503@gmail.com

Abstract

Background: Nanotechnology deals with the design and application of materials in the nanoscale range of 1–100 nm, offering improved drug solubility, stability, controlled release, and targeted delivery. Amphotericin B (AmB) is a broad-spectrum antifungal and antiparasitic drug with low cross-resistance; however, its clinical use is limited due to poor aqueous solubility and severe toxicities, particularly nephrotoxicity. **Objective:** The objective of this review is to evaluate nanotechnology-based delivery systems developed between 2011 and 2023 for reducing the toxicity of Amphotericin B while improving its therapeutic efficacy. **Methodology:** A comprehensive review of published studies from 2011 to 2023 was carried out focusing on nanocarrier-based formulations of Amphotericin B. Various nanosystems including liposomes, micelles, nanostructured lipid carriers, polymeric nanoparticles (PLGA, chitosan, dendrimers), emulsions, carbon-based nanoparticles, metal nanoparticles, and magnetic nanoparticles were analyzed for their effects on drug solubility, biocompatibility, toxicity reduction, and antimicrobial activity. **Results:** The results showed that enclosing Amphotericin B inside nanoparticles greatly improved its ability to dissolve in water, reduced harmful effects on cells, and increased its effectiveness against fungal and leishmanial infections. Lipid-based and polymer-based nanoparticles helped lower kidney damage and made the drug safer to use. Carbon-based nanoparticles, as well as gold, silver, zinc oxide, and PEG coated nanoparticles, improved drug delivery while causing very little toxicity. Although commercial lipid formulations were safer, their use was limited because they are expensive. **Conclusion:** Nanotechnology-based drug delivery systems represent a promising and cost-effective strategy to enhance the safety and efficacy of Amphotericin B, supporting its broader clinical application in fungal infections and leishmaniasis.

Keywords: Nanotechnology, Amphotericin B, Nanocarriers, Drug delivery systems, Toxicity reduction, Antifungal therapy.

IC-2026 SSCPS/DBT/26

Artificial Intelligence-Assisted CRISPR-Cas9 for Sustainable Plant Genome Editing for Sustainable Agriculture

Chhaya Verma and Rakesh Tirkey
University Institute of Pharmacy, Pt. Ravi Shankar Shukla University, Raipur (C.G)
Email: chhayaverma2308@gmail.com

Abstract: Sustainable agriculture has become a global priority due to increasing population pressure, climate change, and the depletion of natural resources. Plant genome editing using the CRISPR-Cas9 system has emerged as a powerful and precise technology for improving crop traits such as yield, nutritional quality, and resistance to biotic and abiotic stresses. Despite its effectiveness, the practical application of CRISPR-Cas9 in crop improvement faces challenges including inefficient guide RNA selection, off-target effects, and the complexity of identifying genes associated with desirable agronomic traits. Artificial intelligence (AI) provides innovative approaches to address these limitations, predict potential off-target mutations, and analyse large-scale genomic, transcriptomic, and phenotypic datasets. AI-based models also facilitate the identification of candidate genes linked to stress tolerance, disease resistance, and enhanced productivity, thereby accelerating breeding programs. The integration of AI with CRISPR-Cas9-mediated plant genome editing offers a promising strategy for developing climate-resilient, high-yielding, and resource-efficient crops. AI-assisted genome editing tools, their applications in sustainable agriculture, and future prospects for precision crop improvement. The convergence of artificial intelligence and genome editing technologies represents a transformative approach toward achieving global food security and environmentally sustainable agricultural systems.

Keywords: Artificial Intelligence; CRISPR-Cas9; Plant Genome Editing; Sustainable Agriculture; Machine Learning; Crop Improvement.

IC-2026 SSCPS/DBT/27

Effective waste management in pharmaceutical analytical procedure

Aniket Sakharwade & Rakesh Tirkey
University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur (C.G.)
Email: aniketsakharwade08@gmail.com

Abstract

Background: The pharmaceutical analysis laboratory plays a vital role in ensuring drug safety and efficacy; however, it is also a significant generator of hazardous chemical and biological waste. In traditional analytical workflows, the use of volatile organic solvents, corrosive reagents, and active pharmaceutical ingredients (APIs) presents a dual threat to laboratory personnel safety and environmental integrity. If improperly managed, these substances can lead to soil degradation, aquatic toxicity, and the emergence of antibiotic-resistant bacteria in local water systems. **Objective:** This poster explores an integrated approach to waste management, focusing on the classification, segregation, and mitigation strategies required to align laboratory operations with Green Analytical Chemistry (GAC) principles and Good Laboratory Practices (GLP). **Methodology:** The framework presented emphasizes a three-tier waste hierarchy. First, Identification and Classification categorize waste into ignitable, corrosive, reactive, or toxic streams using GHS standards. Second, Source Reduction techniques are examined, such as the transition from HPLC to UHPLC to reduce solvent consumption and the replacement of chlorinated solvents with biodegradable alternatives like ethanol. Third, On-site Pre- treatment protocols are detailed, including pH neutralization of aqueous acids and the segregation of halogenated versus non-halogenated organic waste to facilitate off-site incineration or solvent recovery. **Result and Conclusion:** Effective waste management in pharmaceutical analysis is not merely a regulatory burden but an opportunity for operational efficiency. By adopting rigorous segregation and minimization strategies, laboratories can significantly reduce their environmental footprint, ensure legal compliance, and promote a culture of sustainability within the global healthcare industry.

IC-2026 SSCPS/DBT/28

Analytical Tools for the standardization of herbal drug products

Amit Bande & Rakesh Tirkey
University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur (C.G.)
Email: amitbande11@gmail.com

Abstract

Background: There is increasing awareness and general acceptability of the use of herbal drugs in today's medical practice. Although most of these applications are unorthodox, it is however, a known fact that over 80% of the world population depends on herbal medicines and products for healthy living. The therapeutic impact of herbal remedies, in contrast to synthetic pharmaceuticals, frequently results from the synergistic action of many phytochemicals rather than a single active ingredient. **Objective:** This work examines the comprehensive analytical basis required to standardize herbal mixtures. Botanical authentication and macroscopic and microscopic evaluation are the first steps in the process to prevent adulteration. The next stage is physicochemical characterisation, which involves determining extractable values, ash content, and moisture levels. **Methodology:** The application of advanced spectroscopic and chromatographic techniques is crucial to modern standards. High-performance liquid chromatography (HPLC) and gas chromatography (GC) are used to quantify some marker chemicals, such as Prosopis juliflora, Piper nigrum, Andrographis paniculata, and Withania somnifera. High- Performance Thin-Layer Chromatography (HPTLC) also offers a rapid visual & fingerprint for batch-to-batch uniformity. Furthermore, the incorporation of hyphenated techniques such as GC-MS and LC-MS enables the metabolic profiling of complex extracts. **Result and conclusion:** The abstract also highlights the significance of contaminant screening, focusing on the detection of heavy metals, pesticide residues, and microbiological loads, to comply with international regulatory standards (e.g., WHO, USP). By employing these various analysis methods, manufacturers can transform traditional herbal knowledge into superior, scientifically verified medical products.

Keywords: Herbal Standardisation, Phytochemical Markers, Fingerprinting, Quality Control, Chromatography.

IC-2026 SSCPS/DBT/30

"Artificial Intelligence and Green Biotechnology: A Safer Approach for Hypertension Management''

Ashish Ekka and Rakesh Tirkey
University institute of Pharmacy, Pt. Ravishankar Shukla university, Raipur, Chhattisgarh
Email: ashishekka1696@gmail.com

Abstract

Hypertension, or high blood pressure, is a chronic cardiovascular disorder characterized by persistently elevated arterial pressure, leading to serious complications such as heart disease, stroke, and kidney failure. Clinically, hypertension is defined as a sustained systolic blood pressure above 140 mmHg and a diastolic pressure above 90 mmHg. It is a growing health concern worldwide, and researchers are working extensively to find effective and safer management strategies. the availability of conventional antihypertensive drugs, long-term therapy is often associated with adverse effects and variable patient response. In recent years, Artificial Intelligence (AI) and Green Biotechnology have emerged as promising, sustainable approaches for improved hypertension management. Green biotechnology focuses on the use of medicinal plants, bioactive phytoconstituents, and eco-friendly extraction and production techniques to develop safer antihypertensive agents. Plant-derived compounds such as flavonoids, alkaloids, polyphenols, and terpenoids exhibit blood pressure–lowering effects through vasodilation, antioxidant activity, calcium channel blockade, and modulation of the renin–angiotensin system. Artificial Intelligence complements green biotechnology by enabling rapid screening of bioactive compounds, prediction of antihypertensive potential, optimization of drug formulations, and personalized treatment strategies. AI-based tools also assist in early diagnosis, risk prediction, and continuous blood pressure monitoring using devices. the integration of AI with green biotechnology offers a novel, efficient, and sustainable strategy for hypertension management, supporting the development of safer plant-based therapeutics and precision medicine approaches.

IC-2026 SSCPS/DBT/31

Integrating plant cell culture and AI driven green biotechnology for the conservation and sustainable utilization of endangered Gymnosperms.

Manju Verma and Rakesh Tirkey
University Institute of Pharmacy, Pt. Ravishankar Shukla University , Raipur, Chhattisgarh
Email: manjuverma9617@gmail.com

Abstract: Gymnosperms represent an ancient and medicinally significant group of seed plants; however, many species are currently endangered due to overexploitation, habitat loss, slow regeneration, and unsustainable harvesting for herbal drug production. Medicinally important gymnosperms such as Taxus wallichiana, Ginkgo biloba, Pinus radiata, Ephedra gerardiana, Cedrus deodara, and Juniperus communis etc. are extensively utilized for bioactive compounds including paclitaxel, flavonoids, alkaloids, and terpenoids. Conservation of these species is therefore a critical priority. Plant cell culture based green biotechnology offers a sustainable alternative by enabling in vitro propagation and phytochemical production through callus culture, cell suspension culture, and somatic embryogenesis. These systems allow controlled, year-round cultivation while reducing pressure on natural populations and ensuring reproducible metabolite profiles. Recent advances in artificial intelligence (AI) have further strengthened green biotechnology by optimizing culture conditions, predicting growth responses, and enhancing somatic embryogenesis efficiency through machine learning based data analysis. AI-assisted modeling enables rapid identification of optimal media composition, growth regulator combinations, and culture parameters, significantly reducing experimental time and resource consumption. The integration of AI and plant cell culture aligns with biodiversity conservation goals and sustainable pharmaceutical supply chains. This combined approach provides an environmentally responsible strategy for conserving endangered gymnosperms while ensuring continuous and standardized production of medicinal compounds for future healthcare needs.

Keywords: Green biotechnology, Endangered gymnosperms, Plant cell culture, Somatic embryogenesis

IC-2026 SSCPS/DBT/32

Artificial intelligence, Sustainable herbal medicine, Conservation biotechnology Exploring Herbal Remedies for Depression Using Green Biotechnology and Artificial Intelligence

Mithlesh Diwan and Dr. Rakesh Tirkey
University institute of Pharmacy, Pt.Rvishankar Shukla University Raipur, Chhatishgarh
Email: mithaleshdiwanmithalesh989@gmail.com

Abstract: Depressant is a complex and prevalent mental health disorder with significant global impact. Conventional antidepressants, although effective, are often limited by delayed onset, adverse effects, and therapeutic resistance, highlighting the need for safer and sustainable alternatives. Herbal medicines have emerged as promising candidates due to their multi-component composition, synergistic pharmacological actions, and improved safety profiles. However, chemical variability and lack of standardization restrict their large-scale clinical application This study explores herbal remedies for depressant through an integrated approach combining green biotechnology and artificial intelligence green biotechnology techniques, including plant tissue culture, elicitation, metabolic engineering, and bioprocess optimization, were employed to ensure sustainable cultivation and consistent production of bioactive compounds. Chhattisgarh, rich in medicinal plant diversity, provides several seasonal and rare species with proven antidepressant potential, including Rosmarinus officinalis (Rosmari), Averrhoa carambola(Star fruit) Aegle marmelos(Bale) Vitex negundo((Nirgundi) Asparagus racemosus (Shatavari), AI-driven tools, such as machine learning, molecular docking, network pharmacology, and predictive modeling, facilitated rapid screening, target identification, and mechanistic analysis of herbal constituents The integrated approach enabled efficient identification of promising herbal candidates and development of standardized formulations. This strategy offers a novel, eco-friendly, and cost-effective framework for discovering and developing safe, effective, and personalized herbal therapies for depressant .

Keywords: Depressant, Herbal medicines, green biotechnology, Artificial intelligence Phytochemicals, Standardized formulations, Drug discovery, Mental health therapies

IC-2026 SSCPS/DBT/34

Artificial intelligence (AI) tools for diabetes: prevention, diagnosis, and effective management

Anurag Verma and Rakesh Tirkey
University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur, Chhattisgarh
Email: anuragvermaji@37gmail.com

Abstract: Diabetes, a disease that is increasingly prevalent and carries significant socioeconomic costs, affects millions of people around the globe. Artificial intelligence (AI) enhances the management, diagnosis, and prevention of diabetes. Utilizing advanced algorithms and extensive data examination, tools driven by AI allow for the early identification of diabetes and its complications, such as diabetic retinopathy. Wearable devices and continuous glucose monitors, combined with AI, enable personalized treatment strategies and real-time insights, enhancing glycaemic control and overall health results. Sophisticated machine learning models exhibit high-precision diagnostic and predictive capabilities for diabetes. Automated insulin delivery systems and bolus calculators improve insulin management, lowering the chances of hypo- and hyperglycaemia. Even with these improvements, issues like cost, accessibility, device interoperability, and ethical considerations remain. To optimize care, it is essential to develop new digital biomarkers, individualized clinical metrics, and solutions cantered+ around patients. Although AI offers great potential for reducing the worldwide diabetes burden, it is crucial to tackle these limitations through ongoing innovation and cooperation. emphasizes the potential of AI to transform diabetes care by enhancing prevention, diagnostics, and management approaches.

Keywords: Artificial intelligence; Diabetes management; Glycaemic control; Patient-centric Approach

IC-2026 SSCPS/DBT/35

Integrating Generative AI and Green Biotechnology to Accelerate the Discovery of Immunomodulatory Compounds in Medicinal Plants

Chintan Bhoi and Rakesh Tirkey
University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur, Chhattisgarh
Email: chintanbhoi01@gmail.com

Abstract: The therapeutic potential of natural products (NPs) derived from medicinal plants remains largely unexploited due to the inefficiency of traditional bioassay-guided fractionation in handling complex phytoconstituent mixtures and their subtle, multi-target mechanisms. This research leverages Artificial Intelligence (AI) and Network Pharmacology to transform the discovery pipeline for novel immunomodulatory agents derived from botanical sources, specifically targeting pathways associated with chronic inflammation and autoimmune diseases. The search for new medicines that can fine-tune our immune system is crucial for treating diseases like arthritis, allergies, and infections. For thousands of years, people have relied on medicinal plants for these effects. However, finding the exact chemical in a plant that works and figuring out how it works is a long and difficult process. This study uses Artificial Intelligence (AI) as a powerful shortcut. We applying smart computer systems to massive amounts of data about plant chemicals and immune processes. Despite the availability of conventional immunomodulatory agents, a significant portion of the global population, particularly in developing countries, relies on medicinal plants for the management and complementary therapy of autoimmune diseases due to their perceived lower cost, greater accessibility, and fewer reported side effects. Medicinal plants are gaining attention as potential solutions to combat autoimmune disease therapies. Researchers have identified several plants with immunomodulatory properties that could help mitigate this growing concern. Some of the most promising medicinal plants include Abutilon indicum, Bauhinia variegata, Boswellia serrata, Curcumin, Camellia sinensis, Urena lobata, Artemisia annua, Acacia catechu, and Ficus bengalensis. These plants showed significant immunomodulatory activity and may contribute to the development of novel, plant-based immunomodulatory drugs, addressing the urgent need for effective solutions to chronic inflammation and autoimmune diseases, and protecting public health.

IC-2026 SSCPS/DBT/36

"Green Biotechnology and Natural Products as Catalysts for Sustainable Pharmaceutical Innovation."

Harkesh Dadsena, Dr. Vishal Jain
University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur, C.G.
Email: harkeshdadsena2000@gmail.com

Abstract: Sustainability has emerged as a central priority in modern pharmaceutical sciences, driven by the growing demand for environmentally responsible and resource-efficient therapeutic development. Green biotechnology, when integrated with natural product–based innovations, provides a robust foundation for advancing sustainable pharmaceutical research, development, and manufacturing. This approach emphasizes the responsible use of renewable biological resources, ecofriendly bioprocesses, and low-impact technologies, while maintaining therapeutic efficacy, product quality, and regulatory compliance. Natural products continue to represent a rich and diverse source of bioactive compounds, offering valuable leads across multiple therapeutic areas. The application of green biotechnological strategies—such as microbial fermentation, metabolic engineering, plant tissue culture, and biocatalysis—enables consistent quality, scalable production, and a sustainable supply of pharmacologically active molecules. Furthermore, the adoption of green extraction techniques, solvent-free processing, and waste valorization aligns pharmaceutical manufacturing with circular economy principles, minimizing waste generation and environmental burden. Advances in omics technologies, bioinformatics, and systems biology further strengthen the discovery, optimization, and standardization of natural product–derived therapeutics, accelerating their translation from laboratory research to clinical and industrial applications. Overall, the synergistic integration of green biotechnology and natural product innovation is reshaping the pharmaceutical sector toward a more sustainable paradigm. Future prospects include the development of scalable and economically viable bioprocesses,

improved regulatory harmonization, and stronger industry–academia collaborations, positioning sustainable pharmaceutical innovation as a key pathway to environmental stewardship and global health resilience.

IC-2026 SSCPS/DBT/37

Eco-Friendly Therapeutics: The Role of Green Biotech in Urolithiasis

Jyoti Pujari and Rakesh Tirkey
University institute of pharmacy, Pt. Rvishankar Shukla University Raipur, Chhatishgarh

Abstract

Urolithiasis is the deposition of calcified stones in the kidneys or ureters that affects the functioning of the bladder and urethra. In everyday clinical practice, it is a prevalent pathologic multifaceted urological disorder. Characterized by severe visceral pain that has a major impact on a patient's everyday activities and quality of life. The incidence and prevalence of kidney stones have steadily increased, driven by factors such as dietary habits (particularly high Sodium consumption), hereditary predisposition, and Environmental conditions, including climatic variations. Projections indicate a considerable rise in populations at Risk, from 40% in 2000 to an estimated 56% by 2050 and potentially up to 70% by 2095.The drugs presently used for the treatment of urolithiasis have many adverse side effects; therefore, alternatives are needed. In some recent years, This is where Green Biotechnology comes in. We are moving towards 'Eco-Friendly Therapeutics' by investigating medicinal plants like Ficus Racemosa L (Goolar), Phaseolus vulgaris (beans), Rosa sinensis L.(Gurhal) , Moringa oleifera Lam (Drumstick tree),Punica granatum (Pomegranate) extracts. From a pharmacology perspective, these natural compounds act as potent anti-urolithiatic agents by mechanisms such as increasing urine pH and actively inhibiting crystal formation. The benefit here is clear: we use sustainable sourcing and reduce the harsh chemical synthesis associated with traditional drug manufacturing.

Keyword:- Urolithiasis, Green biotechnology, **Medicinal** plant

IC-2026 SSCPS/DBT/38

Promising Phytochemicals in Suppression of Pain Mediators

Manisha and Dr. Rakesh Tirkey
University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur, Chhattisgarh
Email: manishasahu4713@gmail.com

Abstract

Pain is a complex biological response mediated by inflammatory and neurochemical substances, including prostaglandins, cytokines, nitric oxide, histamine, bradykinin, and substance P. Although conventional analgesics are widely used, their long-term administration is often associated with adverse effects, highlighting the need for safer therapeutic alternatives. Phytochemicals derived from medicinal plants have emerged as promising analgesic agents due to their ability to target multiple pain pathways. Bioactive compounds such as curcumin, quercetin, resveratrol, capsaicin, gingerol, apigenin, berberine, and β-caryophyllene have demonstrated significant pain-modulating effects by suppressing key mediators involved in nociception and inflammation. These compounds exert their analgesic actions through inhibition of cyclooxygenase and lipoxygenase enzymes, downregulation of pro-inflammatory cytokines (TNF-α, IL-1β, IL-6), suppression of inducible nitric oxide synthase, stabilization of mast cells, and modulation of transient receptor potential and cannabinoid receptors. Preclinical and clinical studies indicate that these phytochemicals effectively reduce both peripheral and central pain responses in inflammatory and neuropathic pain models. The multitargeted mechanisms, natural origin, and favorable safety profiles of these compounds support their potential as alternative or adjunct agents in pain management.

Keywords: Phytochemicals; Pain mediators; Analgesic activity; Prostaglandins; Cytokines; Nitricoxide; Natural products.

IC-2026 SSCPS/DBT/39

Medicinal plants with antimalarial potential

Kunal Veersurya and Rakesh Tirkey
University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur, Chhattisgarh

Abstract:
Malaria remains one of the most serious parasitic diseases globally, with the greatest burden in tropical and subtropical regions. It is caused by protozoan parasites of the genus Plasmodium, predominantly P. falciparum, P. vivax, P. ovale, P. malariae, and P. knowlesi, and is transmitted through the bites of infected Anopheles mosquitoes. Despite extensive global efforts aimed at vector control, early diagnosis, and effective chemotherapy, the rapid emergence of resistance to conventional antimalarial drugs continues to compromise malaria control strategies. Medicinal plants have historically played a crucial role in malaria treatment and remain a rich source of bioactive compounds with significant antiplasmodial activity. Plant species such as Artemisia annua (artemisinin), Cinchona officinalis (quinine), Azadirachta indica (neem), Cryptolepis sanguinolenta, and Carica papaya have demonstrated notable therapeutic potential. Recent research has focused on pharmacological validation, toxicity evaluation, and elucidation of molecular mechanisms of these
phytochemicals. The application of artificial intelligence (AI) tools, including machine learning, molecular docking, virtual screening, and quantitative structure–activity relationship modeling, has accelerated the discovery and optimization of plant-derived antimalarial leads. Concurrently, green biotechnology approaches—such as sustainable extraction techniques, plant tissue culture, metabolic engineering, and environmentally friendly bioprocessing—have enhanced compound yield, reproducibility, and scalability while minimizing ecological impact. The integration of traditional ethnomedicinal knowledge with AI-driven drug discovery and green biotechnological innovations represents a promising, sustainable, and cost-effective pathway for the development of next-generation plant-based antimalarial therapies and long-term malaria control.

Keywords: Antimalarial plants; Phytochemicals; Artificial intelligence; Green biotechnology; Drug resistance; Ethnopharmacology.

IC-2026 SSCPS/DBT/40

Anxiety Disorder

Prachi Soni and Rakesh Tirkey
University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur, Chhattisgarh

Abstract:
Anxiety is a prevalent mental disorder characterized by feelings of fear, trepidation, apprehension, and panic. It can also affect the respiratory, gastrointestinal, cardiovascular, or neurological systems, either separately or in combination. It is marked by disruptions in thinking, behaviour, mood, and physiological activity. It has been demonstrated that individuals with anxiety disorders, such as panic disorder, social anxiety disorder, and generalized anxiety disorder (GAD), exhibit decreased GABAergic activity and elevated serotonergic (5-HT) activity. Treatment is recommended when a patient exhibits significant distress or experiences problems brought on by the disease. Treatment for anxiety disorders should involve either pharmacotherapy, psychological counselling, or a combination of both. Patients are turning to herbal and other natural treatments for the management and treatment of anxiety disorders due to the growing expense of prescription drugs and the unfavorable side effects they cause. Green biotechnology has emerged as a sustainable and eco-friendly strategy for the discovery, extraction, and formulation of plant-based anxiolytic agents. Green biotechnological approaches emphasize the use of renewable biological resources, environmentally benign extraction methods, and minimal chemical waste, thereby enhancing the safety and efficacy of herbal therapeutics. Plant-based remedies like medicinal plants and their extracts have great potential to cure a wide range of medical conditions, including anxiety and depression Some of the recently investigated plants with anti-anxiety activity includes Ziziphus mauritiana, Aglaonema hookerianum Schott, Moringa oleifera, Phyllantus niruri, Albizia procera.

Keywords: Anxiety disorders, pharmacotherapy, medicinal plants

IC-2026 SSCPS/DBT/41

Biotechnological Integration of Artificial intelligence for Screening and Development of Plant-Based Anti-Rheumatic Agents: A New Paradigm in Rheumatoid Arthritis Therapy

Shubham Sahu, Dr Rakesh Tirkey
University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur, Chhattisgarh
Email: shubhambandhi@gmail.com

Abstract

Background: Rheumatoid arthritis is an autoimmune disease that affects millions of people. Treatments of NSAIDs and biologics aimed at alleviating symptoms and preventing progression. Herbal remedies are increasingly popular for their low toxicity perception, although they may lead to side effects and allergic reactions. AI-infused herbal medicines combine AI analytical capabilities with herbal remedies to personalize therapy. By analyzing extensive data, including patient profiles and genetic markers, AI enhances the accuracy and effectiveness of herbal formulations, aiming to reduce treatment costs, minimize side effects, improve patient outcomes. **Objective:** To integrate Biotechnology tools with AI for efficient screening of plant based anti-rheumatic agents. **Methodology:** Current research is being conducted on AI-driven herbal therapies are Sulfated IgG N glycans biomarker, Fuzzy inference systems, Image analysis based on 3D bone microstructure, Support vector machine, Random Forest and Naïve Bayes machine learning algorithms, Electronic phenotype algorithms. **Result:** Key finding are Effectively predict and diagnosis of RA, Potential for early identification and diagnosis of arthritis, Exhibited higher precision of genetic algorithm, Effectively detects cartilage damage parameters in RA patients, Explored potential clinical references for diagnosis and prognosis of RA. **Conclusion:** The integration of AI with traditional herbal medicines for the treatment of RA represents a significant advancement in healthcare practices.

Key words: Rheumatoid arthritis, Artificial intelligence, Herbal medicines

IC-2026 SSCPS/DBT/42

Plant Biotechnology Strategies for Enhancing Antidepressant Potential of Medicinal Herbs

Ms. Manju patel and Dr. Rakesh Tirkey
University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur, Chhattisgarh

Abstract

Depression is a major global mental health disorder, and the limitations of conventional antidepressant drugs, including adverse effects and variable efficacy, have increased interest in plant-based therapeutics. Medicinal herbs possess a wide range of bioactive phytochemicals such as alkaloids, flavonoids, terpenoids, and phenolic compounds that exhibit antidepressant activity through modulation of neurotransmitters, neurotrophic factors, oxidative stress, and inflammatory pathways. However, low yield, variability in phytochemical content, and overexploitation of natural resources limit their therapeutic potential. Plant biotechnology offers innovative strategies to enhance the antidepressant potential of medicinal herbs by improving both the quality and quantity of bioactive compounds. Techniques such as plant tissue culture, cell suspension culture, hairy root culture, metabolic engineering, and elicitation have been successfully employed to increase the production of antidepressant-related secondary metabolites under controlled conditions. Additionally, genetic transformation and omics-based approaches facilitate the identification and regulation of key biosynthetic pathways involved in neuroactive compound synthesis. Integration of plant biotechnology with emerging tools such as artificial intelligence and bioinformatics further accelerates the screening, optimization, and standardization of herbal antidepressants. These sustainable and eco-friendly approaches not only ensure consistent phytochemical profiles but also reduce dependence on wild plant populations. Overall, plant biotechnology represents a promising platform for the development of safer, effective, and sustainable antidepressant agents from medicinal herbs.

Keywords: Plant biotechnology; Antidepressant activity; Medicinal, herb; Tissue culture; Sustainable drug development

IC-2026 SSCPS/DBT/43

Standardization of herbal drugs by DNA fingerprinting

Pushpendra Kumar, Dr. Vishal Jain
University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur, Chhattisgarh
Email: pushpendrakumar0311@gmail.com

Abstract: Herbal medicines constitute a vital component of global healthcare, particularly within traditional systems such as Ayurveda, Traditional Chinese Medicine, and Unani. Owing to their plant based origin, therapeutic efficacy, and comparatively fewer adverse effects, herbal drugs have gained widespread acceptance across the world. However, the growing commercial demand for herbal products has led to serious challenges, including adulteration, substitution, and misidentification of raw materials, which significantly compromise their quality, safety, and therapeutic reliability. Conventional identification methods based on morphology and phytochemical profiling often prove inadequate, especially for processed, powdered, or polyherbal formulations. In this context, DNA fingerprinting has emerged as a precise, robust, and scientifically validated tool for the authentication and standardization of herbal drugs. Advanced molecular techniques such as Random Amplified Polymorphic DNA (RAPD), Inter-Simple Sequence Repeats (ISSR), Amplified Fragment Length Polymorphism (AFLP), and DNA barcoding enable accurate species-level identification irrespective of environmental factors, growth stages, or processing conditions. This abstract highlights the role of these DNA-based approaches in revolutionizing herbal drug authentication and quality control. It also discusses representative case studies demonstrating their practical application, along with an evaluation of their advantages, limitations, and regulatory relevance in herbal drug standardization. Furthermore, the integration of DNA fingerprinting with artificial intelligence is emphasized as a promising future strategy for data analysis, pattern recognition, and predictive quality assessment. Overall, molecular authentication using DNA fingerprinting offers a cutting-edge solution to ensure the integrity, consistency, and global acceptance of phytopharmaceuticals, thereby enhancing consumer confidence and safety in the herbal medicine market.

Keywords: DNA fingerprinting, Herbal drugs, Phytoconstituents, Standardization, Conventional method etc.

IC-2026 SSCPS/DBT/44

Emerging herbal remedies for the management of hypertension

Pooja Thakur and Rakesh Tirkey
University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur, Chhattisgarh
Email: pt4998282@gmail.com

Abstract:
Hypertension is a critical health problem. There are mainly two types: Primary hypertension and secondary hypertension. Hypertension is the primary possibility feature for coronary heart disease, stroke and renal vascular disease. Herbal medicines have been used for millions of year for the treatment of hypertension with minimum side effects. 80% population of the world (around 5.6 billion people) consume medicines from natural plants for major health concerns. Medicinal plants are rich in bioactive phytochemicals such as flavonoids, alkaloids, polyphenols, tannins, terpenoids that have demonstrated blood pressure lowering effects through multiple mechanisms. These include ACE inhibition, Nitric oxide production; Calcium & Potassium channel modulation, Calcium channel blocking, Renin-Angiotensin system inhibition and modulation of other Biomarkers. Preclinical and clinical evidence indicates that extracts from herbs such as Moringa oleifera, Hibiscus sabdariffa (Roselle) & Saffron (Crocus sativus) etc. should have significant antihypertensive activity in different pharmacological screening. These herbs can play important role in the development of new antihypertensive agents.

Keywords: Moringa oleifera, Hibiscus sabdariffa, Crocus sativus, herbal medicine, antihypertensive, ACE inhibitor. Herbs.

IC-2026 SSCPS/DBT/45

Nano-Molecular Architectonics of Andrographis paniculata: Overcoming Bioavailability Barriers for Enhanced Therapeutic Efficacy

Aman Panda and Rakesh Tirkey
University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur, C.G., India.
Email: amanpanda850@gmail.com

Abstract - Andrographis paniculata and its principal bioactive, andrographolide, possess potent pharmacological potential, including anti-inflammatory (NF-κB inhibition) and antioxidant (Nrf2 activation) activities. However, its clinical translation is severely compromised by biopharmaceutical limitations, specifically Class-II BCS status, extensive hepatic first-pass metabolism, and rapid elimination.The present study aims to critically evaluate the role of novel nanotechnological interventions in circumventing the pharmacokinetic pitfalls of andrographolide and to elucidate the molecular mechanisms underlying its enhanced efficacy when nano-encapsulated. systematic data mining strategy was employed using Scopus, PubMed, and Web of Science databases. Studies focusing on lipid-based (liposomes, solid lipid nanoparticles) and polymeric (PLGA, chitosan) nano carriers of andrographolide were analyzed for encapsulation efficiency, pharmacokinetic parameters (Cmax, AUC), and in vivo therapeutic outcomes. The analysis reveals that lipid- based nanocarriers significantly enhance the oral bioavailability of andrographolide (5- to 20- fold increase) by promoting lymphatic transport and bypassing hepatic metabolism. Furthermore, surface functionalized nanoparticles demonstrated superior cellular uptake and targeted delivery to inflammatory and oncogenic sites compared to the crude extract. Nanotechnological formulations represent a transformative approach for Andrographis paniculata, effectively bridging the gap between traditional efficacy and modern bioavailability requirements. These findings support the development of standardized nano- phytopharmaceuticals for clinical use.

Keywords:-Andrographis paniculata, Nanotechnology, Bioavailability, Solid Lipid Nanoparticles, NF-κB.

IC-2026 SSCPS/DBT/46

"ARTIFICIAL INTELLIGENCE-ENABLED INNOVATIONS IN GREEN BIOTECHNOLOGY"

Namrata kujur and Rakesh Tirkey
University Institute of pharmacy, pt. Ravi Shankar Shukla University, Raipur Chhattisgarh
Email: kujurnamrata75@gmail.com

Abstract

Green biotechnology is focused on creating sustainable and eco-friendly solutions for agriculture, industry, and environmental conservation. The integration of artificial intelligence (AI) into this field is transforming the way researchers analyse data, optimize biological processes, and predict outcomes. AI-enabled tools help in rapid genomic analysis, precision crop improvement, disease prediction, and efficient bioprocess management. By combining AI with green biotechnology, we can not only accelerate research but also develop smarter, more sustainable solutions that minimize environmental impact. This approach offers promising opportunities for enhancing productivity, conserving resources, and supporting decision-making in eco-friendly innovations. The abstract highlights current applications, challenges, and the potential of AI to drive the next generation of green biotechnological advancements. AI Tools and Applications:-Machine Learning and Predictive Analytics are used for crop yield prediction and disease forecasting. Deep Learning and Computer Vision are applied in plant disease detection and image-based crop monitoring. Artificial Neural Networks support bioprocess and fermentation optimization. Bioinformatics Tools are utilized for genomic and proteomic data analysis. AI-based Decision Support Systems assist in sustainable resource and environmental management.

Keywords: Green Biotechnology; Artificial Intelligence; Machine Learning; Bioinformatics; Sustainable Development; Predictive Analytics

IC-2026 SSCPS/DBT/47

Preclinical Evaluation of Hypoglycemic Activity of Herbs via Different Pharmacological Model

Rahul Sahu & Rakesh Tirkey
University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur.
Email: rahulrajsahu708963@gmail.com

Abstract - Diabetes mellitus (DM) is a chronic metabolic disorder characterized by persistent hyperglycemia that results from impaired insulin secretion, insulin action, or both. This disturbance affects carbohydrate, lipid, and protein metabolism, thus leading to a progressive metabolic dysfunction. The global prevalence of diabetes has risen sharply, increasing from around 200 million cases in 1990 to nearly 830 million in 2022, with an estimated 14% of adults aged 18 years or more living with the disease. The several experimental evidence showed that Olea europaea L., M. oleifera leaves, V. amygdalina leaves, and C. asiatica have shown their effect on treatment of diabetes mellitus. Herb such as Olea europaea L., Moringa oleifera, Vernonia amygdalina and Centella asiatica have been evaluated for their antidiabetic activity via different screening methods such as streptozotocin-induced diabetic mice, alloxan-induced diabetic mice, Oral glucose tolerance test (OGTT) in mice, fructose-induced diabetic wistar rats, which shows remarkable effect by reducing thr blood glucose level. The effects of the extracts and bioactive compounds from Olea europaea L., Moringa oleifera, Vernonia amygdalina and Centella asiatica in antidiabetic direction may have synergistic effects that contribute significantly to the antihyperglycemic effect by improving insulin resistance, inhibiting weight gain, inhibiting intestinal glucose absorption, increase in peripheral uptake of glucose, increase in insulin sensitivity. This finding lays the foundation for further studies to validate efficacy in larger cohorts and explore its long-term safety profile.

Keywords: Hyperglycemia, Anti-diabetic, Plant extract, Oral Glucose Tolerance Test.

IC-2026 SSCPS/DBT/48

ROLE OF MILLETS IN MANAGEMENT OF DIABETES MILLITUS

Amrita Singh & Rakesh Tirkey
University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur, Chhattisgarh.
Email: amritasinghjagte@gmail.com

ABSTRACT

Diabetes Mellitus (DM) is a metabolic disorder it characterized by hyperglycemia glycosuria, hyperlipidaemia, negative nitrogen balance sometime ketonaemia. Diabetes is a major health problem and it is the fastest growing global disease in the 21st century which is reached alarming levels. To manage the effects of diabetes, a healthy diet and a healthy lifestyle are essential. For a diabetic patient, a balanced and nutritious diet rich in complex carbohydrates, high protein, unsaturated fats, minerals, and vitamins is crucial, according to individual needs. Recent studies have found that millets are extremely beneficial for diabetic patients and are an excellent option for a good diet. Millets are widely grown crops in Asia and Africa.it is great for diabetic patients because it gluten-free, low in fat, and high in nutrition. it is good for everyone because it contains polyphenols, phytochemicals, protein, fiber, and minerals. they also have some anti-diabetic properties which help in controlling blood sugar. The high fiber and glycemic index found in them make them great for managing diabetes and for overall health. Millets are minor cereals crops belonging to the poaceae family and are drought resistant and can survive various climatic conditions. Millets like kodo, kutaki, Ragi,Kangani,Jawar ,Bajara, Samwa, Kosraare, mainly find in Chhattisgarh. Millets are a rich source of phytochemicals with medicinal properties in the form of antioxidant activities, which helps lower many health diseases.

KYEWORD - Diabetes Mellitus, millets, diet, nutrition, health benefits of millets

IC-2026 SSCPS/DBT/49

ROLE OF CINCHONA IN MANAGEMENT OF MALARIA

Punam Singh & Rakesh Tirkey
University Institute of Pharmacy, Pt. Ravishankar Shukla Univeristy, Raipur, Chhattisgarh
E-mail: punamsinghxyz@gmail.com

ABSTRACT

Malaria is a mosquito-borne infectious disease of humans and other animals caused by protists (a type of microorganism) of the genus Plasmodium. It begins with a bite from an infected female mosquito, which introduces the protists via its saliva into the circulatory system, and ultimately to the liver where they mature and reproduce. The disease causes symptoms that typically include fever and headache, which in severe cases can progress to coma or death. Malaria is widespread in tropical and subtropical regions in a broad band around the equator, including much of Sub-Saharan Africa, Asia, and the Americas. The term malaria originates from Medieval Italian: mala aria —bad air the disease was formerly called ague or marsh fever due to its association with swamps and marshland. Malaria was once common in most of Europe and North America, where it is no longer endemic, though imported cases do occur. Other Plasmodium species cause infections in certain animals. Several mammals, birds and reptiles have their own form of malaria. Cinchona bark yields quinine, the original malaria drug, used for centuries and still vital for drug-resistant malaria, though often combined with antibiotics like azithromycin due to side effects and resistance. It works by targeting the malaria parasite & blood stage, particularly Plasmodium falciparum, and is an essential medicine. Other related compounds, like quinidine, also possess antimalarial properties. The Cinchona plant is found primarily in the high forests of the Andes Mountains of South America (Peru, Ecuador, Colombia)

KYEWORD - Malaria Cinchona preventing malaria involves main strategies.

IC-2026 SSCPS/DBT/50

ATHEROSCLEROTIC POTENIAL OF QUINOA (CHENOPODIUM QUINOA WILD): CLINICAL STUDIES INSIGHT

Tripti Thakur and Rakesh Tirkey
University Institute of Pharmacy Pandit Ravishankar Shukla University, Raipur, (C.G.)
Email: thakurtripti004@gmail.com

Abstract:

Cardiovascular diseases (CVDs) continue to be the predominant cause of mortality globally, emphasizing the importance of effective dietary strategies for prevention. An expanding body of scientific evidence indicates that plant-derived functional foods confer significant cardiovascular benefits. Quinoa (Chenopodium quinoa Willd.), a pseudo-cereal originating from the Andean region, has attained worldwide recognition as a functional and nutraceutical food due to its exceptional nutritional profile and gluten-free nature.Substantial experimental, preclinical, and emerging clinical evidence demonstrates the cardioprotectivepotential of quinoa. Outcomes from antioxidant studies, in-vivo models of hyperlipidemia and hypertension, and human dietary interventions demonstrate significant modulation of lipid profiles, characterized by reductions in total cholesterol, low-density lipoprotein (LDL), and triglycerides, alongside elevation of high-density lipoprotein (HDL). Additionally, in-vivo investigations report decreased oxidative stress and inflammatory responses, improved endothelial function, and enhanced regulation of blood glucose and blood pressure. These cardioprotective effects are largely attributed to bioactive compounds such as polyphenols, flavonoids, dietary fiber, unsaturated fatty acids, and essential minerals.Collectively, current experimental and clinical findings support quinoa as a promising cardioprotective functional food, although further large-scale clinical studies are required to validate its efficacy and transitional relevance.

Keywords: Quinoa, Cardiovascular disease, Antioxidants, Lipid profile, Functional food

IC-2026 SSCPS/DBT/51

PHYTOCHEMICALS IN CANCER THERAPY: MECHANISM, CHALLENGES AND PROGRESS IN PERSONALIZED TREATMENT

Rakesh Kumar Borkar and Rakesh Tirkey
University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur (C.G.)
Email: rakesh_borkar@zohomail.in

Abstract: Cancer is the second leading cause of death worldwide. Although great advancements have been made in the treatment and control of cancer progression, significant deficiencies and room for improvement remain. Several undesired side effects sometimes occur during chemotherapy. Natural therapies, such as the use of phytochemicals in cancer treatment, may reduce adverse side effects. Currently, a few plant products are being used to treat cancer. However, a myriad of plant products exist that have shown very promising anti-cancer properties. Some of them are 5-Fluorouracil, Paclitaxel, Docetaxel, Camptothecin, Resveratrol, Curcumin and Quercetin. They are extracted from their source plants' various parts and work as anticancer agents through various mechanisms of action, as disrupting DNA synthesis, disrupting microtubule formation, stabilising microtubules, and modulating NF-κB, STAT3, and p53. They are tested for anti-cancer activity through cancer cell lines and shown significant anti-cancer activity. Thus, these compounds can be used in anticancer therapies. Phytochemicals have immense potential as anti-cancer agents. Advancing research on phytoconstituents depends on tackling major hurdles such as improving methods for isolating, identifying, and characterizing these compounds; solving issues of poor bioavailability and formulation; ensuring rigorous safety testing and regulatory approval; and establishing consistent standards and scalable production. Therefore, future research efforts in this area need to include greater clinical collaboration, advancement in extraction and characterization techniques, and integration with emerging technologies such as AI tools and computational approaches, leading to more personalized treatment.

Key words: Anti-cancer, cancer, phytochemicals, chemotherapy, personalized treatment, Ai, computational approaches.

IC-2026 SSCPS/DBT/52

Role of Phytochemicals in Managing Depression: Mechanism, Therapeutic Potential and Future Prospective

Durgeshwari Sahu and Rakesh Tirkey
University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur, Chhattisgarh
Email: durgeshwaris630@gmail.com

Abstract

Depression is a debilitating mood disorder characterized by persistent sadness, anhedonia, pessimism, reduced activity, and feelings of inadequacy, which severely impair quality of life and may lead to suicidal behaviour. Globally, more than 300 million people are affected by depression, and its prevalence continues to increase. Although several conventional antidepressant drugs are available, their clinical use is often limited by adverse effects and drug interactions, prompting the search for safer and more effective alternatives recent years, plant-derived phytochemicals have gained attention as potential antidepressant agents due to their multi-target actions and better safety profiles. Phytochemicals such as curcumin, berberine, harmine, resveratrol, quercetin, ginsenosides, with anolides, honokiol, hyperforin, bacosides, and naringenin have shown promising antidepressant-like effects through multiple mechanisms. These include inhibition of monoamine oxidase (MAO), enhancement of brainderived neurotrophic factor (BDNF), suppression of neuroinflammation via NF-κB modulation, regulation of monoaminergic neurotransmitters (5-HT, dopamine, and norepinephrine), and normalization of the hypothalamic–pituitary–adrenal (HPA) axis. Their efficacy has been demonstrated in established preclinical models such as chronic unpredictable mild stress, forced swim test, tail suspension test, and LPS-induced depression.Their efficacy has been demonstrated in established preclinical models such as chronic unpredictable mild stress, forced swim test, tail suspension test, and LPS-induced depression.Overall, phytochemicals represent a scientifically supported, multi-target, and patientfriendly approach for the management of depression, with future research focusing on improving bioavailability and validating clinical efficacy.

Keywords: Depression, phytochemicals, BDNF, HPA axis, preclinical models.

IC-2026 SSCPS/DBT/53

Role of phytochemicals in suppression of clinical science of epilepsy

Ketan Chauhan and Rakesh Tirkey
University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur
Email: Kc500295@gmail.com

Abstract: Epilepsy is a common and frequently devastating disorder affecting millions of people. According to a recent survey, 1-2% of the Indian population suffers from major mental disorders and 5% suffers from minor mental disorders. Epilepsy is among those mental disorders that affect 30 million people worldwide. Currently, the treatment of epilepsy involves agents which modulate sodium-ion channels, enhance GABAergic transmission, and agents with multiple modes of action. The anti-epileptic potential of the bioactive fractions of extract through pharmacological screening. The phytoconsituents compounds such as anonaine, piperine, lobelin, berberine, phytol and many others its have antiseizures activity . The anti-epileptic potential of the bioactive fractions of phytoconstiuents extract through pharmacological screening. Various complex plant extracts and secondary metabolites of phytochemicals form the basis of these explorations for the discovery and development of targeted anti-epileptic drugs. Accordingly, phytochemicals constitute the basis for the detection and improvement of targeted anti-epileptic drugs. Phytoconstituent showed its antiepileptic activity by affecting the brain's antioxidant, anti-inflammatory, and anti-apoptotic activity. It also, by modulating brain-derived neurotrophic factor (BDNF) and gamma-aminobutyric acid (GABA)ergic activity, can control seizures. In addition, all phytocontituents can help treat seizures and epilepsy by elevating 5-HT levels in the brain, modulating astrocyte and microglia function, modulatory effects on Ca 2+ and NA + channels, increasing antiepileptic drugs bioavailability and influencing protein and gene expression

Keywords: Seizure, Epilepsy, GABAergic activity, phytoconstituent

IC-2026 SSCPS/DBT/54

ANTI-INFLAMMATORY AND ANTIMICRIBIAL ACTIVITY OF SILVER NANOPARTICLES GREEN-SYNTHESIZED USING EXTRACTS OF DIFFERENT PLANTS

Rishika Rajak and Rakesh Tirkey
University institute of pharmacy, PT Ravishankar Shukla university, Raipur, (C.G.)
Email: rishikarajak69@gmail.com

ABSTRACT

The green plant-mediated synthesis of silver nanoparticles (NPs) has been increasingly popular due to its eco-friendliness, availability, cost-effectiveness, and the fact that it can be safely handled and possesses a broad variability of metabolites, such as anti-oxidant and antimicrobial activities. An easy, efficient, economical, and eco-friendly green biosynthesis method was utilized to synthesize silver nanoparticles (AgNPs) using the extracts of five plants: Ginkgo biloba, Cichorium Intybus, Adiantum Capillus-Veneris, Ficus carica and Rosmarinus Officinalis. The synthesis of AgNP was confirmed by using a uv-vis spectrometer, which showed distinct surface plasmon resonance (SPR) bands. The surface of AgNPs was characterized using scanning electron microscopy and Fourier transform infrared spectroscopy. The anti-inflammatory activity of Tenoxicam/Meloxicam-loaded AgNPs has been studied using the inhibition of albumin denaturation method. Tenoxicamloaded AgNPs showed higher % Inhibition, but Meloxicam-loaded AgNP showed lower % Inhibition. Furthermore, the AgNPs showed excellent antimicrobial activity on both Gram-negative and Gram positive bacteria.

Keywords: Ginkgo biloba; Cichorium intybus; Adiantum capillus-veneris; Rosmarinus officinalis; Ficus carica; anti-inflammatory and antimicrobial activities.

IC-2026 SSCPS/DBT/55

Herbal Inhibitors for Platelet Aggregation

Kushal Singh Baghel and Rakesh Tirkey
University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur.
Email: kushalbaghel128@gmail.com

Abstract: Thrombosis is one of the leading pathological causes of morbidity and mortality in a wide range of cardiovascular diseases. Thrombus formation is initiated by the adhesion of circulating platelets to the damaged blood vessel walls. Vasoocclusive events are a major cause of death and involve serious vascular diseases such as unstable angina, ischemic stroke, and myocardial infarction. Blood platelets play an essential role in the hemostasis and wound-healing processes. In this sense, the search for potent and safer antiplatelet agents is of great interest. medicinal plants with antiplatelet activity mainly belong to the family of Asteraceae, Rutaceae, Fabaceae, Lamiaceae, Zygophyllaceae, Rhamnaceae, Liliaceae, and Zingiberaceae which have antiplatelet activity, some plants include saffron, garlic, green tea, ginger, ginkgo biloba, ginseng, and guavirova. These herbal medicines have phytochemical components. These constituents inhibit platelet aggregation through multiple mechanisms such as suppression of thromboxane A2 synthesis, inhibition of cyclooxygenase [COX], modulation of intracellular calcium levels, blockade of ADP or collagen of induced platelet activation, and enhancement of nitric oxide and prostacyclin pathways. preclinical and limited clinical studies suggest that herbal extract may offer cardioprotective benefits with fewer side effects compared to conventional drugs. So safety and clinical efficacy is required to establish herbal extracts as reliable antiplatelets therapeutics. This shows that various herbal extracts possess significant antiplatelet activity and may play a beneficial role in prevention and management of cardiovascular disorders. overall, herbal extracts represent a promising natural source for the development of novel and safer antiplatelet therapies.

IC-2026 SSCPS/DBT/56

AI-Enabled Green Biotechnological Discovery of Antidiabetic Phytomolecules from Medicinal Plants

Derhu
Department of Pharmacy, Guru Ghasidas Vishwavidyalaya, Koni, Bilaspur, C.G. 495009, India
Email: djangde37@gmail.com

Abstract: The escalating global prevalence of diabetes mellitus (T2DM) demands innovative, sustainable, and multi-targeted therapeutic strategies beyond conventional single-molecule drugs. Medicinal plants offer a rich source of structurally diverse bioactive compounds capable of modulating oxidative stress, insulin resistance, and pancreatic β-cell dysfunction, yet their translation into standardized therapeutics is limited by inefficient extraction, complex phytochemical matrices, and empirical compound selection. In the present study, an integrated green biotechnology and artificial intelligence (AI) framework was developed to rationally identify antidiabetic phytomolecules from sequentially extracted medicinal plants. Plant materials were subjected to environmentally responsible sequential extraction using petroleum ether, ethyl acetate, ethanol, and aqueous solvents to maximize chemical diversity while minimizing ecological burden. The resulting fractions were systematically profiled through total phenolic, flavonoid, and tannin content, coupled with multiple antioxidant and carbonyl stress–linked bioassays relevant to diabetic pathology. Advanced AI-based chemometric modeling and machine-learning clustering were employed to correlate extraction polarity, phytochemical fingerprints, and biological performance, enabling objective prioritization of bioactive fractions. Ethyl acetate–derived extracts consistently exhibited superior polyphenolic enrichment and antioxidant-linked antidiabetic potential, indicating selective recovery of semi-polar phytoconstituents with insulin sensitizing and cytoprotective properties. AI-driven pattern recognition revealed non-linear phytochemical–bioactivity relationships that are not captured by conventional statistical methods, thereby improving hit identification and reducing experimental redundancy. This green, data-driven discovery pipeline provides a scalable and sustainable strategy for accelerating phytopharmaceutical development and offers a translational pathway for identifying multi-targeted plant-derived therapeutics capable of addressing the complex molecular landscape of diabetes.

Keywords: Green biotechnology, artificial intelligence, medicinal plants, phytochemical profiling, antidiabetic drug discovery, oxidative stress, sequential extraction

IC-2026 SSCPS/DBT/57

Design, synthesis and biological evaluation of naphthalene-pyrazoline derivatives as neuroprotective agents for Alzheimer's disease

Pitam Ghosh*, Vivek Asati
Department of Pharmaceutical Chemistry, ISF College of Pharmacy, Moga, 142001, Punjab, India
Email: ghoshpitam712611@gmail.com

Abstract
Alzheimer's disease (AD) is a progressive neurological disorder that leads to memory loss and cognitive deterioration, primarily affecting the elderly population. The current therapeutic approaches are insufficient and primarily focus on alternative symptoms rather than disease modification. Acetylcholinesterase (AChE) inhibitors are a class of drugs that have shown promise in alleviating the cognitive symptoms of AD by preventing the breakdown of acetylcholine, thereby enhancing cholinergic transmission. This study presents the design, synthesis, and assessment of ten novel naphthalene-pyrazoline derivatives as AChE inhibitors. Each compound was synthesized using a rational drug design approach, targeting key structural features necessary for effective AChE inhibition. The inhibitory activities of the synthesized compounds were assessed by in vitro study where out of all compounds AJ-a showed potency with IC 50 value of 56.15 ± 1.84 μM. The in vivo studies were also performed using zebrafish model, behavior parameters such as T-maze and Novel diving test. Molecular docking studies were performed to analyse the binding interactions between the inhibitors and the active site of AChE. The docking results provided insights into the key binding interactions and conformations contributing to the inhibitory activity. Compound AJ-a had the docking score of − 12.436 kcal/mol. These results highlight the potential of the novel compounds as promising candidates for further development in the treatment of AD.

Keywords: Alzheimer's disease, Naphthalene-pyrazoline derivatives, MTT assay, Molecular docking, 4EY7.

IC-2026 SSCPS/DBT/58

AI-Enabled Green Nanophytotechnology: Phytosomal Delivery of Plant-Based Anti Inflammatories for Precision Inflammation Management

Milan Chauhan, Anjna Rani *, Rupa Mazumder
Noida Institute of Engineering and Technology (Pharmacy Institute), 19 Knowledge Park-II, Greater Noida, 201306, Uttar Pradesh, India
Email: milanchauhan701@gmail.com

Abstract: Inflammation is responsible for the pathogenesis of both acute and chronic conditions such as arthritis, dermatitis, inflammatory bowel disease, and neurodegenerative disorders, while the available treatment options like NSAIDs, steroids and biologics, are often limited by their poor bioavailability, cytotoxicity and lack of targeted delivery. Natural plant molecules, such as flavonoids, polyphenols and terpenoids have shown immense potential in inhibiting inflammation and oxidation, but their use is limited due to low aqueous solubility, poor cell membrane permeability and fast metabolism. The development of phytosomes, an innovative type of phospholipid-based vesicles provides an eco-friendly biotechnological tool to improve the bioavailability and pharmacological profiles of plant extracts utilizing plant material. Highlight the potential of phytosomes as an eco friendly nanophytotechnological tool in the management of inflammatory conditions, focusing on their role in modulating NF-κB, MAPK & JAK/STAT signaling pathways, inflammation, oxidative stress and cytokine expression. The integration of artificial intelligence and machine learning facilitates designing and optimizing phytosomal formulations using in-silico analysis methods, prediction of phospholipid interactions with the drug, process optimization using machine learning algorithms and pharmacokinetic modeling. Emerging AI-guided, smart and stimuli-responsive phytosomal systems further align green biotechnology with precision medicine, positioning phytosomes as an environmentally conscious and intelligent platform for next-generation inflammatory disorder management.

Keywords: Inflammation; Phytosomes; Flavonoids; Polyphenols; Anti-inflammatory therapy; Artificial intelligence; Machine learning; Stimuli-responsive systems; Personalized medicine.

IC-2026 SSCPS/DBT/59

AI-Driven Precision Targeting in Ulcerative Colitis: Integrating Multi-Omics and Digital Biomarkers for Next-Generation Therapeutics

Mohit sharma[1], Rupa Mazumder, Abhijit Debnath
[1]Noida Institute of Engineering and Technology (Pharmacy Institute), 19 Knowledge Park-II, Greater Noida, 201306, Uttar Pradesh, India
Email: mohitsharma010052@gmail.com

Abstract: The pathogenesis of UC encompasses dysregulated immune networks, epithelial barrier defects, and microbiome dysbiosis-all reflecting intricate interactions that necessitate precision medicine strategies. In this review, complemented by AI and systems biology perspectives, the authors critically assess current and emerging targeted UC therapies via a computational framework. The authors examine how ML models interpret transcriptomic signatures to predict anti-TNF resistance-notably, the emerging pathways in extracellular matrix dysregulation and neutrophil degranulation-and provide two distinct molecular subtypes with implications for biomarker-driven therapy selection. AI-driven target discovery is accelerating novel modalities; selective TYK2 inhibitors (deucravacitinib), PDE4 modulators (apremilast), and TLR9 agonists (cobitolimod) are refined by means of in silico binding affinity simulations and digital twin patient modeling. Notably, green biotechnology enables sustainable production of biologics-for example, vedolizumab and ustekinumab-via microbial engineering platforms, reducing environmental footprints. The authors further discuss how federated learning across global UC datasets is revealing microbiome-immune crosstalk targets, whereas AI-powered clinical trial simulators shorten drug development timelines. Looking ahead, the management of UC is poised to incorporate AI-guided combination therapies, real-time digital biomarkers leveraging wearables, and eco-conscious biomanufacturing, furthering a closed-loop framework for personalized and sustainable IBD care.

Keywords: Ulcerative colitis (UC), Pathogenesis, Artificial intelligence (AI), Targeted therapies, Biomarker-driven therapy, Green biotechnology.

IC-2026 SSCPS/DBT/60

Cellulase based enzymatic pretreatment to enhance essential oil yield: the case of clove essential oil (Syzygium aromaticum)

Vivekanand Yadav, Vivekananda Mandal
Green extraction of botanical group, Department of Pharmacy, Guru Ghasidas Viswavidyalaya, Bilaspur (C.G) 495009 India
Email: viveka1844@gmail.com

Abstract; The current work describes a simple pretreatment process through which the yield of essential oil obtained from hydrodistillation can be improved with significant reduction in operational time as well. Enzymatic pretreatment was performed by exposing the clove buds to four different concentration (2.5,5,10,20 mg) of a cell wall degrading enzyme cellulase. The period of contact between the biomass and enzymatic solution is known as incubation time which was 40 minutes in this particular research. Post incubation, hydrodistillation was carried out for 90 minutes which was half of the time for normal hydrodistillation (Non pretreated control). The essential oil collected under different enzymatic concentration was evaluated for eugenol content using HPTLC. Results indicated that 2.5 mg concentration of cellulase enzyme, increased essential oil yield by 51% when compared to non-pretreatment control (hydrodistillation). Further investigations are in progress for complete evaluation of the oil quality and identification of individual volatile principles. Sample for aroma profiling using GC-MS has been dispatched and the results are waited. Valorization opportunity available with the left over biomass is also being explored. The work portrays a simple innovative approach which can be great benefit to farmers and small scale distillation unit.

IC-2026 SSCPS/DBT/61

Review of Anti-inflammatory herbal medicines

Anurima Singh
Rungta International Skill University
Email: anurimasingh1998@gmail.com

Background: According to WHO Herbal medicines include herbs, herbal materials, herbal preparations and finished herbal products that contain as active ingredients parts of plants or other plant materials, or combination. In nature, there is enormous variety of herbs, having medicinal properties and are used to prepare. The herbal medicines. Medicinal plants and their secondary metabolites are progressively used in the treatment of diseases as a complementary medicine. Inflammation is a pathologic condition that includes a wide range of diseases such as rheumatic and immune-mediated conditions, diabetes, cardiovascular accident, and etcetera. We introduce some herbs which their anti-inflammatory effects have been evaluated in clinical and experimental studies. Curcuma longa, *Zingiber officinale, Rosmarinus officinalis, Borago officinalis,* evening primrose, and Devil's claw are some of the introduced medicinal herbs in this review. Since the treatment of inflammation is not a one-dimensional remedy, this review tries to reach a multidimensional therapeutic approach to inflammation with the help of herbal medicine and modification in lifestyle.

Keywords- Herbal plants, Anti-inflammation, Pharmacological action, Pathophysiology

IC-2026 SSCPS/DBT/62

FABRICATION OF BRAIN-TARGETED PRUSSIAN BLUE NANOZYMES LOADED WITH BAICALIN FOR EGFR-TARGETED THERAPY AGAINST GLIOBLASTOMA

Chittathur Midhun Krishna
Noida institute of engineering and technology (Pharmacy institute), Greater Noida
Email: midquixote@gmail.com

Abstract: Glioblastoma (GBM) is an aggressive brain cancer with a median survival time of less than 15 months. Prussian blue nanozymes (PBNs) exhibit intrinsic peroxidase-mimicking activity for reactive oxygen species (ROS) modulation in tumor microenvironment. Baicalin, a bioactive phytoconstituent, offers anti-inflammatory and anti-cancer properties, but suffers from poor bioavailability. The primary obstruction to GBM treatments are limited by blood-brain barrier (BBB) impermeability, EGFR overexpression causing increased resistance, and oxidative stress promoting tumor survival. Free baicalin suffers from inadequate penetration to the brain (<5% BBB crossing) and rapid clearance, requiring targeted nanocarriers for effective delivery. We developed EGFR targeted PBNs loaded with baicalin (EGFR-PBN-Baicalin) through co-precipitation synthesis, emulsion-based encapsulation, and PEGylation for transfer across the BBB. These nanozymes enable receptor-mediated uptake in EGFR-overexpressing U87MG GBM cells, pH- responsive baicalin release, and ROS-scavenging to disrupt tumor progression. EGFR-PBN-Baicalin nanozymes provide a theranostic platform merging nanozyme catalysis, phytoconstituent delivery, and EGFR targeting for GBM. Future directions include in vivo validation, combination with concomitant immunotherapy, and clinical scaling for precision brain cancer management.

IC-2026 SSCPS/DBT/63

Reverse Phase HPLC as a Reliable Tool for Separation and Quantitative Analysis of Complex Samples

Gulam Jilanee & Rakesh Tirkey
University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur.
Email: gulamjilanee17@gmail.com

Abstract: Reverse phase high-performance liquid chromatography serves as a powerful and versatile analytical separation technique extensively employed in pharmaceutical, chemical, food, and biomedical analysis. Technique operates on the principle of hydrophobic interactions between analytes and a non polar stationary phase, most commonly silica bonded with C18 or C8 alkyl chains, while a relatively polar mobile phase consisting of water and organic modifiers such as methanol or acetonitrile flows through the system. Retention behavior depends on analyte polarity, molecular structure, and mobile phase composition, allowing effective separation of compounds with varying physicochemical properties. Method development in reverse phase HPLC involves careful optimization of critical parameters including mobile phase ratio, pH, buffer strength, flow rate, column temperature, and detector wavelength. Adjustment of these variables enhances resolution, peak symmetry, sensitivity, and analysis time. Compatibility with multiple detection systems such as ultraviolet, fluorescence, and mass spectrometry significantly broadens analytical scope, enabling trace-level detection and structural characterization of analytes. RP-HPLC plays a vital role in the characterization and standardization of complex phytochemicals such as flavonoids, alkaloids, phenolic acids, glycosides and terpenoids by providing high resolution, sensitivity, reproducibility and selectivity. RP-HPLC is commonly applied for the quantification of catechins in Camellia sinensis quercetin and kaempeferol in Ginkgo biloba, and curcumin in Curcuma longa. Rutin from Ruta graveolens, luteolin from Ocimum sanctum, apigenin from Matricaria chamomilla, myricetin from Psidium guajava. Catechins in Camellia sinensis are determined by extracting powdered tea leaves with 70% methanol, filtering the extract, and analyzing it by RP-HPLC using a C18 column with a mobile phase of water containing 0.1% acid and acetonitrile at a flow rate of about 1.0 mL/min..Detection is carried out at 278 nm using a UV detector, and quantification of EGC, EC and ECG is done by comparing sample peak areas with those of standard catechin solutions.

Keywords: Reverse Phase HPLC, High-Performance Liquid Chromatography, Method Development, Pharmaceutical Analysis, Analytical Method Validation, Quality Control.

IC-2026 SSCPS/DBT/64

FORMULATION AND CHARATERISATION OF POLYMERIC PARTICLE LOADED GEL

Prashant Kushwaha*, Ms. Neha Mandle,
Shri Shankaracharya College of Pharmaceutical Sciences, Junwani, Bhilai, C.G.
Email: prashantkush136@gmail.com

Abstract: Inflammation plays a critical role in the progression of various acute and chronic disorders, necessitating effective and sustained therapeutic approaches. Oryzanol, a bioactive phytoconstituent derived from rice bran oil, exhibits significant anti-inflammatory and antioxidant activities; however, its therapeutic application is limited due to poor aqueous solubility, low bioavailability, and instability. The present study aims to formulate and characterise a polymeric particle-loaded gel containing Oryzanol to enhance its topical delivery and therapeutic efficacy. Oryzanol-loaded polymeric particles were prepared using a suitable polymeric carrier system and optimized formulation technique. The prepared particles were to evaluate particle size, polydispersity index, zeta potential, surface morphology, drug entrapment efficiency. The optimized polymeric particles were incorporated into a topical gel base to develop a polymeric particle-loaded gel formulation. Physicochemical properties including pH, viscosity, spreadability, homogeneity, and drug content uniformity. The polymeric particle-loaded gel exhibited satisfactory physicochemical characteristics, enhanced drug encapsulation, controlled and sustained drug release, and improved stability compared to conventional formulations, demonstrating its suitability for topical delivery. The controlled release behavior of Oryzanol from the polymeric carrier system supports prolonged anti-inflammatory action and reduced dosing frequency. This novel formulation approach highlights the potential of polymeric particle-loaded gel systems as an effective strategy for the topical delivery of poorly soluble phytoconstituents and may serve as a platform for future development of advanced dermal drug delivery systems.

IC-2026 SSCPS/DBT/65

A Comparative Survey Report on Impact of Hyperthyroidism Treatment

Harsh Sahu*, Mr. Akash Dewangan
Shri Shankaracharya College of Pharmaceutical Sciences, Bhilai, C.G.
Email: hsahu8065@gmail.com

Abstract: Hyperthyroidism is a common endocrine disorder characterized by excessive production and secretion of thyroid hormones, leading to a hypermetabolic state with multisystem involvement. It significantly affects metabolic, cardiovascular, neurological, and psychological functions and poses a growing public health concern in India. Despite the availability of effective diagnostic methods and treatment options, variations in treatment response, patient adherence, adverse effects, and quality-of-life outcomes remain major challenges. The present study was conducted as a hospital-based comparative survey to evaluate the impact of different treatment modalities on patients diagnosed with hyperthyroidism. This study aimed to assess demographic characteristics, clinical manifestations, biochemical improvement, treatment patterns, patient satisfaction, and perceived quality of life among hyperthyroidism patients receiving antithyroid drugs, radioactive iodine therapy, or surgical management. A structured questionnaire was designed to collect socio-demographic data, clinical profiles, treatment details, adverse effects, follow-up practices, and patient awareness. Comparative assessment was carried out based on symptom relief, improvement in thyroid function tests, treatment adherence, and overall patient satisfaction.

Keywords: Hyperthyroidism, Antithyroid Drugs, Radioactive Iodine Therapy, Treatment Outcomes, Quality of Life, Patient Satisfaction.

IC-2026 SSCPS/DBT/66

A Clinical View on the Safety and Effectiveness of Herbal vs. Allopathic Treatments for Acne Vulgaris

Purvi Sharma
Shri Shankaracharya College of Pharmaceutical Sciences, Bhilai, C.G
Email: sharmapurvi1903@gmail.com

Abstract

Background: Acne Vulgaris (AV) is a significant chronic skin condition affecting approximately 80% to 85% of teenagers and young adults globally. It is primarily caused by excessive sebum production, abnormal follicular keratinization, skin microbiome imbalances, and the overgrowth of the bacteria Cutibacterium acnes (C. acnes). Comparative Analysis: Allopathic Treatments: Conventional therapies include topical and systemic drugs such as antibiotics (e.g., Doxycycline), retinoids, and hormonal therapies. While these treatments offer immediate relief and target specific pathogens effectively, they are often associated with various side effects and the rising global concern of bacterial resistance.

Herbal Treatments: Natural remedies utilize herbs like Neem, Turmeric, Manjistha, Sandalwood, and Aloe Vera. These treatments provide a holistic approach, focusing on addressing the root cause of acne with fewer adverse effects, lower costs, and potential long-term skin health benefits.

Keywords:- Acne Vulgaris, Herbal Pharmacotherapy, Allopathic Medicine, Sebum Hypersecretion

IC-2026 SSCPS/DBT/67

Design, Synthesis and Characterization of New Coumarin Derivatives and Evaluation of Antimicrobial Activity

Priyanka Dewangan, Anil Sahu
Shri Rawatpra Sarkar Institute of Pharmacy, Kumhari, (C.G.) India
Email: priu.dewangan@gmail.com

Abstract
The swift rise of resistance among bacteria and fungi to current antimicrobial treatments has become a significant global issue, underscoring the pressing need for new and more effective therapeutic options. This study involved the synthesis and comprehensive characterization of a novel series of coumarin hydrazone derivatives, utilizing ^{1}H NMR, ^{13}C NMR, and LC/MS spectral analyses. These compounds were assessed for drug-likeness and pharmacokinetic properties based on Lipinski's Rule of Five, and their structural similarity was evaluated using the PubChem and CAS Sci Finder databases. In silico predictions revealed that all synthesized coumarin derivatives had favourable drug-likeness scores, adhered to Lipinski's criteria, and showed promising oral bioavailability. The antimicrobial properties of the synthesized compounds were tested using the agar well diffusion method against Gram-positive (Staphylococcus aureus), Gram-negative (Escherichia coli), and fungal (Aspergillus niger) strains. Among the derivatives tested, compounds 6C-1 and 6C-4 demonstrated the strongest antibacterial activity against E. coli and S. aureus, with inhibition zones measuring 0.8–1.0 cm and 0.3–0.5 cm, respectively. Notably, compound 6C-1 also showed significant antifungal activity against A. niger, with a 0.5 cm inhibition zone. These results indicate that the synthesized coumarin derivatives have promising antimicrobial potential and could be used as lead scaffolds for developing new therapeutic agents effective against resistant microbial strains.
Keywords- Resistance, Hydrazone, PubChem, CAS Sci Finder, Scaffolds

IC-2026 SSCPS/DBT/68

Development and Evaluation of Pulsatile Drug Delivery System for Antiarthritic Drug

Neelam Nain*, Dr. Suman Shrivastava
Shri Shankaracharya Professional University Junwani Bhilai (C.G)
Email: neelamnainberla@gmail.com

ABSTRACT
Arthritic disorders such as rheumatoid arthritis and osteoarthritis are chronic inflammatory conditions associated with pain, swelling, and morning stiffness, which follow a distinct circadian rhythm. Symptoms are generally more severe during the early morning hours due to increased inflammatory mediator activity. Conventional oral drug delivery systems are unable to synchronize drug release with this biological rhythm, often resulting in suboptimal therapeutic outcomes and increased dosing frequency. To overcome these limitations, the present study aims to develop and evaluate a pulsatile drug delivery system (PDDS) for an antiarthritic drug. The pulsatile formulation was designed to release the drug after a predetermined lag time followed by a rapid and complete drug release, thereby targeting early morning arthritic flare-ups. Suitable polymers were selected to achieve time-controlled release, and different formulation strategies such as press-coated and capsule-based systems were explored. The prepared formulations were evaluated for physicochemical parameters including hardness, friability, weight variation, drug content uniformity, and in-vitro dissolution studies.

IC-2026 SSCPS/DBT/69

Integrative Nanocarrier–Phytochemical Approaches for Targeted Atopic Dermatitis Management

Aakanchha Singh, Amber Vyas*
University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur
E-mail: aakanchha22@gmail.com

Abstract

A comprehensive exploration of sustainable therapeutic strategies for AD using various plant-derived interventions and green nanocarrier systems designed to enhance topical drug delivery with reduced environmental impacts. Phytoconstituent-rich botanicals and ceramide-replenishing natural oils play a crucial role in restoring barrier function, reducing inflammation, and maintaining microbiome balance. When encapsulated in eco-friendly lipid-based nanocarriers, such as liposomes, SLN, and NLC, these bioactives showed improved stability, controlled release, and enhanced skin penetration. Furthermore, vesicular systems, including ethosomes, transferosomes, and niosomes, are expanding the possibilities of encapsulating both hydrophilic and lipophilic agents, thereby allowing for superior permeation across compromised atopic skin.

Green-synthesized nanoemulsions, microemulsions, and biodegradable polymeric nanoparticles contribute additional advantages in terms of biocompatibility, reduced toxicity, and sustained drug delivery. Emerging approaches employing naturally derived ceramides, microbiome-supportive botanicals, and environmentally conscious fabrication methods align with the broader goal of sustainable dermatology. Collectively, these strategies support personalized, effective, and safer management of AD while reducing reliance on synthetic chemicals and waste-intensive manufacturing.Coupled with modern green nanotechnology, traditional medicinal knowledge improves the care of atopic dermatitis by underpinning a shift in the use of sustainable delivery platforms.

Keywords: Atopic dermatitis, phytoconstituents, nanotechnology, lipid-based nanocarriers, topical drug delivery

IC-2026 SSCPS/DBT/70

Industrial & Pharmaceutical Applications of Green Biotechnology and Artificial Intelligence

Umesh Kumar Chandra
Shri Shankaracharya Institute of Pharmaceutical Sciences and Research
Email: uc06696@gmail.com

ABSTRACT:

The integration of Green Biotechnology and Artificial Intelligence (AI) is transforming industrial and pharmaceutical sectors by promoting sustainability, efficiency, and innovation. In industry, AI-driven enzyme engineering and metabolic pathway optimization enable eco-friendly bioplastics, biofuels, and biocatalysts, reducing environmental impact. In pharmaceuticals, AI accelerates drug discovery, enhances plant-based biopharmaceutical production, and supports precision medicine through molecular modeling and ADMET profiling. Emerging advancements include AI-guided nanobiotechnology for targeted drug delivery, predictive analytics for clinical trials, and sustainable biomanufacturing platforms. Together, these technologies foster a future of climate-conscious industries and transformative healthcare solutions addressing global challenges.

Keywords: Eco-friendly innovation, Metabolic pathway optimization, Plant-based biopharmaceuticals, ADMET profiling

IC-2026 SSCPS/DBT/71

Formulation and Evaluation of Gastro-retentive Drug Delivery System Using Bio-Responsive Polymers for Sulfasalazine in the Treatment of Inflammatory Bowel Disease

Manish Singh
Noida institute of engineering and technology Pharmacy Institute, Greater Noida, Uttar Pradesh
Email: itsmanishsingh31@gmail.com

Abstract

Inflammatory bowel disease (IBD) is a chronic inflammatory condition of the gastrointestinal tract that requires prolonged and site-specific drug delivery for effective management. Conventional oral dosage forms of sulfasalazine often show poor gastric retention and non-targeted drug release, resulting in reduced therapeutic efficacy and increased systemic side effects. The present study focuses on the formulation and evaluation of a gastro-retentive drug delivery system using bio-responsive polymers for targeted delivery of sulfasalazine in the treatment of IBD.

The gastro-retentive system was formulated employing bio-responsive polymers capable of responding to gastrointestinal stimuli such as pH variation and inflammatory microenvironment. The prepared formulations were evaluated for physicochemical properties, floating behavior, swelling index, drug content uniformity, and in vitro drug release studies in simulated gastric and intestinal fluids. The responsiveness of the polymer matrix to gastrointestinal conditions was also assessed to ensure controlled and site-specific drug release.

The results demonstrated that the formulated gastro-retentive system exhibited prolonged gastric retention, satisfactory buoyancy, and controlled drug release behavior. Bio-responsive polymers significantly enhanced drug release at disease-specific conditions, improving localized drug availability. This approach offers improved therapeutic efficacy of sulfasalazine with reduced dosing frequency and minimized systemic exposure.

In conclusion, The ongoing research indicates that bio-responsive polymer-based gastro-retentive drug delivery systems have strong potential to enhance gastric retention and controlled release of sulfasalazine. This approach may improve localized drug availability and therapeutic outcomes in inflammatory bowel disease, while further optimization and in vivo evaluation are in progress.

IC-2026 SSCPS/DBT/72

Green Analytical Method Development for Quantitative Estimation of Ranolazine in Pharmaceutical Dosage Forms"

Jitendra Yadav, Rakesh Tirkey
University institute of Pharmacy, Pt. Ravishankar Shukla university, Raipur, Chhattisgarh
Email: jy7288096@gmail.com

Abstract: In modern pharmaceutical analysis, the creation of intelligent and environmentally friendly analytical technique has emerged as a major priority. Due to its low water solubility, the anti- anginal medication ranolazine requires the use of organic solvent in traditional analytical procedures, raising health and environmental issues. The current study aims to develop and validate an AI- assisted green UV- spectrophotometric method for the quantitative estimation of ranolazine, integrating principle of green biotechnology and artificial intelligence to minimize solvent toxicity and experimental variability. The suggested method greatly reduced the amount of organic solvent used by using a small amount of methanol that is only for initial drug dissolution. This was followed by dilution with aqueous sodium hydroxide. Artificial intelligence technique, such as multivariate regression analysis and artificial neural network (ANN) modeling were used to minimize trial and error experimentation by optimizing crucial analytical parameters like concentration range, solvent composition, and wavelength selection. Accordance with ICH Q2 (R1), this method demonstrated excellent linearity, acceptable, accuracy and high precision over the studied concentration range. Greenness evaluation using Analytical Eco- scale, GAPI and NEMI confirmed the environmentally improved profile of the method due to reduced of use of organic solvents. The study concludes that the developed AI-assisted green UV- spectrophotometric method is simple, rapid, and cost effective and environmentally responsible that is used for routine quality control analysis of ranolazine.

IC-2026 SSCPS/DBT/73

Polymeric nanoparticles drug delivery system for cancer treatment: current status and future perspective

Nevee Singh Rathore and Rakesh Tirkey
University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur, (C.G.)- India
Email: neveerathore@gmail.com

Abstract:
A swift solution is required to stop the growing threat of cancer. The purpose is to give the most recent information on polymeric nanoparticle drug delivery systems for the treatment of breast cancer. An extension of nanotechnology, nanoparticles (NPs) are promising candidates to transport medications to the intended site of therapeutic action and have the potential to solve these issues with drug delivery and retention. For the dual purpose of treating and diagnosing cancer, polymeric nanoparticles have proven excellent options for drug delivery systems. Because of their ligand-based and passive targeting mechanisms, (NPs) are able to preferentially accumulate in the tumour location. Additionally, polymers react to specific tumour microenvironment circumstances including lowered pH, elevated levels of reactive oxygen species, or overexpressed enzymes. We examine the most important developments in pharmaceutical nanotechnologies in this article, along with preparation techniques and applications to the delivery of drugs for the treatment of cancer.
Keywords: - polymeric nanoparticles, breast cancer, nanotechnologies.

IC-2026 SSCPS/DBT/74

Artificial Intelligence–Assisted Enzyme Engineering for Green Industrial Biocatalysis

Shruti Tamrakar and Rakesh Tirkey
University of pharmacy Pt. Ravishankar Shukla University Raipur Chhattisgarh
Email: shrutitam15@gmail.com

Abstract:- Green biotechnology, especially enzyme-based biocatalysis, as eco-friendly substitute for traditional chemical catalysis due to the growing need for sustainable industrial processes. High selectivity, gentle reaction conditions, and a significant reduction in energy consumption and the production of hazardous waste are all provided by enzymes. Artificial intelligence (AI) has become a game-changing instrument for quickening the design and optimisation of enzymes. Enzyme structure–function connections, thermostability, substrate selectivity, and catalytic efficiency may now be accurately predicted thanks to recent developments in machine learning, deep learning, and protein language models. Large biochemical datasets and computational modelling are combined in AI driven methods to direct logical mutation selection, minimise experimental screening, and increase enzyme engineering success rates. Robust biocatalysts for industrial applications are being developed more and more using technologies like generative algorithms, supervised learning models, and AlphaFold-based structure prediction. In a variety of industries, including as pharmaceutical synthesis, biofuel production, food processing, and fine chemical manufacture, AI-assisted enzyme engineering has shown a substantial influence, resulting in decreased solvent consumption, fewer carbon emissions, and increased process efficiency. The combination of AI and green biocatalysis offers a promising route towards sustainable and commercially feasible industrial biotechnology, despite current issues with data quality, model interpretability, and experimental validation. The current developments, industrial uses, and potential future developments of AI enabled enzyme engineering in supporting ecologically friendly production methods are highlighted in this paper. Keywords: Artificial intelligence, enzyme engineering, green biotechnology, industrial biocatalysis, machine learning, sustainable manufacturing.

IC-2026 SSCPS/DBT/75

RATIONAL DEVELOPMENT OF SOME NOVEL PHARMACOTHERAPEUTICALLY ACTIVE DIVERSELY SUBSTITUTED CHALCONE COMPOUNDS

Priyanka Sinha[1]*, Anil Kumar Sahu[2]
[1]Research Scholar, Shri Rawatpura Sarkar Institute of Pharmacy, Kumhari 490042, Dist. Durg, Chhattisgarh, India
[2]Associate Professor, Department of Pharmaceutics, Royal College of Pharmacy, Raipur 492099, Chhattisgarh, India
Email: pspriyankasinha24@gmail.com

Objective and Background: More than a thousand NSAICs of various heterocycles have been recorded in chemical databases during the last decade. However, long-term usage of any of the molecules that have been examined and authorized in clinical trials has proven problematic due to a variety of issues. Patients who use anti-inflammatory medications for a long length of time face a variety of issues, including gastrointestinal discomfort, bleeding in the stomach, cardiac troubles, and more. COX-2 inhibitors may increase the risk of gastric and intestinal bleeding, ulceration, and perforation, which may be life-threatening. To reduce the pain and avoid further responses, anti-inflammatory drugs are seldom needed. **Methodology:** A new series of chalcone derivatives have synthesized and will be checked for their *in vitro* anti-inflammatory activity (via hypotonicity-induced HRBC membrane lysis method) and *in vivo* anti-inflammatory activity (carrageenan-induced paw edema method). The synthesized molecules have characterized in terms of Yield , Appearance, Melting point and Retention factor. The synthesized chalcone compounds have characterized using sophisticated analytical techniques by Fourier-transformed Infrared (FT-IR) Spectroscopy, Proton-Nuclear Magnetic Resonance (^{1}H-NMR) Spectroscopy, Carbon-Nuclear Magnetic Resonance (^{13}C-NMR) Spectroscopy, and Mass Spectroscopy. The molecular docking studies have performed in Auto dock Vina. **Result and Conclusion:** Identification of best molecules through sophisticated software helped in developing practically the most promising anti-inflammatory compounds. Thorough characterization of the synthesized compounds helped establishing the final chemical structure(s) and identifying the most optimized synthetic condition(s). This served as a development of useful novel compounds for treatment of inflammation of diverse origin.

Keywords: Chalcone, Hypotonicity-induced HRBC membrane lysis method, Carrageenan-induced paw edema method, Anti-inflammatory

IC-2026 SSCPS/DBT/76

Simultaneous HPTLC method development and validation of marker compound trans -Ferulic acid and Piperine in Classical Ayurvedic Formulation Hingavastak Churna

Umakant Sahu[a], Vishal Jain*[a]
University Institute of Pharmacy, Pt. Ravishankar Shukla University, G. E., Raipur-492010
Email: uksahu28@gmail.com

Abstract:
The objective of this research was to established new, straightforward, and accurate high-performance thin-layer chromatography (HPTLC) approach for the assessment of phytochemical markers trans-ferulic acid and piperine traditional ayurvedic formulation hingavastak churna (HVC) by using mobile phase using; toluene: chloroform: methanol: formic acid (4:4:1:0.3) v/v/v/v. The Rf values for piperine and trans-ferulic acid were found to be 0.23± 0.02, and 0.56± 0.03. The densitometric assessment of piperine and trans-ferulic acid were performed at wavelength 342 nm and 312 nm respectively. Linearity range for trans-ferulic acid and piperine was 100–700 ng/spot with correlation coefficient R^2 ± SD = 0.996 ± 0.001% and 0.992± 0.003 respectively. The LOD and LOQ were found to be 59.54 and 180.43 ng for trans-ferulic acid and 21.09 and 63.93 ng for piperine respectively. The contents of piperine and trans-ferulic acid in HVC sample were found to be 5.75 mg ± 0.005 and 112.7± 0.002 µg in per gram respectively. A validated method was developed as per ICH guidelines and it can be used for analysis and routine quality control of herbal material and formulations containing trans-ferulic acid and piperine.

Keywords: Hingvastaka churna, Digestive disorder, Trans-Ferulic acid, High Performance Thin Layer Chromatography, Piperine, Standardisation, Ayurvedic medicine.

IC-2026 SSCPS/DBT/77

Contact-Less Microwave Pretreatment as a Single-Step Strategy to Enhance Steam Distillation Efficiency and Essential Oil Quality of Lemongrass *(Cymbopogon citratus)*

Pragya Tiwari, Sayani Maji, Vivekananda Mandal
Green Extraction of Botanical Group, Department of Pharmacy
Guru Ghasidas Vishwavidyalaya, Bilaspur C.G. 495009 India
Email: tiwaripragya476@gmail.com

Abstract: This study investigates a novel contact-less, single-step microwave-assisted biomass pretreatment to enhance the efficiency of conventional steam distillation (SD) for lemongrass essential oil extraction. Fresh biomass was exposed to microwave irradiation at three power levels (170 W, 425 W, and 765 W). Pretreatment at 425 W for 10 minutes, followed by SD, was identified as optimal, resulting in a 50% reduction in distillation time and a 2.7-fold increase in essential oil yield compared to the non-pretreated control. The essential oil obtained from pretreated biomass exhibited a 12.3% increase in citral content along with higher concentrations of isoeugenol, eucalyptol, caryophyllene, and limonene. Thermogravimetric analysis and antioxidant activity assessment confirmed that microwave pretreatment did not adversely affect the chemical stability or biological activity of the oil. The mechanism responsible for accelerated extraction was elucidated using scanning electron microscopy, which revealed significant structural disruption of plant tissues. Additionally, the residual biomass after oil extraction demonstrated reuse potential, yielding 6.9% higher phenolic content than the control. Economic analysis showed a substantial reduction in production cost, decreasing from Rs. 31.5 per gram of oil for conventional SD to Rs. 6.0 per gram for microwave-assisted SD. Overall, the study highlights microwave pretreatment as a simple, efficient, and cost-effective strategy capable of significantly improving essential oil production, offering considerable benefits to small-scale distillers relying on traditional methods.

IC-2026 SSCPS/DBT/78

Artificial Intelligence as an Enabler of Green Biotechnology in Sustainable Pharmaceutical Research

Akshay Kumar
Noida Institute of Engineering & Technology (Pharmacy Institute), Greater Noida, UP- 201306
Email: akshaykumar14700@gmail.com

Abstract: The pharmaceutical and biotechnology sectors are under growing pressure to strike a balance between environmental sustainability and innovation because traditional drug development and manufacturing methods still require a lot of resources and produce a lot of waste. Waste minimisation, biocatalysis, eco-friendly raw materials and energy-efficient bioprocesses are some of the strategies used by green biotechnology to address these issues. However, the intrinsic complexity and variability of biological systems frequently limit the scalability, reproducibility and efficiency of these approaches. Artificial intelligence (AI), especially machine learning and data-driven modelling, has become a useful enabling tool for improving process understanding and optimisation in this context. AI-based methods can facilitate less experimental redundancy, better parameter selection and more resource-efficient decision making by evaluating intricate datasets produced throughout bioprocess development, formulation design and quality control. AI serves as a framework for decision-making rather than a substitute for biological or experimental knowledge when it is ethically combined with green biotechnology principles. A conceptual synthesis of the convergence of green biotechnology and artificial intelligence in pharmaceutical research is presented, highlighting important application areas such as data-driven process analytics for waste minimisation and manufacturing consistency, sustainability-informed in silico drug discovery workflows, emerging predictive models for green solvent screening and biodegradable excipient selection, and AI-assisted optimisation of fermentation and downstream processing to reduce energy and solvent use. Overall, AI combined with green biotechnology represents a strategic and viable pathway toward more sustainable, efficient and data-informed pharmaceutical research, if embedded in interdisciplinary collaboration and supported by transparent model validation, aligned with evolving sustainability and regulatory frameworks.

IC-2026 SSCPS/DBT/79

Approaches to nano-immunomodulators for immune-mediated oral disease management

Alka Sahu, Preeti K. Suresh*
University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur (Chhattisgarh)
Email: suresh.preeti@gmail.com

Abstract
The immune-mediated oral diseases such as oral lichen planus, periodontal disease, dental caries, ulceration and mucositis. This disease comprises an imbalance of innate and adaptive immunity characterized by microbial dysbiosis, increased reactive oxidase stress and increased cytokine production. Based on global oral health, 50% adults are affected by periodontal disease, 1-2% are affected by OLP and 20% general population are affected by recurrent aphthous ulcer. Traditionally, immunomodulator agents, antibiotics, analgesics and corticosteroids are used for the treatment of immune-related oral disease. These drugs provide temporary relief, mucosal irritation, antimicrobial resistance, suppression of immune function and systemic side effects. Additionally, the saliva flow mechanism decreases retention time and bioavailability of the drug. Nanotechnology approaches with immunomodulatory methods that is known as nano-immunomodulators. Different nano-immunomodulators are Phyto-some, liposomes, lipid nanoparticle, polymeric nanoparticle, micelles, nano-emulsion and dendrimers tailored to transport drug with enhanced retention time in oral mucous, improve accuracy, sustain and prolong the release of drug. Quercetin has effective immunomodulatory, antimicrobial, anti-inflammatory and antioxidant activities. Nano-immunomodulators regulate immune pathways, restraining pro-inflammatory cytokines, ROS, damaging microbial biofilm, T-cell signalling, modulating macrophage, deeper tissue penetration, decreasing dosing frequency, enhancing tissue permeation and reducing systemic side effects. This formulation approach is suitable for chronic inflammation and regulates the immune system. The main key research gap has been limited *in-vitro*, *in-vivo* model and clinical evidence. Problems like Long-term safety, production and stability under oral conditions need further investigation. This review concludes that overall, nano-immunomodulators offer powerful and encouraging therapeutic efficacy to manage oral disease.

Keywords: oral disease, periodontal disease, OLP, phytoconstituents, nano-immunomodulator, nano-immunomodulators derived from phytoconstituents.

IC-2026 SSCPS/DBT/80

Formulation and Physicochemical Evaluation of Dual Drug–Encapsulated Lipid Nanocarriers for Atopic Dermatitis

Ankita Sahu[1], Amber Vyas[1]*
Pt. Ravishankar Shukla University, University Institute of Pharmacy, Raipur, Chhattisgarh, India, 492010
Email: ankitasahu077@gmail.com

Abstract
A simple, rapid, and cost-effective UV spectrophotometric method was developed and validated for the simultaneous estimation of corticosteroid and apigenin in nanostructured lipid carrier (NLC) formulations. The method is based on the simultaneous equation approach using methanol as the solvent. Corticosteroid and apigenin showed maximum absorbance at 239 nm and 269 nm, respectively. The method was validated in accordance with ICH Q2(R1) guidelines for linearity, accuracy, precision, specificity, robustness, limit of detection (LOD), and limit of quantification (LOQ). Linearity was observed in the concentration range of 2–10 µg/mL for corticosteroid and 5–10 µg/mL for apigenin, with correlation coefficients greater than 0.998. The accuracy of the method, expressed as per cent recovery, ranged from 96% to 102% for both drugs. Intra-day and inter-day precision studies showed %RSD values of less than 2%. No interference from NLC excipients was observed, confirming the specificity of the method. The low LOD and LOQ values demonstrated adequate sensitivity. The validated method was successfully applied for the quantitative analysis of corticosteroid and apigenin in NLC formulations, making it suitable for routine quality control and formulation studies.

IC-2026 SSCPS/DBT/81

Herbs with immunosuppressive potential for the management of asthma

Diksha Sahu, and Rakesh Tirkey
University Institute of Pharmacy at Pt Ravi Shankar Shukla University Raipur CG
Email: dikshasahu00001@gmail.com

Abstract:
Asthma is a common disease that is rising in prevalence worldwide with the highest prevalence in industrialized countries. Asthma affect about 300 million people worldwide and it has been estimated that a further 100 million will be affected by 2025. Since the ancient times, plants have been exemplary sources of medicine. Current asthma therapy lack satisfactory success due to adverse effect, hence patients are seeking complementary and alternative medicine to treat their asthma. Ayurveda and other Indian literature mention the use of plants in various human ailments. India has about 45 000 plant species and among them several thousand are claimed to possess medicinal properties. Numerous herbs were screened for their antiasthmatic activity such as *Asystasia gangetica ,Glycyrrhiza glabra, Calotropis gigantea, Arisarum vulgare, Mentha longifolia, genus Inula* .findings indicates that these herbs can be useful for development of new antiasthmatic agents with least side effects.
Keywords :- Asthma, Alternative medicine, Asystasia gangetica ,Glycyrrhiza glabra, Calotropis gigantea, Arisarum vulgare, Mentha longifolia, genus Inula.

IC-2026 SSCPS/DBT/82

Artificial Intelligence–Enabled Green Biotechnology for Sustainable Pharmaceutical Innovation

Priyam Kumar
Department of Pharmaceutics, Noida Institute of Engineering and Technology(Pharmacy Institute), Knowledge Park-II, Greater Noida, 201306, Uttar Pradesh, India
Email: priyamoffice12@gmail.com

Abstract: The growing demand for environmentally sustainable pharmaceutical development has intensified the need for innovative approaches that reduce ecological burden without compromising therapeutic efficacy. Green biotechnology offers eco-friendly alternatives for drug discovery and manufacturing; however, the complexity of biological systems and multivariate process dependencies often limit conventional optimization strategies. The integration of artificial intelligence (AI) with green biotechnology provides a transformative, data-driven framework for addressing these challenges. AI-based tools, including machine learning, deep learning, and bioinformatics, are increasingly applied to identify bioactive compounds from renewable biological sources, predict pharmacokinetic and pharmacodynamic behavior, and optimize drug–target interactions through in silico modeling. In pharmaceutical bioprocessing, AI-assisted process control enables intelligent optimization of microbial fermentation, enzymatic synthesis, and biotransformation pathways, resulting in reduced solvent usage, lower energy consumption, and minimized experimental waste in accordance with green chemistry principles. Furthermore, AI-supported modeling enhances sustainable formulation development by predicting stability, quality attributes, and scalability of biopharmaceutical products. Advanced sensing technologies and intelligent analytics facilitate real-time monitoring of critical process parameters, improving robustness, reproducibility, and regulatory compliance while lowering development cost and time. Despite challenges related to data availability, model interpretability, and regulatory acceptance, the convergence of AI and green biotechnology represents a promising paradigm for next-generation pharmaceutical innovation. In conclusion, AI-driven green biotechnology has the potential to transform pharmaceutical research into a sustainable, precision-oriented, and environmentally responsible enterprise, supporting global health objectives and long-term ecological sustainability.
Keywords: Artificial intelligence; Green biotechnology; Sustainable pharmaceuticals; Machine learning; Bioprocess optimization; Green drug development

IC-2026 SSCPS/DBT/83

SODIUM ALGINATE BEADS IN MUCOADHESIVE DRUG DELIVERY SYSYTEM DOSAGE FORM AND CHARACTERIZATION METHOD

Prachi Bisen
Shri Shankaracharya College of Pharmaceutical Sciences, Shri Shankaracharya Professional University, Bhilai-490020, Chhattisgarh india.
Mail: Prachibisen03042003@gmail.com

Background: Sodium alginate beads are used extensively in the biomedical and pharmaceutical industries because of their adaptability to regulated drug delivery systems. Ionotropic gelation is bio material technique using electrostatic attraction between polyelectrolyte (like sodium alginate, chitosan) and positively charged ion (like calcium) to form hydrogels and beads. **Methodology:** Sodium alginate dissolve by heating in 30 ml of 2% polymeric solution then add calcium carbonate and drug with constant stirring for 30 min. add solution from syringe dropwise into 100ml 2% calcium chloride solution. Filter the beads wash 2-4 times with water and air dried. It involves the integration of novel natural or synthetic polymer and the use of innovative formulation technique (eg. Combining floating properties) to achieve specific targeted and control drug delivery with enhanced efficacy. **Result:** Sodium alginate beads were commonly prepared by ionotropic gelation method. Characterization of alginate beads was taken as % moisture content (75.5%), % swelling of microcapsule (24.5%) and percentage yield (32.6%). **Conclusion:** In conclusion, ionotropic gelation technique can be successfully used for the preparation of beads using sodium alginate and coating polymer solution as a drug release modifier.

Keywords: Sodium alginate, sustained release, particulate drug delivery, natural polymer, drug delivery system.

IC-2026 SSCPS/DBT/84

Development of Biogenic Silver Nanoparticle-Infused Bioinspired Polymer-Based Hydrogel for Chronic Wound Management

Bhavesh Namdeo[1], Deependra Singh[2], Manju Rawat Singh[2]
[1]Rungta College of Pharmaceutical Sciences and Research, Rungta International Skills University, Bhilai, C.G.
[2]University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur, C.G.
Email: namdeobhavesh610@gmail.com

Abstract:
A chronic wound is a condition where the wounds, disruption of the integrity of the outer layer of skin becomes severe due to the disordered repair process. Chronic wounds can be of different types depending on the cause of delayed wound healing. The wound healing process is regulated by several growth factors present at the wound site. In chronic wounds, the levels of proinflammatory cytokines and reactive oxygen species (ROS) are increased, which leads to the prolongation of the inflammatory phase, ultimately failing the healing process. Although there are few novel preparations available specifically targeting the prolonged inflammatory phase for wound healing treatment, the development of a dressing containing these novel preparations can help improve the condition of chronic wounds. In this research, we aim to explore the potential of biogenic silver nanoparticles (AgNPs) and bioinspired polymer-based hydrogel for the management of chronic wounds by manipulating the antimicrobial properties of silver nanoparticles and the biocompatibility of the bioinspired polymer-based hydrogel. Biogenic AgNPs were synthesised using a green method and characterised for their physicochemical properties. The nanoparticles exhibited an average size of 97nm, spherical morphology, and a zeta potential of -28 mV, confirming stability. The bioinspired polymer hydrogel demonstrated excellent physicochemical characteristics, including a spreadability of 6.2 g·cm/sec and, swelling index of 72%. In-vitro drug release studies showed a sustained release pattern, and antioxidant activity evaluated using the DPPH assay showed a significant free radical scavenging potential of 68% at 100 µg/mL, indicating the hydrogel's ability to reduce oxidative stress at the wound site.

Keywords: Chronic wounds, prolonged inflammatory phase, reactive oxygen species (ROS), Biogenic AgNPs, bioinspired polymer-based hydrogel.

IC-2026 SSCPS/DBT/85

Bovine mastitis: Green Alternatives to Antibiotics

Jamuna, Rakesh Tirkey
University Institute of Pharmacy, Pandit Ravishankar Shukla University, Raipur.
Email: jamunay2002@gmail.com

Abstract

Objective: Bovine mastitis is an inflammatory condition of the mammary gland tissue in dairy animals, usually triggered by physical injury or microbial Infection. It is widely prevalent among dairy herds and causes major economic losses due to decreased milk production. Mastitis is categorized into clinical and subclinical forms based on symptom presentation. Clinical mastitis exhibits visible signs like inflammation and changes in milk appearance, while subclinical mastitis, also known as hidden infection, shows no obvious symptoms but still reduces milk yield. The most common causative microorganisms include Staphylococcus, Streptococcus, Escherichia coli, Klebsiella, and other Gram-negative bacteria, along with additional agents such as Mycoplasma and certain algae. Green biotechnology is significantly related to the management and treatment of bovine mastitis. It is primarily explored as a sustainable and environmentally friendly alternative to traditional antibiotics, addressing concerns about antibiotic resistance and residues in milk products. Biotechnology also plays a role in developing advanced diagnostic tools, such as Nano biosensors for early detection of mastitis biomarkers, and in gene editing research to potentially breed cows with enhanced natural resistance to the disease. **Methodology**: Cattles were screened for mastitis several treatment plans were investigated by various in-vivo and in-vitro method. **Result**: Phototherapy and essential oils show consistent in vitro efficacy and some successful in vivo trials, yet issues like variability of plant composition and stability in milk remain. Nanoparticles (especially metallic and polymeric) appear highly promising due to strong bactericidal and antibiofilm effects. Bacteriophage and other biologic therapies can match antibiotic outcomes in some trials but are limited by pathogen specificity and immature clinical protocols.

Keywords: Bovine mastitis, mastitis, green biotechnology, phytotherapy, nanotechnology

IC-2026 SSCPS/DBT/86

CHROMOPROTIEN: VISIBLE TOOLS FOR ADVANCING SYNTHETIC BIOLOGY AND CHEMISTRY

Rupanjali kumari
Shri Shankaracharya College of Pharmaceutical Sciences, Shri Shankaracharya professional University, Bhilai-490020, Chhattisgarh, India
Email: Kumarirupanjali20040609@gmail.com

Abstract: Chromoproteins (homologous to fluorescent proteins identified initially in marine organisms) are visible to the naked eye under white light. Their unique advantages - including robust expression in both prokaryotic and eukaryotic systems, broad color diversity, and tunability through genetic engineering - make them desirable tools for synthetic biology. This opinion article provides a overview of recent progress in chromoprotein - based research, highlighting their physicochemical properties, detailed classification, engineering strategies, and emerging applications. We anticipate that ongoing discovery and rational design of chromoprotein variants will significantly advance the development of visible chromoprotein reporters, enabling more accessible and modular platforms for synthetic biology research and applications. **Methodology:-**chromoproteins originate from marine organism, express in both prokaryotic and eukaryotic system. E.coli,a well-established gram negative prokaryote ,high level expression of chromoproteins can be carried on plasmid or integrated. **Rationale :-** Their widespred application has significantly expended in passed decade owing to their visible and diverse coloration is of genetic engineering and robust physicochemical properties. **Conclusion :-** Chromoproteins characterized by their distinct visible coloration and structure homology to flurosecent proteins have emerged as versatile and powerful tools in the field of synthetic biology.

Keyword:- E.coli, chromoprotein, colorimetry, synthetic biology, visible color.

IC-2026 SSCPS/DBT/87

Development and evaluation of Chronic inflammation using sulfosalzine drug loaded patch used in treatment of psoriasis

Rishikesh Singh
Noida institute of engineering and technology Pharmacy Institute, Greater Noida, Uttar Pradesh
Email: singhrishikesh00p@gmail.com

Abstract

Objective: Psoriasis is a chronic immune-mediated inflammatory skin disorder that requires long-term treatment, often associated with systemic side effects and poor patient compliance. The objective of the present study is to **design and evaluate a sulfasalazine-loaded transdermal patch** as a localized and controlled drug delivery system for the management of chronic inflammation in psoriasis. **Methods:** Sulfasalazine-loaded transdermal patches will be formulated using the solvent casting method with suitable polymeric matrices. The prepared patches will be evaluated for physicochemical parameters such as thickness uniformity, weight variation, folding endurance, surface pH, moisture content, and drug content uniformity. In-vitro drug release studies will be conducted to assess the release behavior of sulfasalazine. The anti-inflammatory potential will be investigated using an experimentally induced chronic inflammation model. **Expected Outcomes:** The proposed transdermal patch is expected to provide sustained drug release, improved local anti-inflammatory activity, and reduced systemic exposure. The formulation aims to enhance patient compliance by offering a non-invasive and controlled drug delivery approach. **Conclusion:** This ongoing research is expected to establish sulfasalazine-loaded transdermal patches as a promising alternative for the treatment of chronic inflammation associated with psoriasis, supporting further experimental and clinical investigations.

Keywords: Psoriasis; Chronic inflammation; Sulfasalazine; Transdermal patch; Transdermal drug delivery

IC-2026 SSCPS/DBT/88

FLOATING DRUG DELIVERY SYSTEM – HYDRO DYNAMICALLY BALANCED DDS

Ayushi Bisen
Shri Shankaracharya College of Pharmaceutical Sciences, Shri Shankaracharya Professional University, Bhilai-490020, Chhattisgarh, India
Email: bisenaayu0207@gmail.com

Abstract: Controlled release (CR) dosage forms have been extensively used to improve therapy with several important drugs. Incorporation of the drug in a controlled release gastroretentive dosage forms (CR-GRDF) which can remain in the gastric region for several hours would significantly prolong the gastric residence time of drugs and improve bioavailability, reduce drug waste, and enhance the solubility of drugs that are less soluble in high pH environment. Several approaches are currently utilized in the prolongation of the GRT, including floating drug delivery systems (FDDS), swelling and expanding systems, polymeric bioadhesive systems, high-density systems, modified-shape systems and other delayed gastric emptying devices. In this review, current & recently developments of Stomach Specific FDDS are discussed that helps to overcome physiological adversities like short gastric residence times and unpredictable gastric emptying times. **Methodology:-**For tablet preparation, all the ingredients were weighed accurately, API and other polymer were mix properly in polybag for 15 minutes add talc and magnesium stearate. Tablet were compressed using tablet punching machine. Novelty in FDDS centers on innovative approaches and technologies, particularly 3D printing and advanced polymer used. **Result and discussion:-** Pre formulation and post formulation of FDDS was studied and found to be pre compression parameters are bulk density (18.5) and tapped density (28.12) and post compression parameters are percentage moisture content (19%) and floating time of the tablet was found to be 1 min. 40sec.**Conclusion:-** Direct compression technique can be successfully used for preparation of floating tablet using sodium bi carbonate and coating polymer as drug release modifier.

Keywords: Floating drug delivery system, sustain release bioavailability, gastric residence time

IC-2026 SSCPS/DBT/89

Leveraging Artificial Intelligent for Waste Reduction in Pharmaceutical Industries

Sangeeta Rathia and Rakesh Tirkey
University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur, Chhattisgarh
Email: sanjurathia059@gmail.com

Abstract:
Background: The pharmaceutical industry is traditionally characterized by high resource consumption and significant waste generation, ranging from chemical byproducts during drug synthesis to expired inventory in the supply chain. As global pressure for sustainability and cost-efficiency grows, Artificial Intelligence (AI) has emerged as a critical tool for operational transformation. **Objective**: This paper explores the multifaceted role of AI and Machine Learning (ML) in identifying, quantifying, and mitigating waste across the pharmaceutical value chain, from R&D to distribution. **Key Methodology** & **Applications**: Predictive Maintenance: Utilizing IoT sensors and AI to predict equipment failure, thereby preventing costly "batch losses" caused by midprocess technical glitches. Smart Manufacturing (Industry 4.0): Implementing AI to optimize chemical reactions in real-time, maximizing yield and reducing the formation of hazardous waste through precision control of variables. Demand Forecasting & Inventory Management: Advanced algorithms analyse market trends and seasonal data to align production with actual demand, significantly reducing the volume of expired or unsold medications. **Role**: AI in process optimization, predictive maintenance of equipment, AI in quality control and defect detection waste minimization in drug formulation, environmental monitoring and compliance **Conclusion**: Integrating AI into pharmaceutical workflows does more than just improve the bottom line; it fosters a Sustainable Circular Economy. By reducing chemical waste and optimizing resource utility, AI enables the industry to meet stringent environmental regulations while ensuring the timely delivery of life-saving medicines.
Keywords: Artificial Intelligence, Pharmaceutical Manufacturing, Waste Minimization, Predictive Analytics, Sustainability, Supply Chain Optimization.

IC-2026 SSCPS/DBT/90

Artificial Intelligence in Drug Discovery

Manish Agrawal
Shri Shankaracharya Institute of Pharmaceutical Sciences and Research
Email: manishagrawal1256@gmail.com

Abstract:-
Artificial Intelligence (AI) has become a transformative force in pharmaceutical research, changing traditional drug discovery methods. By using machine learning, deep learning, and computational models, AI allows quick identification of drug targets, prediction of molecular properties, and improvement of lead compounds. Techniques like structure activity relationship (SAR) modeling, quantitative SAR (QSAR), and virtual screening benefit from AI-driven algorithms, which significantly cut down time and cost compared to standard methods. Additionally, AI supports new drug design, repurposing of existing drugs, and analysis of complex biological data, speeding up the journey from lab to patient. Although there are challenges like data quality, model interpretability, and regulatory issues, AI continues to transform drug discovery, presenting new chances for personalized medicine and the creation of innovative therapeutics.
Keywords: Drug Discovery, Machine Learning, Deep Learning, Computational Models, Structure–Activity Relationship (SAR), Quantitative SAR (QSAR), Virtual Screening, Lead Optimization, De novo Drug Design, Drug Repurposing, Biological Datasets, Precision Medicine, Novel Therapeutics.

IC-2026 SSCPS/DBT/91

Integrating AI-Powered Biosensors with Plant Systems for Environmental Monitoring

*[1]Vashvi Kumar Sahu, [2]Kajal Verma, [2]Vasu Dev Sahu, [3]Akta Sinha, [3]Rashmi Sahu, [3]Daminee Sahu
[1]Master of Pharmacy, Department of Pharmacognosy, Kamla Institute of Pharmaceutical Sciences, Shri Shankaracharya Professional University (SSPU), Bhilai, Junwani
[2]Master of Pharmacy, Department of Pharmaceutics, Kamla Institute of Pharmaceutical Sciences, Shri Shankaracharya Professional University (SSPU), Bhilai, Junwani
[3]Master of Pharmacy, Department of Pharmacology. Kamla Institute of Pharmaceutical Sciences, Shri Shankaracharya Professional University (SSPU), Bhilai, Junwani
Email: vashvi17@gmail.com

ABSTRACT

Objective: To develop and evaluate an AI-integrated plant-based biosensing system capable of detecting and quantifying environmental pollutants, particularly heavy metals, in real time. **Background:** Advances in synthetic biology have made it possible to engineer living organisms that respond to environmental contaminants with measurable biological outputs. Plants offer a sustainable, low-cost platform for biosensing, but conventional detection methods often lack sensitivity or require specialized equipment. Integrating artificial intelligence with engineered plant reporters provides an opportunity to enhance detection accuracy, scalability, and field applicability. **Methodology:** Plants were genetically engineered to express fluorescence in response to exposure to heavy metals such as cadmium and lead. Fluorescence intensity served as a pollutant-responsive marker. A convolutional neural network (CNN) was developed to process real-time imaging data, quantify fluorescence changes, and translate these signals into pollutant concentration estimates. Field trials were conducted across varied environmental conditions to evaluate system performance, robustness, and detection sensitivity relative to traditional sensor-based approaches. **Results:** The engineered plants exhibited strong, pollutant-specific fluorescence responses. The CNN demonstrated high sensitivity in detecting and quantifying pollutant levels, significantly outperforming conventional detection systems. Field tests confirmed the biosensor system's reliability, accuracy, and adaptability in diverse environments, maintaining stable performance under fluctuating light, temperature, and pollutant concentrations. **Conclusion:** The integration of synthetic-biology-based plant reporters with AI-driven image analytics offers a green, scalable, and cost-effective solution for environmental monitoring. This work demonstrates the potential of living biosensors, enhanced through machine learning, to provide real-time, high-precision detection of heavy metals and contribute to sustainable environmental protection strategies.

IC-2026 SSCPS/DBT/92

"Evaluation of the wound healing efficacy of Antigonon leptopus leaf extract"

Monali Chauhan and Rakesh Tirkey
University Institute of Pharmacy Pt. Ravishankar Shukla University, Raipur, Chhattisgarh
Email: monalichouhan2@gmail.com

Abstract: Antigonon leptopus (family: Polygonaceae) is a perennial climbing plant commonly found in tropical and subtropical regions and is widely used in traditional medicine. The present study focuses on the phytochemical and therapeutic potential of Antigonon leptopus, particularly in relation to its traditional applications in wound healing and skin-related disorders. The plant material was collected, shade-dried, and powdered, followed by extraction using suitable solvents. Preliminary phytochemical screening revealed the presence of bioactive constituents such as flavonoids, tannins, phenolic compounds, saponins, and glycosides, which are known to exhibit antioxidant, antimicrobial, and anti-inflammatory activities. These phytoconstituents play an important role in reducing oxidative stress, preventing microbial infection, and promoting tissue repair. The findings of this study support the traditional medicinal use of Antigonon leptopus and suggest that the plant has significant potential for development as a natural therapeutic agent. Further pharmacological and clinical investigations are required to confirm its efficacy and mechanism of action. Key Words: Antigonon leptopus, Polygonaceae, Medicinal plant, Phytochemical screening, Antioxidant activity, Wound healing, Traditional medicine

IC-2026 SSCPS/DBT/93

"Dual Drug-Loaded Nanostructured Lipid Carriers for Enhanced Ocular Drug Delivery"

Narayan Hemnani[1]*, and Preeti K Suresh [1]
[1]University Institute of Pharmacy Pt. Ravishankar Shukla University Raipur C.G., 492010
Email: Narayanhemnaniuiop@gmail.com

ABSTRACT

Ocular infections are commonly treated using topical antibiotic–steroid combinations. However, conventional eye drops suffer from poor bioavailability, rapid tear drainage and frequent dosing requirements. The present study focuses on the fabrication and evaluation of a dual-drug–loaded nanostructured lipid carrier (NLC) system containing moxifloxacin hydrochloride and dexamethasone sodium phosphate for improved ocular drug delivery. The NLCs were prepared using a melt-emulsification and ultrasonication technique and optimized through a Box–Behnken experimental design. The optimized formulation exhibited a mean particle size of 190 nm with a polydispersity index of 0.267, indicating a moderately uniform nanosystem suitable for ocular application. High entrapment efficiencies were achieved for both drugs, confirming effective dual-drug encapsulation within the lipid matrix. FT-IR analysis demonstrated successful drug incorporation without chemical incompatibility. In vitro release studies revealed sustained drug release, best fitting the Korsmeyer–Peppas kinetic model, suggesting a non-Fickian release mechanism governed by diffusion and matrix erosion. The developed NLC system demonstrates potential to enhance corneal residence time, improve therapeutic efficacy, and reduce dosing frequency, making it a promising advanced delivery platform for the management of ocular infections and associated inflammation.

Keyword: Ocular infection, NLC, Topical, Moxifloxacin hydrochloride and Dexamethasone sodium phosphate

IC-2026 SSCPS/DBT/94

Next-Generation Vesicular Skin Drug Delivery System Approaches Driven by Artificial Intelligence Integrating Multi-Omics Analysis for Precision Treatment of Vitiligo

Prince Nikhil Rathore[1*], Alpana Ram[1]
[1*]Department of Pharmacy, Guru Ghasidas Vishwavidyalaya, Koni, Bilaspur, C.G. 495009, India.
Email: prince9009152408@gmail.com

Abstract: Vitiligo is a chronic autoimmune-mediated skin disorder characterized by white patches on the skin surface due to selective destruction of epidermal melanocyte cells, resulting in progressive loss of skin pigmentation and color dissimilarity. It has a serious impact on the quality of life of the patient and their mental well-being. The varied and manifold pathogenesis of vitiligo, including environmental factors, oxidative stress, UV radiation, and genetic susceptibility, limits the conventional therapy, showing a lack of specificity and limited penetration to the skin, resulting in the patient not getting satisfactory therapeutic efficacy. Researchers focused on a multi-omics analysis that screened patient pathology data and analyzed specific molecular targets and key mediators using genomics, epigenomics, transcriptomics, proteomics, and metabolomics in the context of vitiligo pathophysiology. Further, the identification of key targets was then subjected to a series of druggability analyses. Although the selection of drug or siRNA integration in the vesicular delivery system enhances overall therapeutic efficacy, precise drug delivery to the target and overcoming the skin barrier due to the penetration efficacy of the vesicular drug delivery system. Overall, this approach involved precise drug delivery to the patient through multi-omics analysis, and the subsequent integration of the selected drug candidate, siRNA, or biologic into a vesicular drug delivery system offers a promising approach for achieving improved and personalized therapeutic outcomes in vitiligo management.

Keywords: Vitiligo; skin barrier; multi-omics analysis; siRNA; vesicular drug delivery

IC-2026 SSCPS/DBT/95

Colon-Targeted Drug Delivery: Evolution from Traditional Approaches to Advanced Therapeutic Platforms

Nidhi Agrawal*, S.K. Lanjhiyana, Meenakshi Jaiswal
Department of Pharmacy, Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.)
Email: 123nidhiagrawal@gmail.com

Abstract

Objective: This review aims to provide a comprehensive overview of colon-targeted drug delivery systems (CTDDS), focusing on their potential to enhance therapeutic outcomes for colonic diseases and systemic disorders through innovative formulation strategies. **Background:** CTDDS have gained considerable attention due to their ability to deliver localized treatment for colonic diseases such as inflammatory bowel diseases (IBD), colorectal cancer (CRC), and amoebiasis, while also enabling systemic delivery of drugs that are unstable or poorly absorbed in the upper gastrointestinal tract. However, achieving precise colon targeting remains challenging due to various physiological factors, including gastric emptying time, pH variations, and microbial communities. **Conclusion:** CTDDS offers localized, controlled therapy, which has the potential to improve colonic disease outcomes. Integrating colon physiology information with novel delivery technology can improve future research and treatment effectiveness.

Keywords: Colon, Colon-targeted drug delivery system, pH-dependent systems, Receptor-mediated targeting, Novel approaches.

IC-2026 SSCPS/DBT/96

Phytochemical constituent of medicinal plants used for the regulation and management of hypertension

Shipra Singh and Rakesh Tirkey
University institute of pharmacy,pt. Ravishankar Shukla University, Raipur (C.G.) india 492010
Email: shiprasinghbook2@gmail.com

Abstract:

Hypertension is a common chronic condition characterized by persistently elevated blood pressure and is a major risk factor for cardiovascular and renal diseases. It often remains asymptomatic, leading to serious complications if not diagnosed and managed early. Limitation of conventional antihypertensive therapy have encouraged the exploration of plant-based alternatives. Numerous medicinal plants contain bioactive phytoconstituents such as alkaloids (reserpine, berberine), phenolic compounds (gallic acid, caffeic acid, chlorogenic acid), flavonoids (quercetin, kaempferol, rutin), and saponins (ginsenosides, diosgenin) that exhibit significant antihypertensive potential. These compounds exert their effects through mechanisms including angiotensin-converting enzyme inhibition, vasodilation, antioxidant activity, calcium channel modulation, and improvement of endothelial function. Systematic pharmacological evaluation of these phytochemicals may contribute to the development of safer and effective antihypertensive therapies. In conclusion, plant-derived phytoconstituents demonstrate significant antihypertensive potential through diverse mechanisms, warranting further pharmacological and clinical investigation for their development as safe and effective therapeutic agents.

Keywords: Hypertension,medicinal plants, antihypertensive activity,ACE inhibitors, vasodilation, antioxidant activity, calcium channel modulation.

IC-2026 SSCPS/DBT/97

Herbal Approach for the Treatment of Hypertension

Pooja Thakur and Rakesh Tirkey
University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur, Chhattisgarh
Email: pt4998282@gmail.com

Abstract:
Hypertension is a critical health problem. There are mainly two types: Primary hypertension and secondary hypertension. Hypertension is the primary possibility feature for coronary heart disease, stroke and renal vascular disease. Herbal medicines have been used for millions of year for the treatment of hypertension with minimum side effects. 80% population of the world (around 5.6 billion people) consume medicines from natural plants for major health concerns. Medicinal plants are rich in bioactive phytochemicals such as flavonoids, alkaloids, polyphenols, tannins, terpenoids that have demonstrated blood pressure lowering effects through multiple mechanisms. These include ACE inhibition, Nitric oxide production; Calcium & Potassium channel modulation, Calcium channel blocking, Renin-Angiotensin system inhibition and modulation of other Biomarkers. Preclinical and clinical evidence indicates that extracts from herbs such as *Moringa oleifera, Hibiscus sabdariffa* (Roselle) & Saffron (*Crocus sativus*) etc. should have significant antihypertensive activity in different pharmacological screening. These herbs can play important role in the development of new antihypertensive agents.
Keywords: *Moringa oleifera*, *Hibiscus sabdariffa, Crocus sativus,* herbal medicine, antihypertensive, ACE inhibitor. Herbs.

IC-2026 SSCPS/DBT/98

Plant-Derived Anxiolytics: Exploring the Therapeutic Potential of Medicinal Plants in the Treatment of Anxiety Disorder

Prachi Soni and Rakesh Tirkey
University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur, Chhattisgarh

Abstract:
Anxiety is a prevalent mental disorder characterized by feelings of fear, trepidation, apprehension, and panic. It can also affect the respiratory, gastrointestinal, cardiovascular, or neurological systems, either separately or in combination. It is marked by disruptions in thinking, behaviour, mood, and physiological activity. It has been demonstrated that individuals with anxiety disorders, such as panic disorder, social anxiety disorder, and generalized anxiety disorder (GAD), exhibit decreased GABAergic activity and elevated serotonergic (5-HT) activity. Treatment is recommended when a patient exhibits significant distress or experiences problems brought on by the disease. Treatment for anxiety disorders should involve either pharmacotherapy, psychological counselling, or a combination of both. Patients are turning to herbal and other natural treatments for the management and treatment of anxiety disorders due to the growing expense of prescription drugs and the unfavorable side effects they cause. Green biotechnology has emerged as a sustainable and eco-friendly strategy for the discovery, extraction, and formulation of plant-based anxiolytic agents. Green biotechnological approaches emphasize the use of renewable biological resources, environmentally benign extraction methods, and minimal chemical waste, thereby enhancing the safety and efficacy of herbal therapeutics. Plant-based remedies like medicinal plants and their extracts have great potential to cure a wide range of medical conditions, including anxiety and depression Some of the recently investigated plants with anti-anxiety activity includes *Ziziphus mauritiana, Aglaonema hookerianum Schott, Moringa oleifera, Phyllantus niruri, Albizia procera.*
Keywords: Anxiety disorders, pharmacotherapy, medicinal plants

IC-2026 SSCPS/DBT/99

Formulation and Evaluation of Nanolipid Carrier–Loaded Phytoconstituent Ursolic Acid for the Treatment of Non-Melanoma Cancer

Priya Namdeo*, Dr. Amber Vyas
University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur, Chhattisgarh, India - 492010
Email: priyanamdeo.22@gmail.com

Introduction: Dermatological cancers remain a major health concern due to challenges in early diagnosis and limited curative treatment options. Ursolic acid (UA), a natural triterpenoid, has attracted significant scientific attention for its therapeutic potential. However, its clinical application is restricted by poor solubility and low absorption, highlighting the need for advanced delivery systems. Nanostructured lipid carriers (NLCs) offer a promising approach to enhance the bioavailability and therapeutic efficacy of UA. **Objectives:** The study aimed to formulate and evaluate nanostructured lipid carriers incorporating the natural triterpenoid ursolic acid for the effective management of non-melanoma skin cancer. **Methodology:** NLCs were prepared using a modified microemulsion technique. Optimisation was carried out through Response Surface Methodology (RSM) employing a Box–Behnken design with 17 experimental runs. Characterisation of the optimised NLCs included SEM, TEM, and in vitro drug release studies. **Results**: The developed NLCs exhibited a particle size of approximately 110 nm ± 1.04, with an entrapment efficiency of 98 % ± 1.25. In vitro studies demonstrated a controlled and sustained release of UA from the NLCs over 24 hours, significantly improved compared to the pure drug. **Conclusion:** Nanostructured lipid carrier–based delivery significantly enhanced the sustained release and therapeutic potential of ursolic acid, offering a promising nanotechnology-driven approach for the treatment of non-melanoma skin cancer.

Keywords: *Skin cancer, Triterpenoid, Ursolic acid, Nanostructured lipid carrier, Optimization, modified micro-emulsion method*

IC-2026 SSCPS/DBT/100

Dual-Drug Nanoliposomes with Surface Functionalization for Topical Ocular Therapy: A Novel Strategy to Target Early and Advanced Diabetic Retinopathy

Ravi parashar and Preeti K Suresh
University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur, Chhattisgarh, India - 492010
Email: raviparashar.prsu@gmail.com

Abstract: Background: Diabetic retinopathy (DR) remains a leading cause of vision loss worldwide, primarily driven by oxidative stress, enhanced levels of mmp-2,9 and progressive microvascular leakage. Conventional intravitreal anti-VEGF injections, though effective, specifically optimized for enhanced corneal permeation and retinal tissue targeting. **Objective:** This work aims to design, optimize, and evaluate surface-modified nanoliposomes co-encapsulating two synergistic therapeutic agents to simultaneously mitigate MMP and angiogenic pathways in DR. **Methods:** Dual-drug nanoliposomes were prepared by thin film hydration and statistically optimized using Box–Behnken design by varying phospholipid concentration, cholesterol ratio, and sonication time to achieve minimal vesicle size and high entrapment efficiency. Optimized formulations were further coated with a hyaluronic acid (HA) to improve mucoadhesion, enhance transcorneal penetration and target CD44 receptors which are over expressed in vitreous humor in diabetic patients. Physicochemical characterization, *in vitro* release kinetics, corneal permeation studies, DPPH scavenging activity and stability profiles were established. **Results:** The optimized nanoliposomes demonstrated vesicle size of 146.1±5.9 nm, PDI of 0.215±0.094, Zeta Potential of +37.58mV and that of HA-coated liposomes were 180.9±7.3 nm, 0.231± 0.087, -22.8 mV respectively. The optimized HA-coated liposomes showed sustained release behavior, fitting korsmeyer peppas release model and significantly improved permeation across the corneal barrier. DPPH scavenging activity for both HA-coated and uncoated liposomes were 77.18% and 70.37% respectively, highlighting the potential of this approach as a non-invasive alternative to intravitreal injections. **Conclusion:** These results collectively establish dual-drug coated nanoliposomes as a promising topical ocular drug-delivery platform for diabetic retinopathy, capable of targeting pathological pathways with improved patient acceptability and reduced treatment burden. The research opens new

avenues for translating nanotechnology-based ocular therapies into clinically viable solutions for chronic retinal diseases.

Keyword: Diabetic retinopathy, nanoliposomes.

IC-2026 SSCPS/DBT/101

ROLE OF CINCHONA IN MANAGEMENT OF MALARIA

Punam Singh & Rakesh Tirkey
University Institute of Pharmacy, Pt. Ravishankar Shukla University Raipur, Chhattisgarh
Email: punamsinghxyz@gmail.com

ABSTRACT

Malaria is a mosquito-borne infectious disease of humans and other animals caused by protists (a type of microorganism) of the genus Plasmodium. It begins with a bite from an infected female mosquito, which introduces the protists via its saliva into the circulatory system, and ultimately to the liver where they mature and reproduce. The disease causes symptoms that typically include fever and headache, which in severe cases can progress to coma or death. Malaria is widespread in tropical and subtropical regions in a broad band around the equator, including much of Sub-Saharan Africa, Asia, and the Americas. The term malaria originates from Medieval Italian: mala aria — "bad air"; the disease was formerly called ague or marsh fever due to its association with swamps and marshland. Malaria was once common in most of Europe and North America, where it is no longer endemic, though imported cases do occur. Other Plasmodium species cause infections in certain animals. Several mammals, birds and reptiles have their own form of malaria. Cinchona bark yields quinine, the original malaria drug, used for centuries and still vital for drug-resistant malaria, though often combined with antibiotics like azithromycin due to side effects and resistance. It works by targeting the malaria parasite's blood stage, particularly Plasmodium falciparum, and is an essential medicine. Other related compounds, like quinidine, also possess antimalarial properties. The Cinchona plant is found primarily in the high forests of the Andes Mountains of South America (Peru, Ecuador, Colombia)

KYEWORD: Malaria Cinchona preventing malaria involves main strategies.

IC-2026 SSCPS/DBT/102

DEVELOPMENT AND EVALUATION OF PULSATILE DRUG DELIVERY SYSTEM FOR ANTIDIABETIC DRUG

Saket Singh Rajput*, Dr. Rashmi Madhariya
Shri Shankaracharya College of Pharmaceutical Sciences (SSCPS) SSPU, Junwani, Bhilai (C.G) 490020
Email: saketsingh1282@gmail.com

ABSTRACT:

Diabetes mellitus is a chronic metabolic disorder that requires precise control of blood glucose levels to prevent long-term complications. Conventional drug delivery systems often fail to match the body's circadian rhythm of glucose and insulin secretion, leading to suboptimal therapeutic outcomes and increased side effects. The present study focuses on the development and evaluation of a pulsatile drug delivery system (PDDS) for an antidiabetic drug, designed to release the drug after a predetermined lag time followed by rapid drug release. The pulsatile formulation was developed using suitable polymers to achieve time-controlled drug release, targeting the early morning surge in blood glucose levels. Various formulation approaches such as core-in-cup, press-coated, or capsule-based systems were explored. The prepared formulations were evaluated for physicochemical properties including hardness, friability, weight variation, drug content uniformity, and in-vitro dissolution studies. Lag time and pulse release behavior were critically assessed to ensure site-specific and time-specific drug delivery. In-vitro release studies demonstrated a distinct lag phase with minimal drug release, followed by a rapid and complete release of the drug, confirming the pulsatile nature of the syste.

Keywords: Diabetes mellitus, Pulsatile drug delivery system, Controlled drug release, Glucose secretion, Insulin secretion, Circadian rhythm.

IC-2026 SSCPS/DBT/103

An AI-Enabled Approach for the Design and Targeted Delivery of siRNA Therapeutics Against Driver Gene Mutations in Colorectal Cancer

Sakshi Gupta[1], Dr. S.K. Lanjhiyana[1]
[1]Department of Pharmacy, Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.)- 495009
Email id: guptasakshi2701@gmail.com

Abstract

Background: Colorectal cancer (CRC) is the third leading cause of cancer-related mortality worldwide, with a lifetime risk of 5.1%. It is a genetically heterogeneous disease driven by recurrent mutations in oncogenes and tumor suppressor genes such as *KRAS, APC, TP53, PIK3CA,* and *BRAF*. Conventional chemotherapy remains the backbone of treatment but is limited by low specificity, systemic toxicity, and the development of drug resistance. Nanoparticle (NP)-based delivery systems have improved the solubility and bioavailability of anticancer drugs; however, chemotherapy resistance persists as a major challenge. Artificial intelligence (AI) has emerged as a powerful tool for the rational design and targeted delivery of siRNA therapeutics capable of selectively silencing disease-driving genes. The co-delivery of siRNA and chemotherapeutic agents is being explored as a strategy to overcome multidrug resistance in CRC. **Objective:** This study highlights AI-enabled strategies for the design and colon-targeted delivery of siRNA therapeutics and anticancer agents against CRC driver gene mutations, with a focus on nanoparticle-based carrier systems. **Methods:** Recent literature on AI applications in CRC genomics, siRNA sequence optimization, and nanoparticle engineering was systematically analyzed, emphasizing AI-guided optimization of carrier composition, particle size, surface charge, encapsulation efficiency, and controlled release. **Results:** AI-driven approaches improved siRNA specificity and gene-silencing efficiency while minimizing off-target effects. Optimized nanoparticle carriers enhanced cellular uptake and colon-specific delivery. Co-delivery systems demonstrated synergistic anticancer effects, downregulated resistance-associated genes, and improved chemosensitivity in CRC models. **Conclusion:** AI-integrated nanoparticle-based co-delivery of siRNA and chemotherapeutics represents a promising precision strategy for CRC treatment, offering enhanced efficacy, reduced toxicity, and potential reduction of drug resistance.

Keywords: Colorectal cancer; colon targeted delivery; nanoparticle; artificial Intelligence; siRNA

IC-2026 SSCPS/DBT/104

In- Silico Study of Some New Benzopyranone Derivative As An Nephroprotective Agents

Swapnil Deshmukh,[1] Vaibhav Tiwari [2]
[1.] PhD scholer, Kamla institute of pharmaceutical sciences junwani bhilai Chhattisgarh
[2.]Shri shankracharya professional university, junwani, Bhilai
Email: Swapnilpharma020@gmail.com

Abstract: Nephrotoxic agents are substances that can cause damage to the kidneys, particularly the nephrons, which are the functional units of the kidney. These agents can be drugs, toxins, or contrast media used in imaging studies. The molecular docking study is predicted study they bind to the receptor and show binding energy Docking of the promising derivatives 5, 10, 15, 22 and the reference drug quercetin within the active site of NFKB were explored using argus lab 4.0 free software. and visualization using PYMOL. The benzpyaranone 50 derivatives are docked with PDB(1NFK) The docked compounds 5, 10, 15, 22 and quercetin afforded variable and high negative energy scores (-12.60, − 12.20, − 11.03 and − 11.30kcal/mol, respectively) indicating strong predicted binding affinity to NFKB All the screened compounds were fitted within the binding pocket via arene-arene interaction between the chromone moiety and the vital amino acid Tyr119 like the native ligand.

Key word- NFKB (nuclear factor kappa beta), Try (tyrosine), PDB(protein data bank)

IC-2026 SSCPS/DBT/105

Sustainable nanoparticle synthesis: A critical review of green approaches and applications

Kanti, Neeli Rose Beck
Department of Pharmacy, Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.) 495009 India
Email: kanti07378@gmail.com

Abstract: Pharmaceutical nanotechnology represents one of the most rapidly advancing fields within pharmaceutical sciences and serves as a highly promising platform for innovative research. Nanotechnology involves the design, development, and application of materials whose components exist at the nanoscale, generally up to 100 nm in size. Nanomaterials are categorized according to their origin, size, composition, and morphology. And each classification gains significance due to its ability to predict the distinctive properties of these nanomaterials. Nanoparticles and other particulate systems have been widely employed to modify and enhance the pharmacokinetic and pharmacodynamic properties of various therapeutic agents. Nanoparticles are extremely small entities with unique characteristics and are broadly classified into three main types: carbon-based, inorganic, and organic nanoparticles. Owing to their nanoscale dimensions, these particles exhibit superior properties such as increased surface area, enhanced reactivity, improved strength, stability, and sensitivity. The use of nanoparticles has led to improved therapeutic efficacy of drugs while simultaneously reducing their associated side effects. Nanoparticle synthesis for research and commercial applications primarily relies on physical, chemical, and mechanical techniques, all of which have undergone substantial advancements over time. Nanoparticles can be produced through both chemical and biological approaches. In biomedical applications, biocompatible inorganic nanostructures offer a novel strategy to overcome the limitations of conventional organic materials, particularly in addressing multidrug resistance. Green synthesis employs biological methods for nanoparticle production, as these approaches are simple, safe, cost-effective, highly efficient and environmentally friendly. This method utilizes various biological sources, including bacteria, actinomycetes, fungi, algae, yeast, and plants. This review compiles and evaluates various nanoparticles and thoroughly examines their effectiveness in enhancing desired outcomes.

IC-2026 SSCPS/DBT/106

In-silico drug design screening, molecular docking & admet analysis for multi-targeting therapeutic activity to treat whooping cough (*pertussis*) and its typical symptoms by adapting green chemistry with biological evaluation

[1]*Mr. Victor Dey, [2]Dr. Vinay Sagar Verma, [3]Ms. Aakansha Pandey
[1,2,3]Kamla Institute of Pharmaceutical Sciences (KIPS), SSPU, Junwani, Bhilai-490020 (C.G.), India
*Email: deyvictor06@gmail.com

Abstract: Background: A cough is basically referred to a protective reflex event to prevent respiratory tract from aspirating in response to different stimuli. It usually occurs to remove allergens, irritants and mucus from the lung airways, which are essentially foreign substances like smoke, dust, etc. visceral feeling and related behavioural responses gives arise to various disease relates to respiratory or other issues. **Methodology:** The current goals and objectives are to conduct fundamental performance on basic dock studies within selection of ligands were divided into two series as LXGA1 to LXGA20 for A Series and LXGB1 to LXGB20 for B Series with standard drug Dextromethorphan (DXM) as taken to comparison. Docking based analysis executed with the use of via using Molegro Virtual Docker (MVD-2013, 6.0.1). As target chosen for chronic cough disease taken as whooping coughs along with other issues for studies as lung and throat cell proliferation, lung and throat irritation, cold & cough, immunity, analgesic and pyretic activities. **Result & Conclusion:** From all choice of ligands, these was analyzed from our research findings screened out that mainly the main whooping cough show excellent therapeutic chances along with other activities. But, in case of ADMET study these ligands were shown best potentially in reverse results than the docking active nucleus components. But based on our budget that will establishing novel future drugs to treat whooping cough & its typical diseases are synthesized that makes involving green chemistry and solvent-free approach and further testing through spectral analysis of our selected ligands.

Keywords: Chronic Coughing Disease, Whooping Cough, Molecular Docking, Choice of Ligands, ADMET, Novel Drugs, Green Chemistry, Solvent-Free Approach.

IC-2026 SSCPS/DBT/107

Physicochemical and Compatibility Profiling of Dual Drug-Loaded Nanostructured Lipid Carriers Enriched *In-Situ* Gelling System for Dry Eye Disease Management

Tripti Kshatri and Preeti K. Suresh*
University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur, Chhattisgarh, India 492010
Email ID: triptikshatricom9@gmail.com

Abstract: The current research study investigates the physicochemical and compatibility profiling of dual drug-loaded NLCs incorporated in an *in-situ* gelling eye-drops formulation for managing Dry Eye Disease (DED). The primary goal was to conduct preformulation studies to assess the suitability, stability, and compatibility of both active pharmaceutical ingredients and selected excipients. Forming a foundation of a well-designed, effective and stable formulation of the ocular delivery system. UV- visible spectrophotometric calibration curves were created for both drugs to enable accurate quantification during formulation development and quality control. Fourier-transform infrared (FTIR) spectroscopy was used to evaluate potential chemical interactions between the drugs and excipients, ensuring structural integrity and compatibility within the lipid matrix. Melting point determination was performed to verify the purity and thermal behaviour of the APIs, while solubility studies in various solid lipids, liquid lipids, surfactants, and co-surfactants were carried out to find the best carriers for efficient drug loading. Additionally, partition coefficient (log P) measurements offered insights into the lipophilicity of the drugs, helping to predict their distribution and retention in the lipid carriers. IR-based drug-excipient compatibility studies confirmed the absence of significant chemical reactions, indicating that the chosen excipients are suitable for incorporation into the NLC system without affecting drug stability or therapeutic effects. These preformulation results guided the careful selection of lipids and stabilisers to develop a dual-drug loaded NLC enriched *in-situ* gel with improved ocular retention, sustained release, and increased bioavailability. The study lays out a solid preformulation framework for developing a dual-drug, *in-situ* gelling ophthalmic system, highlighting its potential as an innovative and effective strategy for managing Dry Eye Disease. The data offer vital insights for further formulation optimisation, stability testing, and in vivo studies.

IC-2026 SSCPS/DBT/108

ASSESSING THE IMPACT OF ANTIBIOTIC OVERUSE AND MISUSE ON PUBLIC HEALTH IN KORBA CITY

Rohan Kumar Rathore*, Ms. Bulbul Dewangan
Shri Shankaracharya College of Pharmaceutical Sciences, Bhilai, C.G.
Email: rohanrathore77890@gmail.com

Abstract: Antibiotics are among the most significant medical discoveries of the twentieth century, playing a vital role in the prevention and treatment of bacterial infections. However, their excessive and inappropriate use has emerged as a major public health concern worldwide. The present study aims to assess the impact of antibiotic overuse and misuse on public health in Korba City, with particular emphasis on patterns of use, awareness levels, and potential contribution to antibiotic resistance. A questionnaire-based cross-sectional survey was conducted among residents of Korba City using a structured Google Form. The survey collected data on demographic characteristics, knowledge about antibiotics, sources of information, frequency of antibiotic consumption, self-medication practices, prescription compliance, ease of obtaining antibiotics without prescription, and awareness regarding risks associated with misuse. The findings indicate widespread inappropriate use of antibiotics, including self-medication, incomplete treatment courses, use of antibiotics for viral infections, and easy over-the-counter availability without prescription. A considerable proportion of participants reported stopping antibiotics once symptoms subsided and storing leftover medicines at home, practices that significantly increase the risk of antimicrobial resistance. Limited public awareness regarding correct antibiotic use and resistance mechanisms was also observed. The study highlights that antibiotic misuse in Korba City contributes to adverse health outcomes, increased healthcare costs, prolonged illness, and the potential spread of drug-resistant bacteria within the community. The results emphasize the urgent need for public education, strict regulatory control on antibiotic sales, rational prescribing practices by healthcare professionals, and implementation of antibiotic stewardship programs.

Keywords: Antibiotics, Antibiotic misuse, Antibiotic overuse, Antimicrobial resistance, Public health, Korba City

IC-2026 SSCPS/DBT/109

Formulation and characterization of transferosomes for ocular delivery of tonabersat

Bulbul Dewangan
Shri Shankaracharya College of Pharmaceutical Sciences Bhilai
Email: Bulbuld2809@gmail.com

Abstract
Transferosomes (TFS) are deformable vesicles, known for their ability to enhance transdermal drug penetration. This study aimed to evaluate whether TFS can also enhance ocular delivery of poorly soluble tonabersat. TFS were prepared using PhospholiponVR90G with TweenVR80 as the edge activator. The effect of formulation parameters (edge activator and cryoprotectant concentrations) on TFS characteristics were evaluated using a full factorial design. The optimized TFS eyedrop was characterized for particle size, zeta potential, deformability, entrapment efficiency (EE), drug content, pH, osmolality and TFS stability over 3 months at different storage conditions. Furthermore, drug penetration into the cornea, conjunctiva, eye-lid, and sclera-choroid after topical application was studied ex vivo using a tonabersat solution in medium chain triglycerides as the control. The optimized TFS formed spherical unilamellar vesicles with a mean diameter <130 nm, EE >80%, and were stable at −20 and 5 ± 3 °C for up to 3 months. The TFS eye drop resulted in significantly greater ocular penetration than the control without affecting the barrier proper-ties of the tested tissues. Drug penetration into different ocular tissues was compared, shedding light on the penetration mechanism of TFS. Overall, this study demonstrates that TFS provide a promising alternative for the ocular delivery of tonabersat

Keywords: Transferosome; tonabersat; ocular penetration; liposome; eye drop; Tween 80

IC-2026 SSCPS/DBT/110

Formulation, Development and Evaluation of Oral fast dissolving film of Yohimbine Hydrochloride

Kusum Dhankar
Shri Shankaracharya College of Pharmaceutical Sciences, SSPU, Bhilai, 490042
Email: kusumdhankar80@gmail.com

Abstract
Drug delivery via oral film is gaining popularity due to its advantages over traditional dosages, such as rapid absorption, high bioavailability, and improved patient adherence to swallowing instructions for older adults and toddlers with swallowing difficulties. It increases the effectiveness of APIs since it doesn need to be chewed or dissolved in water, and it dissolves in less saliva in the mouth cavity within a minute of contact than fast-dispersing tablets. Because they fear choking, many young and old patients refrain from taking these firm preparations. This led to the development of oral dissolving tablets. However, there are difficulties with formulation, stability, and production, including concerns with solubility and picking the suitable medicine qualities. OFDFs are split into three kinds, each having a specific function: mucoadhesive melt-away wafers, flash release wafers, and mucoadhesive sustained-release wafers. OFDFs are formulated with plasticizers, water-soluble polymers, active pharmaceutical ingredients (APIs), and other excipients to ensure stability and efficacy. In order to provide an overview of those newly developed oral films, the review will examine their formulation techniques, production procedures, advantages, and disadvantages. Included are succinct conclusions and future outlooks.

Keywords: Oral Films, Formulation Methods, Therapeutic Potential, plasticizer.

IC-2026 SSCPS/DBT/111

Artificial intelligence in formulation and clinical trials

Renu pal
Shri Shankaracharya institute of pharmaceutical sciences and research, Bhilai
Email: np315646@gmail.com

Abstract: Artificial intelligence (AI) is reshaping pharmaceutical research by enabling a shift from empirical trialanderror approaches to datadriven, modelbased decision making in both formulation development and clinical trials. In formulation science, AI and machine learning (ML) algorithms are used to predict physicochemical properties, excipient compatibility, stability, and in vitro–in vivo correlations, thereby streamlining dosageform design, optimizing nano and controlledrelease systems, and shortening development timelines. These tools search highdimensional formulation space, AI techniques, including deep learning and causal ML, are increasingly applied to protocol design, site and patient selection, recruitment, riskbased monitoring, and realtime safety and efficacy assessment, leveraging electronic health records, realworld data, and multiomics information to identify suitable subpopulations and predict treatment response. These applications promise more efficient, adaptive, and representative trials, with the potential to increase success rates and reduce attrition; however, challenges related to data quality, bias, model interpretability, regulatory expectations, and ethical use of patient data remain substantial and demand robust governance frameworks. Overall, the integration of AI across formulation and clinical trials offers a transformative opportunity to deliver safer, more effective, and affordable therapies, provided that technical, regulatory, and ethical barriers are systematically addressed through interdisciplinary collaboration.

Keywords: Artificial intelligence (AI), Machine learning (ML), Deep learning, Datadriven drug development, Pharmaceutical formulation, Formulation design, Dosageform optimization, Nanoformulations, Controlledrelease systems,

IC-2026 SSCPS/DBT/112

Sustainable AI-Optimized Phyto-Nanocarriers for Enhanced Skin Targeting in Fungal Infections

Divya Jaiswal
Department of pharmacy, GGV, bilaspur (C.G.)
Email: divyajaiswal2205@gmail.com

Abstract: Background: Fungal skin infections represent a significant dermatological burden worldwide and are often associated with poor treatment outcomes due to limited skin penetration, prolonged therapy, and increasing antifungal resistance. Conventional topical formulations frequently fail to deliver sufficient drug concentrations to deeper skin layers. **Objective:** This study aims to design and evaluate sustainable, AI-optimized phyto-nanocarriers for enhanced skin targeting and improved efficacy in the topical management of fungal infections. **Methodology:** Plant-derived bioactive compounds with established antifungal potential are identified using artificial intelligence–assisted screening approaches, including molecular docking, quantitative structure–activity relationship modeling, and machine learning. Green biotechnology principles are applied for the development of phyto-nanocarriers using biodegradable lipids and natural excipients, ensuring minimal environmental impact and avoidance of toxic solvents. Artificial intelligence–driven optimization techniques are employed to systematically refine critical formulation and process parameters, enabling precise control over particle size, polydispersity index, encapsulation efficiency, and controlled drug release behavior. **Evaluation:** The optimized phyto-nanocarriers are subjected to comprehensive physicochemical characterization and stability studies. Antifungal activity is evaluated in vitro against clinically relevant fungal pathogens, including resistant strains. Ex vivo skin permeation and retention studies are performed to assess enhanced dermal targeting. Dermal safety is examined using suitable in vitro or ex vivo skin models. **Conclusion:** The integration of green nanotechnology with artificial intelligence provides a rational and sustainable platform for the development of targeted topical antifungal systems. AI-optimized phyto- nanocarriers demonstrate strong potential to overcome the limitations of conventional therapies, offering an eco-friendly and effective approach for managing fungal skin infections.

IC-2026 SSCPS/DBT/113

To formulate and evaluate a floating drug delivery systemof Moringa Gum

Satendra Kumar Patle*, Dr. Swarnali Das Paul
Shri Shankaracharya College of Pharmaceutical Sciences, Bhilai, C.G.
Email: satendrapatle66@gmail.com

Abstract: Floating Drug Delivery Systems (FDDS) are an advanced approach within gastroretentive drug delivery systems designed to prolong gastric residence time and enhance oral bioavailability of drugs with narrow absorption windows, poor solubility, or instability in intestinal conditions. The present research focuses on the formulation and evaluation of a floating drug delivery system containing ,moringa, a flavonoid with proven antioxidant, anti-inflammatory, and anti-ulcer properties. The study aims to improve gastric retention and controlled release of moringa for enhanced therapeutic efficacy. Effervescent floating approaches were explored to achieve prolonged buoyancy and sustained drug release. The prepared formulations were evaluated for pre-compression parameters, physical properties, floating lag time, total floating duration, swelling index. The optimized formulation demonstrated satisfactory floating behavior with minimal lag time and prolonged gastric retention exceeding 12 hours.

Keywords: Floating Drug Delivery System; Gastroretentive Drug Delivery, Moringaoleifera
Polymer, Sustained Release

IC-2026 SSCPS/DBT/114

“Enhanced Therapeutic Efficacy of Beta-Sitosterol in Leishmaniasis Treatment via Nanostructured Lipid Carrier Delivery Systems”

[1]Deleshwar Kumar*, [2] Dr. Saurabh Shrivastava
[1] Shri Shankaracharya Professional University, Junwani, Bhilai, C.G. 490020.
[2]Shri Shankaracharya College of Pharmaceutical Sciences, Junwani, Bhilai, C.G. 490020
*Email: deleshwarkumar54@gmail.com

Abstract:
Background: Leishmaniasis poses a significant global health threat, especially in tropical areas, highlighting the need for more effective and safer treatments. Beta-Sitosterol, a natural phytosterol, shows potential antileishmanial activity but suffers from poor aqueous solubility and low bioavailability. **Objective:** This study aimed to develop and evaluate beta-sitosterol-loaded Nanostructured Lipid Carriers (NLCs) to enhance the delivery and therapeutic efficacy of the compound against Leishmania parasites. **Methods:** Beta-sitosterol NLCs were synthesized using high-pressure homogenization with biocompatible solid lipids and liquid oils. The formulation was optimized for particle size, PDI, and entrapment efficiency. In vitro release kinetics and antileishmanial activity were evaluated against Leishmania promastigotes and intracellular amastigotes. **Results:** The optimized NLCs showed a spherical shape with an average size of <200 nm and over 85% entrapment efficiency. They provided sustained release of beta-sitosterol, demonstrated enhanced potency with reduced IC50 values, and had minimal haemolytic activity and high biocompatibility with macrophages. **Conclusion:** The results suggest that NLCs serve as an effective delivery vehicle for β- sitosterol, significantly improving its antileishmanial performance. This lipid-based nanomedicine approach offers a viable strategy for overcoming the pharmacokinetic limitations of phytotherapeutic agents in the treatment of leishmaniasis.

Keywords: Beta-sitosterol, Nanostructured Lipid Carriers (NLC), Leishmaniasis Drug Delivery Systems, Phytotherapy, Antileishmanial Activity, Bioavailability Enhancement.

IC-2026 SSCPS/DBT/115

Phytochemical Constituent of Medicinal Plants Used for the Regulation and Management of Hypertension

Shipra Singh and Rakesh Tirkey
University institute of pharmacy, Pt. Ravishankar Shukla University, Raipur (C.G.) India 492010
Email: shiprasinghbook2@gmail.com

Abstract:
Hypertension is a common chronic condition characterized by persistently elevated blood pressure and is a major risk factor for cardiovascular and renal diseases. It often remains asymptomatic, leading to serious complications if not diagnosed and managed early. Limitation of conventional antihypertensive therapy have encouraged the exploration of plant-based alternatives. Numerous medicinal plants contain bioactive phytoconstituents such as alkaloids (reserpine, berberine), phenolic compounds (gallic acid, caffeic acid, chlorogenic acid), flavonoids (quercetin, kaempferol, rutin), and saponins (ginsenosides, diosgenin) that exhibit significant antihypertensive potential. These compounds exert their effects through mechanisms including angiotensin-converting enzyme inhibition, vasodilation, antioxidant activity, calcium channel modulation, and improvement of endothelial function. Systematic pharmacological evaluation of these phytochemicals may contribute to the development of safer and effective antihypertensive therapies. In conclusion, plant-derived phytoconstituents demonstrate significant antihypertensive potential through diverse mechanisms, warranting further pharmacological and clinical investigation for their development as safe and effective therapeutic agents.

Keywords: Hypertension,medicinal plants, antihypertensive activity,ACE inhibitors, vasodilation, antioxidant activity, calcium channel modulation.

IC-2026 SSCPS/DBT/116

The Future of Rheumatoid Arthritis Treatment: Molecular Innovations in Anti-Rheumatoid Drug Development

Neha Mandle*, Jaya Shree
Shri Shankaracharya College of Pharmaceutical Sciences, Bhilai
Email: nehamandle1996@gmail.com

Abstract: Over 100 different kinds of arthritis exist, including rheumatoid arthritis (RA). About 0.5% of persons have this chronic autoimmune disease, which damages the synovial joint lining and can cause significant joint deformity and impairment. RA affects people of all ages and genders. however, it is more common in women and the elderly. Over the past 20 years, significant progress has been made in understanding the mechanisms underlying the onset of RA, improving early diagnosis, and developing new treatment options. The most well-known therapies for RA include corticosteroids, disease modifying antirheumatic drugs (DMARDs), and non-steroidal anti-inflammatory drugs (NSAIDs). However, not every patient reacts well to current medications, so finding new ways to treat the condition is crucial. We highlight new research on the many kinds of RA treatments, such as traditional and contemporary medication therapies, as well as recently developed alternatives like Phyto-cannabinoid and cell- and treatments based on RNA. Finding a specific target could be easier with a deeper comprehension of their pathways and mechanisms. preventing cartilage deterioration, inflammation, and arthritis adverse effects.

Keywords: Rheumatoid arthritis (RA), Disease-modifying antirheumatic medications (DMARDs), non-steroidal anti-inflammatory medicines (NSAIDs), corticosteroids, Phyto- cannabinoid.

IC-2026 SSCPS/DBT/117

Structure-Based Drug Design of Kinase Inhibitors for Targeted Cancer Therapy

Hemlata Mahant [1], Gitanjali Kashyap [2]
[1]Shri Shankaracharya College of Pharmaceutical Sciences, Junwani, Bhilai-490020, Chhattisgarh, India
[2] Kamla Institute of Pharmaceutical Sciences (Previously Known as Faculty of Pharmaceutical Sciences), Junwani, Bhilai-490020, Chhattisgarh, India.
Email: mahanthema593@gmail.com

Abstract
The recent increased focus on high precision of cancer treatment has fueled the advancement of molecularly targeted inhibitors especially the kinase inhibitors, which interfere with the signaling pathway involved in oncogenesis in a highly specific manner. This paper uses a structure-based drug design (SBDD) to determine and develop novel kinase inhibitors based on the in silico approach used comprehensively. All 100 kinase- ligand complexes were docked, profiled, and screened on binding interactions and pharmacokinetics. Besides, two structure-based designed lead compounds revealed high binding affinities to several relevant cancer- related targets like BCR-ABL, EGFR, and VEGFR, and scored low with an energy value as low as -10.2 Kcal/mol compared to current inhibitors. Interaction-related studies revealed the possibilities of stable ligand binding through hydrogen bridges and hydrophobic contacts, whereas screening with ADMET properties revealed good drug-like properties and oral absorption. The Lead Compound 1 turned out to be the most encouraging one, being highly specific, significantly non-toxic, and excellently pharmacokinetically. The results support the usefulness of SBDD to discover effective and selective kinase-targeting anticancer drugs as a basis of continuing the preclinical verification and development of the project.
Keywords: Structure-Based Drug Design, Kinase Inhibitors, Molecular Docking, ADMET Prediction, Targeted Cancer Therapy

IC-2026 SSCPS/DBT/118

Pharmacognostic and phytochemical screening of Barleria grandiflora

Malti Sao*, Rajesh Choudhary
Shri Shankaracharya College of Pharmaceutical Sciences, Bhilai
Email: malti25091984@gmail.com

Abstract: The extract of leaves of Barleria grandiflora has been used by folk across central region of India for the treatment of oral ulcers. The objective of the study is to determine the antioxidant and the antibacterial activity of ethanolic extract of leaves of Barleria grandiflora Dalz (Acanthaceae). Materials and Methods: Phytochemical screening was carried out as per the usual chemical tests. Total phenolic content was determined using Folin-Ciocalteau method. Antioxidant activity was performed by using hydrogen peroxide radical scavenging method and DPPH (1, 1-Diphenyl-2- picrylhydrazyl) radical scavenging activity. **Results:** Phytochemical screening had shown the presence of carbohydrates, proteins, alkaloids, glycosides, phenolic compounds and flavanoids in ethanolic extracts of leaves of the plant. The total phenolic content was found to be 92.83 mgE GA/g. Barleria grandiflora was found to have antioxidant potential comparable to gallic acid Conclusion: Ethanolic extract of leaves of Barleria grandiflora exhibited antioxidant and antibacterial activity which may be the reason for the use of extract of Barleria grandiflora leaves in the treatment of diabetic complications by some folk.
Keywords: Barleria grandiflora, Phytochemical Screening, Antioxidant Activity, DPPH assay

IC-2026 SSCPS/DBT/119

Green tea catechins protect against diabetogenic cataract by reducing aldose reductase activity and lens oxidative stress.

Umashankar Nirmalkar*, Dr. Rajesh Choudhary
Shri Shankaracharya College of Pharmaceutical Sciences (SSCPS), (Shri Shankaracharya Professional University), Junwani, Bhilai, Chhattisgarh
Email: umashankar.pharmacology@gmail.com

Abstract: Diabetic cataract is the primary cause of vision loss globally, owing to prolonged hyperglycemia induced biochemical changes in the crystalline lens. Using a streptozotocin-induced diabetic rat model, this study looks at how green tea catechins (GTCs) protect against the formation of diabetogenic cataracts. Diabetic cataract etiology is strongly linked to the activation of the polyol pathway, which involves the enzyme aldose reductase (AR), reducing glucose to sorbitol. Sorbitol accumulates intracellularly, causing osmotic stress, lens fiber swelling, and opacification. Our findings show that oral administration of GTCs considerably slows the development and progression of lens opacity. Biochemical study demonstrated that GTCs efficiently inhibited aldose reductase activity, lowering sorbitol levels within the lens. Furthermore, GTCs reduced oxidative stress by inhibiting lipid peroxidation (MDA levels) and increasing the activity of endogenous antioxidant enzymes such as superoxide dismutase (SOD) and glutathione peroxidase (GPx). Green tea catechins provide a strong, multi-targeted dietary intervention for the prevention of diabetes problems in the eye by addressing both osmotic imbalance and oxidative damage simultaneously. These data imply that GTCs may be a promising preventive treatment for preserving lens transparency in hyperglycemic patients.

Keywords: Green tea catechins, diabetic cataract, aldose reductase, oxidative stress, polyol pathway.

IC-2026 SSCPS/DBT/120

Design, Synthesis And Evaluation of Chromone Derivatives As Aromatase Inhibitors For The Treatment of Breast Cancer

Dr. Laxmi Koshle
Shrishankaracharya Institute of Pharmaceutical Science and Research, Junwani, Bhilai
Email: banjare.laxmi2@gmail.com

Abstract: Breast cancer remains one of the leading causes of cancer-related morbidity and mortality among women worldwide, with estrogen-dependent tumors accounting for a significant proportion of cases. In postmenopausal patients, suppression of estrogen biosynthesis through inhibition of aromatase, the key enzyme responsible for the conversion of androgens to estrogens, represents a validated therapeutic strategy. Although clinically approved aromatase inhibitors (AIs) such as letrozole, anastrozole, and exemestane are effective, their long-term use is often associated with adverse effects and the emergence of resistance, necessitating the development of novel and safer alternatives. Chromone derivatives have attracted considerable attention in medicinal chemistry due to their privileged heterocyclic scaffold, structural versatility, and broad spectrum of biological activities. Recent advances highlight chromone-based molecules as promising aromatase inhibitors, owing to their ability to effectively interact with the enzyme's active site through π–π stacking, hydrogen bonding, and hydrophobic interactions. Structural modification of the chromone core has enabled fine-tuning of potency, selectivity, and pharmacokinetic properties, resulting in several derivatives with submicromolar to nanomolar aromatase inhibitory activity. Aromatase (P450arom) is a target of pharmacological interest for the treatment of breast cancer. In this paper, we report the design, synthesis, and evaluation of a series of new chromone-based inhibitors of this enzyme. The design of the new compounds was guided by a CoMFA model previously developed for a series of nonsteroidal aromatase inhibitors. The goal to find new potent inhibitors of aromatase was reached with the chromone derivatives 2 IC (50) values 40 and 6 IC (50) 35 nM, respectively), which exceeded the potency of the known reference drug fadrozole and also showed high selectivity with respect to P450. Thus, they might be new leads for the development of drug candidates for androgen-dependent diseases.

Keywords: Breast cancer, Non-steroidal Aromatase Inhibitors, Chromone Analogues

IC-2026 SSCPS/DBT/121

PDE-4 Inhibition Meets Nanotechnology in Glaucoma Management

Siddharth Kumar Sahu*, Swarnali Das Paul**
Shri Shankaracharya Professional University, Junwani – Bhilai, CG.
Email: ksiddharth800@gmail.com

Abstract
Glaucoma is a major cause of irreversible blindness, characterized by progressive optic nerve damage and retinal ganglion cell degeneration, commonly associated with elevated intraocular pressure (IOP), neuroinflammation, and vascular dysfunction. Phosphodiesterase-4 (PDE-4) inhibitors have gained attention as potential therapeutic agents for glaucoma due to their ability to increase intracellular cyclic adenosine monophosphate (cAMP) levels. This mechanism contributes to anti-inflammatory, neuroprotective, and vasodilatory effects, which are highly relevant to glaucoma pathogenesis beyond IOP control. Despite their therapeutic promise, the clinical application of PDE-4 inhibitors in ocular treatment is limited by poor aqueous solubility, low ocular bioavailability, rapid tear turnover, and the risk of systemic side effects following conventional administration. Nano-drug delivery systems represent a promising approach to address these limitations and enhance ocular drug delivery. Nanocarriers such as polymeric nanoparticles, liposomes, solid lipid nanoparticles, nanoemulsions, and dendrimers can improve drug solubility, protect the drug from degradation, prolong precorneal residence time, and enable sustained and controlled drug release. Incorporation of PDE-4 inhibitors into nano-based delivery systems has the potential to enhance corneal penetration, reduce dosing frequency, and achieve targeted delivery to ocular tissues, thereby improving therapeutic efficacy while minimizing adverse effects. This abstract highlights the potential role of PDE-4 inhibitors as a novel therapeutic strategy for glaucoma and emphasizes the advantages of nano-drug delivery systems in overcoming ocular delivery challenges, offering a promising avenue for the development of more effective and safer glaucoma treatments.

Keywords: Glaucoma; Phosphodiesterase-4 (PDE-4) inhibitors; Nano-drug delivery system; Ocular drug delivery; Neuroprotection; Intraocular pressure

IC-2026 SSCPS/DBT/122

Antioxidant and Anti-inflammatory Effect of Genistein against Pharmacological Experimental Models

Jhakeshwar Prasad*, Rajesh Choudhary, Jaya Shree, Swarnali Das Paul
Shri Shankaracharya College of Pharmaceutical Sciences, Junwani – 490020, Bhilai, Chhattisgarh, India
Email: jhakeshwarprasad03@gmail.com

Abstract:
Inflammation is a biological response of vascularized tissue to harmful stimuli, including infection, damaged cells, or irritants, and is characterized by a complex, protective, non-specific response. Genistein, derived from soybean by isoflavonoid of estrogenic and anti-inflammatory activities, recently attracted attention as an attractive drug candidate for treatment or prevention of RA. The present investigation was carried out to explore the pharmacological role of genistein treatment in an experimentally induced inflammatory model with its antioxidant activity. The antioxidant capacity was evaluated utilizing the antiradical DPPH method. The anti-inflammatory activity was also evaluated with the carrageenan-induced paw oedema model in Wistar rats. The research includesa normal group (vehicle control), a control group (carrageenan control), a standard group (celecoxib 50 mg/kg, p.o.), and Test groups (T1: genistein 10 mg/kg, p.o., and T2: genistein 20 mg/kg, p.o.). Inflammation in experimental groups (except the normal group) was induced by a single dose injection of 0.1 mL of carrageenan (1% w/v in saline) at sub planter region of the left hind paw after pretreatment with vehicle or drugs as per protocol. Paw oedema was observed at different times after induction. The genistein showed dose-dependent antioxidant activity in the DPPH assay (inhibition 83.63% at 100 µg/mL). In- vivo, paw oedema was inhibited by genistein to an extent comparable with the control group. Genistein exerted potent anti-inflammatory and antioxidative activities in experimental models, which underlined its use as a nutraceutical for the adjuvant therapy of inflammatory diseases.

Keywords: Genistein, Antioxidant, Anti-inflammatory, Carrageenan, DPPH assay, Phytoestrogen, Nutraceutical.

IC-2026 SSCPS/DBT/123

Alcohol as a Risk Factor for Cancer: Existing Evidence in a Global Perspective

Rashmi Suryavanshi
Shri Shankaracharya Institute of Pharmaceutical Sciences and Research, Bhilai
Email id: rinisuryavanshi.rs@gmail.com

Abstract
The purpose of the present review is to give an overview of the association between alcohol intake and the risk of developing cancer. Two large-scale expert reports; the World Cancer Research Fund (WCRF)/American Institute of Cancer Research (AICR) report from 2007, including its continuous update project, and the International Agency for Research of Cancer (IARC) monograph from 2012 have extensively reviewed this association in the last decade. We summarize and compare their findings, as well as relate these to the public health impact, with a particular focus on region-specific drinking patterns and disease tendencies. Our findings show that alcohol intake is strongly linked to the risk of developing cancers of the oral cavity, pharynx, larynx, oesophagus, colorectum (in men), and female breast. The two expert reports diverge on the evidence for an association with liver cancer and colorectal cancer in women, which the IARC grades as convincing, but the WCRF/AICR as probable. Despite these discrepancies, there does, however, not seem to be any doubt, that the Population Attributable Fraction of alcohol in relation to cancer is large. As alcohol intake varies largely worldwide, so does, however, also the Population Attributable Fractions, ranging from 10% in Europe to almost 0% in countries where alcohol use is banned. Therefore acknowledges the potential beneficial effects of small doses of alcohol in relation to ischaemic heart disease, but a discussion of this lies without the scope of the present study.
Keywords: Alcohol, Incidence, Mortality, Neoplasms, Population Attributable Fraction.

IC-2026 SSCPS/DBT/124

COMPARATIVE EVALUATION OF GRANISETRONE AND ONDANSETRONE IN THE MANAGEMENT OF CHEMOTHERAPY INDUCED EMESIS

Prachi Agrawal
Shri Shankaracharya Institute of Pharmaceutical Sciences and Research, Junwani, Bhilai, Chhattisgarh
Email: prachiagrawal7587@gmail.com

ABSTRACT
Cancer represents an uncontrolled growth and division of cells, which can occur in any part of the body. Antineoplastic chemotherapy is extensively used for the treatment of various types of cancers. However, it is associated with devastating adverse effects like gastric ulcer, baldness, mouth soreness, anorexia, weight loss, GI disturbances, skin reactions, weakness, immunosuppressant, nausea and vomiting. To minimize this, anti-emetic compounds like Granisetrone (5-HT3 Receptor antagonist) and Ondansetrone are given in combination with anticancer drugs. Although both agents are well established anti-emetic agents, their comparative efficacy in the cancer patients receiving chemotherapy has not been explored. Therefore, the present investigation was undertaken to compare the efficacy of Granisetrone and Ondansetrone in the prevention of emetic adverse effects associated with chemotherapy. This observational study was carried out in Sanjeevani Cancer Care Hospital, Raipur (CG). The data from cancer patients receiving chemotherapy with anti-secretory drugs were collected and recorded in the case report form. The results of present study suggested that Granisetron was found to be more effective as compared to Ondansetron in prevention of chemotherapy induced nausea and vomiting. We propose that use of Granisetron would be more appropriate strategies for the management of chemotherapy induced nausea and vomiting in cancer patients.
KEYWORDS: Antineoplastic, 5-HT3 antagonist, antiemetics, Granisetron, Ondansetron.

IC-2026 SSCPS/DBT/125

Phloretin protects against diabetogenic cataract by reducing aldose reductase activity and lens oxidative stress

Anshul Ram*, Dr. Rajesh Choudhary
Shri Shankaracharya College of Pharmaceutical Sciences (SSCPS), Junwani, Bhilai, Chhattisgarh, 490020 (Shri Shankaracharya Professional University, Junwani, Bhilai, Chhattisgarh)
Email: anshul.croma@gmail.com

Abstract:
Background: Diabetic cataract is still the primary cause of blindness worldwide, with persistent hyperglycemia playing a major role in its development. The activation of the polyol pathway, which converts glucose to sorbitol via aldose reductase (AR), leads to osmotic stress and subsequent oxidative damage, ultimately resulting in loss of lens clarity. **Objective:** This study explored the therapeutic efficacy of Phloretin, a natural dihydrochalcone, in preventing diabetogenic cataract formation by inhibiting AR activity and lenticular oxidative stress. **Methods**: Wistar rats were given oral Phloretin after being induced with experimental diabetes. Cataract development was tracked using slit-lamp biomicroscopy. Lens homogenates were tested for AR activity, protein insolubilization, and oxidative stress markers such as superoxide dismutase (SOD), glutathione (GSH), and malondialdehyde (MDA). **Result:** Phloretin medication significantly delayed the start and progression of lens opacity as compared to untreated diabetic controls. Biochemical research demonstrated that Phloretin has a strong inhibitory effect on lenticular AR activity, inhibiting sorbitol buildup. Furthermore, therapy reduced lipid peroxidation (MDA) while maintaining the activity of endogenous antioxidants (SOD and GSH). **Conclusion:** These data show that Phloretin protects against diabetogenic cataracts by inhibiting AR and mitigating oxidative stress, indicating that it has therapeutic promise as an eye protective agent.
Keywords: Phloretin, diabetic cataract, aldose reductase, oxidative stress, polyol pathway.

IC-2026 SSCPS/DBT/126

COMPARATIVE EVALUATION OF CIMETIDINE AND RABEPRAZOLE IN THE MANAGEMENT OFCHEMOTHERAPY INDUCED GASTRIC ULCER

Vicky Soni
Shri Shankaracharya Institute of Pharmaceutical Sciences and Research
Email: vickysony2909@gmail.com

ABSTRACT
Cancer represents an uncontrolled growth and division of cells, which can occur in any part of the body. Antineoplastic chemotherapy is extensively used for the treatment of various types of cancers. However, it is associated with devastating adverse effects. Gastrointestinal adverse effects like gastric erosions and ulcers are very common in patients receiving chemotherapy. To minimize this, anti-secretory compounds like Rabeprazole (proton pump inhibitor) and Cimetidine (H2 receptor antagonist) are given in combination with anticancer drugs. Although both agents are well established anti-ulcer agents, their comparative efficacy in the cancer patients receiving chemotherapy has not been explored. Therefore, the present investigation was undertaken to compare the efficacy of Rabeprazole and Cimetidine in the prevention of gastric adverse effects associated with chemotherapy. This observational study was carried out in Sanjeevani Cancer Care Hospital, Raipur (CG). The data from cancer patients receiving chemotherapy with anti-secretory drugs were collected and recorded in the case report form. The results suggest significantly less gastric adverse effects in patients receiving Rabeprazole as compared to that of Cimetidine Thus, Rabeprazole was found to be more effective as compared to Cimetidine in preventing chemotherapy induced acidity, gastric erosions and ulcers. We propose that use of Rabeprazole would be a more appropriate strategy in the management of chemotherapy-induced gastric ulcers in cancer patients.
KEYWORDS: Antineoplastic, PPIs, H2 receptor antagonist, Rabeprazole, Cimetidine.

IC-2026 SSCPS/DBT/127

ROS-Responsive Bilayer Microneedles Loaded with Cyclosporine A and Cerium Oxide Nanoparticles for Synergistic Treatment of Psoriasis

Sunita singh
Shri Shankaracharya Institute of Pharmaceutical Sciences and Research
Email: sunita.pharmaphd66@gmail.com

ABSTRACT

Psoriasis, a chronic inflammatory skin disease, is characterized by excessive keratinocyte proliferation, dysregulated inflammation, and reactive oxygen species (ROS) accumulation, forming a refractory "ROS-inflammation-proliferation" cycle. Cyclosporine has poor skin bioavailability due to the stratum corneum, while cerium oxide (CeO2) nanoparticles suffer from short local retention, limiting their efficacy. Here, we developed a ROS-responsive bilayer microneedle (MN) system: the lower polyvinyl alcohol-TSPBA (PVA-TSPBA, ROS-labile) tip loads Cyclosporine, and the upper photocrosslinkable methacrylamide gelatin (GelMA) backing encapsulates CeO2, fabricated via two- step mold-casting. The optimal formulation (10% PVA-3% TSPBA tip, 10% GelMA backing) yielded MNs with intact sharp tips, sufficient mechanical strength, and a clear bilayer structure. In vitro, PVA-TSPBA showed ROS-dependent cyclosporine release, GelMA enabled sustained CeO2 release, and HaCaT cell experiments confirmed good biocompatibility. In psoriasis mice, cyclosporine/CeO2-loaded MNs alleviated lesions, normalized epidermal thickness, and downregulated Ki67 and pro- inflammatory cytokines (TNF-α, IL-17A, IL-6, IL-23) versus drug-free MNs. This system achieves spatiotemporal synergy to disrupt psoriasis' pathological cycle, providing a novel local treatment strategy.

Keywords- Psoriasis, ROS-responsive, microneedles, Bilayer microneedles, Methotrexate, Cerium oxide

IC-2026 SSCPS/DBT/128

DESIGN, SYNTHESIS AND EVALUATION OF ANTIUREASE ACTIVITY OF CINNAMIC ACID DERIVATIVES

RAKESH KUMAR NAIK
Shri Shankaracharya Institute of Pharmaceutical Sciences and Research, Bhilai
Email: naik.rak29@gmail.com

ABSTRACT

Background: Urease, a nickel-dependent enzyme, catalyses the hydrolysis of urea into ammonia and carbon dioxide, contributing to the pathogenesis of diseases such as Helicobacter pylori-induced gastritis, urinary tract infections, and kidney stone formation. Development of effective urease inhibitors is crucial for managing these conditions. Cinnamic acid and its derivatives are known for diverse biological activities, including antimicrobial and enzyme inhibitory effects. **Objective**: To design, synthesize, characterize, and evaluate cinnamic acid derivatives for their antiurease activity, and to identify potential candidates as novel urease inhibitors. **Methods**: Cinnamic acid was subjected to chlorosulphonation followed by coupling with substituted phenylthioureas to yield 4-((substituted phenyl)thiocarbamoylaminosulphonyl) cinnamic acid derivatives (3a–3j). The synthesized compounds were characterized using physicochemical tests, UV, IR, NMR, and mass spectroscopy. In vitro antiurease activity was evaluated using jack bean urease enzyme, with thiourea as the reference inhibitor. **Results:** All synthesized compounds exhibited urease inhibitory activity, with compound 3a (p-OCH3 derivative) showing the highest activity (IC50 = 48.89 μg/ml), surpassing the standard thiourea. Other derivatives (3b–3e) demonstrated moderate inhibition with IC50 values ranging between 29.12–46.16 μg/ml. Solubility and TLC studies confirmed purity, while spectral data validated structural integrity. **Conclusion:** Cinnamic acid derivatives represent promising scaffolds for urease inhibition. The findings highlight compound 3a as a potential lead molecule for further optimization and development of novel therapeutic agents targeting urease-mediated diseases.

Keywords: Cinnamic acid, urease inhibition, thiourea derivatives, molecular docking, antiurease activity, drug design.

IC-2026 SSCPS/DBT/129

Novel Xanthan Gum-g-Polyacrylamide Graft Copolymer based Sustained Release Tablets of Metformin: Development and in Vitro Evolution

Gita Sahu[1] , Shashikant Chandrakar [2] , Sanjib Bahadur[3]
[1]Research Scholar, Columbia Institute of Pharmacy, Raipur, Chhattisgarh
[2]Associate Professor, Columbia Institute of Pharmacy, Raipur, Chhattisgarh
[3]AssociateF Professor, Himalayan Pharmacy Institute, Sikkim, India
Email: gitasahu22@gmail.com

Abstract

Aim: The current work purpose to investigate the polymerization parameter of the grafting of Polyacrylamide onto xanthan gum and prepared sustained drug released tablet of Metformin.

Method: The free-radical polymerization process was used to produce graft copolymers by combining xanthan gum (XG) and Polyacrylamide with Redox initiator like CAS (ceric ammonium sulfate). Grafted polymer was characterized by FTIR,SEM,XRD Acute oral Toxicity and Histopathology study. After the no any significant toxicity confirmation polymer used in tablet formulation. Metformin is a water - soluble drug that is easily released from the tablet. When it is formulated with the grafted polymer XG-g-PAM it shows the sustained release. A sustained-released tablet was formulated with the dry granulation method.

Result: While the tablet was prepared using pure Xanthan gum having provided a high drug- released profile in short duration (98% in 1hr 15 mints.) the tablets prepared with grafted polymer in different concentrations in 13 batches of the F3 and F4 show better-sustained release of the drug. The drug released manners was affected by the interplay between viscosity and swelling capacity of the copolymers. furthermore, drug release rates were affected by drug load and xanthan gum amount higher drug loads slowed release, while more XG accelerated it. The polymerization and grafting of XG-g PAM completed are analyzed by FTIR, which identified characteristic functional groups, including shifts in amide and hydroxyl peaks, indicating that grafting interactions between xanthan gum and polyacrylamide are good. XRD analysis revealed the semi-crystalline nature of the composite, with changes in crystalline attributed to the grafting process. The SEM method reveals a rough, porous surface structure, which increases the material capacity to absorb more water and potential for adsorption applications.

IC-2026 SSCPS/DBT/130

Design, Synthesis and Biological Evaluation of Novel Cinnamaldehyde Derivatives as Aldose Reductase Inhibitors

Sarita Sahu*, Dr. Jaya Shree
Shri Shankaracharya College of Pharmaceutical Science, (SSPU), Junwani, Bhilai, Chhattisgarh, 490020, India
Email: saritasahu196@gmail.com

Abstract

Aldose reductase is a key enzyme of the polyol pathway and plays a significant role in the development of diabetic complications. Inhibition of this enzyme is considered an effective therapeutic approach. Cinnamaldehyde, a naturally occurring α,β-unsaturated aldehyde, exhibits diverse biological activities and serves as a promising lead molecule. In the present study, novel cinnamaldehyde derivatives were designed, synthesized, and evaluated for aldose reductase inhibitory activity. Structural modifications were carried out to enhance enzyme inhibition. The synthesized compounds were characterized by standard physicochemical and spectroscopic techniques. In-vitro evaluation revealed that some derivatives showed appreciable aldose reductase inhibitory potential, indicating that cinnamaldehyde-based scaffolds may be useful in the development of new aldose reductase inhibitors.

Keywords: Cinnamaldehyde derivatives, Aldose reductase, Diabetic complications, Enzyme inhibition, SAR.

IC-2026 SSCPS/DBT/131

Anti-inflammatory activities of Synedrella nodiflora (L.) Gaertn. (Asteraceae)

Tanya Sahu
Shri Shankaracharya College of Pharmaceutical Science, (SSPU), Junwani, Bhilai, Chhattisgarh, 490020, India
Email: tanyasahu2004@gmail.com

Abstract
Herbal cosmetics are preparations used to enhance human appearance and maintain skin health. Herbal formulations have gained significant demand in the global market due to the growing belief that natural remedies are safer and produce fewer side effects compared to synthetic substances. The present research work focuses on the extraction and formulation of an herbal anti-acne face wash using natural ingredients such as neem leaves (Azadirachta indica), turmeric (Curcuma longa), aloe vera, glycerin, lemon juice, rose water, and xanthan gum. These ingredients possess anti-acne, anti-inflammatory, and antioxidant properties. With the help of these herbal components, an effective herbal anti-acne face wash was developed and evaluated. The prepared face wash exhibited multipurpose effects, and all herbal ingredients showed significant activity. The formulation helps in softening the skin, removing acne, and promoting skin healing. The prepared formulation was evaluated based on various parameters including consistency, pH, spreadability, stability, cleansing ability, foamability, and grittiness.
Keywords: Herbal drugs, Herbal drug extracts, Anatomy of skin, Herbal face wash, Anti-acne

IC-2026 SSCPS/DBT/132

"Synthesis, Molecular Docking, and Antimicrobial Evaluation of Mannich Bases Derived from (Z)-3-(Benzylimino)-6-Methylindolin-2-one"

Noor Afrin
Shri Shankaracharya Institute of Pharmaceutical Sciences and Research, Bhilai
Email id: afrin27noor@gmail.com

Abstract:-
This study aimed to design, synthesize, and evaluate (6-methyl-3-oxoindolin-2-ylidene) oxonium derivatives as potential antibacterial and anticancer agents. A series of compounds were synthesized through Mannich reactions and characterized using FT-IR and 1H NMR spectroscopy. Molecular docking simulations were conducted to predict their binding affinity to Escherichia coli quinol-fumarate reductase.The synthesized compounds exhibited moderate antibacterial activity against both Gram-positive and Gram-negative bacteria. Notably, compounds IM3, IM4, and IM20 demonstrated significant activity against Pseudomonas aeruginosa. In vitro anticancer evaluation against HeLa cells revealed that IM3 and IM20 exhibited promising inhibitory effects, with IC50 values comparable to the standard chemotherapeutic agent 5-fluorouracil. These findings suggest that (6-methyl-3-oxoindolin-2-ylidene) oxonium derivatives hold potential as promising lead compounds for the development of novel antibacterial and anticancer agents. Further studies are warranted to elucidate their mechanism of action and optimize their pharmacological properties.
Keywords: Anti microbial activity, (Z)-3-(Benzylimino)-6-Methylindolin-2-one, 6-methyl-3-oxoindolin-2-ylidene, anticancer agents.

IC-2026 SSCPS/DBT/133

Application of artificial intelligence in biotech drug delivery and product development

Mansi Sen*
Ritee College of Pharmacy, Chhatauna Mandir Hasaud (C.G), Pincode-492101
Email: Mansi99sen@gmail.com

Abstract
Artificial intelligence (Al) is revolutionizing biotechnology by transforming the landscape of therapeutic development. Traditional drug discovery faces persistent challenges, including high attrition rates, billion-dollar costs, and timelines exceeding a decade. Recent advances in Al-particularly generative models such as generative adversarial networks, variational autoencoders, and diffusion models-have introduced data-driven, iterative workflows that dramatically accelerate and enhance pharmaceutical R&D. However, a comprehensive synthesis of how Al technologies reshape each key modality of drug discovery remains lacking. This review systematically examines Al-enabled breakthroughs across four major therapeutic platforms: small-molecule drug design, protein binder discovery, antibody engineering, and nanoparticle-based delivery systems. It highlights Al's ability to achieve >75% hit validation in virtual screening, design protein binders with sub-Ångström structural fidelity, enhancing antibody binding affinity to the picomolar range, and optimize nanoparticles to achieve over 35% functionalization efficiency. We further discuss the integration of high-throughput experimentation, closed- loop validation, and Al-guided optimization in expanding the druggable proteome and enabling precision medicine. By consolidating cross-domain advances, this review provides a roadmap for leveraging machine learning to overcome current biopharmaceutical bottlenecks and accelerate next-generation therapeutic innovation.

IC-2026 SSCPS/DBT/134

Herbs in the treatment & management of Atherosclerosis

Meenakshi Nag* & Dr. Rakesh Tirkey
University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur, Chhattisgarh
Email: meenakshinag76@gmail.com

Abstract: Atherosclerosis is characterized by chronic inflammation, accumulation of plaque within arteries that leads to reduced blood flow resulting in Cardiovascular Disease (CVDs). This may ultimately result in clinical complication like Myocardial Infraction (MI) and stroke. This occurs due to many reason such as hyperlipidemia, Endothelial dysfunction, High blood pressure and Oxidative stress. Symptoms associate with chest pain, heart palpitations, shortness of breath, heaviness etc. depends on which artery affected. In past four years approxmately 254 to 500 million people exposured from atherosclerosis involved CVDs, mainly involved women (post menopause state) & older adults are prone to this. Due to adverse effects of existing synthetic anti -atherosclerotic agents, herbs may help manage and overcome this problem. The efficacy of herbs in exhibiting anti atherosclerotic effects through multiple mechanisms has been reported and these plants play a significant role in the treatment and management of atherosclerosis such as Terminalia arjuna, Coccinia grandis, Curcuma longa L., Curcuma longa, Allium sativum L., Solanum incanum L., Rheum Palmatum etc.

Keywords: Atherosclerosis, Cardiovascular Disease (CVDs), Herbs, Myocardial infraction (MI), Antiathrosclerotic agent.

IC-2026 SSCPS/DBT/135

Green Biotechnology and Artificial Intelligence

Nidhi Chaturvedi
Dr . APJ Abdul Kalam Technical university, Noida institute of Engineering and technology, pharmacy institute
Email: nchaturvedi7310@gmail.com

Abstract
Green Biotechnology can be regarded as the cornerstone for sustainable solutions in agriculture, health, environmental management, and industrial bioprocesses. However, traditional ways of experimental investigation are usually very time-consuming, involve a lot of labour, and are limited by scale. Now, with the rapid development of AI, particularly Machine Learning and Deep Learning, unprecedented opportunities have been opened to accelerate biological research and decision-making. The integration of the two ushers in a new paradigm shift toward high-precision, eco-friendly biological innovations. This article offers a collective presentation of the role of AI as a catalyst to increase the efficacy and accuracy of green biotechnology applications. Predictive models using AI facilitate the early diagnosis of plant diseases, the development of climate-resistant plants, the optimization of bio-fertilizers using minimal natural resources, and the monitoring of ecosystems in real- time. In the area of industrial biotechnology, algorithm-based fermentation and metabolism pathway optimization in industrial applications decrease the costs of operation, the generation of wastes, and CO2 emission. Bioinformatics and AI together improve the efficacy of genome manipulation, drug discovery, phytochemical analysis, and therapeutic discovery. The integration of Green Biotechnology and AI, therefore, holds promises of a future that will soon see the emergence of intelligent laboratory settings and automation processes for experimentation and sustainability. Indeed, this combined methodology for research and analysis will not only serve the noble cause of sustainable environmental protection and food security but will provide multiple opportunities for innovation and scaled development for clean technology and biotechnology.

IC-2026 SSCPS/DBT/136

PREPARATION AND EVALUATION OF DENTIFRICES

Devid Patel
Rungta Institute of Pharmaceutical Sciences, Bhilai
Email: devidasr8810@gmail.com

Abstract: Dentifrices, including toothpowder, toothpaste and tooth gel, are agents used along with a toothbrush to aid in removal of dental plaque. They are supplied in paste, powder or gel. Many dentifrices have been produced over the years, some focusing on marketing strategies to sell products, such as offering whitening capabilities. The most essential dentifrice recommended by dentists is toothpaste which is used in conjunction with a toothbrush to help remove food debris and dental plaque. Dentifrices serve multiple functions in oral hygiene through the inclusion of a variety of agents. They act as plaque- and stain-removing agents through the use of abrasives and surfactants. Pleasant flavors and colors encourage their use. They have tartar control properties because of the addition of pyrophosphates. Finally, dentifrices have anti-caries and desensitization properties through the action of fluoride sodium hypochlorite and hydrogen peroxide other agents. The purpose of this study to prepare the dentifrices (dental cleaning gel) to clean the teeth. And to clean the teeth easier for disable or handicapped peoples. And for instant cleaning of teeth in less time. In a singular use of this product who prevent his teeth for 5-7 days. A dentifrices (teeth cleaning gel) has been prepare and the chemical components of dentifrices are (carbopol 934, polyethylene glycol, glycerin, methyl paraben, propyl paraben, amaranth solution, calcium carbonate, fluoride, sodium hypochlorite, hydrogen peroxide, sodium saccharin etc) were analyzed by high performance liquid chromatography in further study. The dentifrices are basically ment for the specially challenged (handicapped) peoples that can't cure his/her tooth at time to time. This preparation is very helpful for this kind of peoples. In this formulation the drug contain high cleaning agent and whitening agent of teeth that can be helpful for the peoples.
Keywords:- Dentifrices, Calculus, Hydrogen peroxide, Fluoride, Specially challenged person etc.

IC-2026 SSCPS/DBT/137

Recent Trends in Transdermal Delivery of Biologics and Peptides

Princy Kashyap, Manoj Kumar*
Department of Pharmacy, Guru Ghasidas Vishwavidyalaya, Bilaspur, Chhattisgarh
Email: mrmanojkumar1@yahoo.co.in

Abstract
Transdermal drug delivery is gaining popularity in pharmaceutical research due to its ability to enhance medication bioavailability, improve patient compliance, and increase therapeutic efficacy. Proteins and peptides administered transdermally have shown promise in improving the therapeutic effectiveness and patient compliance with biologic drugs. When proteins and peptides are given via the gastrointestinal tract, they are exposed to stomach acid and enzymes, which denature them and reduce their bioavailability. Furthermore, several researchers are focusing on transdermal delivery methods as an alternative mode of administration to address these issues. Thus, we attempted to discuss the latest advancements in formulation techniques, transdermal administration methods, and regulatory concerns for peptides and biologics in this chapter. To get over the challenges of delivering macromolecular drugs across the skin barrier, the primary methods for peptide administration have been reviewed, including nanoparticle carriers, biophysical enhancement techniques, and microneedle-based devices. Additionally, we examine the regulatory framework that controls the development and approval of transdermal peptide and biologics delivery systems, emphasising the importance of efficacy, safety, and quality control while also concentrating on clinical developments and current research findings. This review summarises recent developments in biologics and peptide medication delivery with an emphasis on transdermal techniques.
Keywords: Transdermal Drug Delivery, Biologics, Skin Permeability, Non-Invasive Administration, Biomedical Engineering.

IC-2026 SSCPS/DBT/138

Green Biotechnology and artificial intelligence

Qusai Malak
Niet Pharmacy institute , greater noida
Mail: qusaimalak5253@gmail.com

Abstract: Green biotechnology is a pivot of sustainable innovation that harnesses the intricacies of biological systems and processes for addressing imminent global issues pertaining to agriculture, medicine, energy management, and environmental protection. However, the explosive entry of AI into the innovation space has brought revolutionary elements into the purview of green biotechnology innovations. This paper examines the convergent combination between green biotechnology and AI that accelerates intelligence through the utilization of data. High-order AI machine learning algorithms and AI-based deep learning quickly analyze voluminous data associated with biological systems such as genomics, metabolomics, and microbiota. As such, enhanced bioprocessing through the optimization of enzymes and metabolic pathways is ensured. Green biotechnology integrated with AI innovations addresses the resilient generation of climate-safe crops. Moreover, AI-integrated green biotechnology aims at minimizing the reliance on pesticides. Additionally, AI-integrated environmental biotechnology promotes bioremediation processes. AI sustains the conversion of waste into valuable commodities. Moreover, AI-integrated synthetic biotechnology and systems biotechnology pinpoint the design of bioproduct innovations associated with minimal ecological impacts.Despite these developments, data quality, model interpretability, ethical issues, and regulatory framework challenges still are crucial for responsible implementation. This paper, while providing a clear view of current advances, emerging trends, and future prospects, therefore demonstrates the transformative potential of AI-enabled green biotechnology to become a key driver for sustainable, resilient, and environmentally conscious technological progress over the coming decades.

IC-2026 SSCPS/DBT/139

Formulation and Characterization of Diclofenac & Aceclofenac Pain Relieving and Skin Healing Gel For Diabetic Persons

Renuka Sahu
Rungta Institute of Pharmaceutical Science, Bhilai
Email: renukasahu1576@gmail.com

Abstract:
It is phenyl acetic acid derivative developed as anti-inflammatory agent. It has analgesic anti inflammatory antipyretic and skin healing like actions like other NSAIDs. It is recommended in long term treatment of rheumatoid arthritis and Diabetes Mellitus, osteoarthritis and enclosing spondylitis. It is also useful acute miscue skeletal disorder post operative pain and dysmenorrhea. Diclofenac and Aceclofenac pain relieving and skin healing combined gel was developed in different formulation methods. By employing different grades of polymers such as HPMC, Carbopol 934 etc. There are various Diclofenac and Aceclofenac preparation are present in market. But this type of gels not gave any results for the diabetic patient. The formulation were evaluated for various physical parameters, pH, spreadability, skin irritation, drug release excludability studies drug release mechanisms. This gel shows maximum drug release of 8 hours and maximum drug. The purpose of this study is to prepare the combination of Diclofenac and Aceclofenac pain relieving and skin healing gel for Diabetic Persons. This is a combined form of gel that provide rapid onset of action for both effect like analgesic and skin healing. And that is to get instant relieve for pain as comparison of plain aceclofenac and diclofenac tablet or gel. This formulation is much beneficial for the diabetic patent due to using vitamin C and turmeric to get cure fast of skin injury and buildup of skin growth or new epidermis layer of skin in the body. Out of various semisolid dosage forms, gels are becoming more popular dure to ease of application and better percutaneous absorption.
Keywords: Combined Gel, Diclofenac, Aceclofenac, Vitamin C, Turmeric, Analgesic, Skin healing etc.

IC-2026 SSCPS/DBT/140

LEGAL AND REGULATORY CONCERNS FACING NANOTECHNOLOGY

Radha Rani Verma
Rungta Institute of Pharmaceutical Sciences and Research,Kurud road Kohka,Bhilai (C.G.)
Email: radha15072003@gmail.com

ABSTRACT
Nanotechnology is a very vast field which includes a range of technologies at the nano scale, such as pharmaceutical, biotechnology, genomic,neuroscience, robotics and information technologies. Nanotechnology is the latest technological innovation in global debates on risk regulation and international cooperation. Regulatory bodies have started dealing with the potential risks posed by nanoparticles. The main problems are public trust, potential risks, transparency of information, responsible nanosciences and nanotechnology research. The aim of this article is to analysis the main problems regulating nanotechnology and some aspects of ethics.
KEYWORDS: Nanotechnology, General Concerns, Regulations.

IC-2026 SSCPS/DBT/141

Biotechnological Integration of Artificial intelligence for Screening and Development of Plant-Based Anti-Rheumatic Agents: A New Paradigm in Rheumatoid Arthritis Therapy

Shubham Sahu, Dr Rakesh Tirkey
University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur, Chhattisgarh
Email: shubhambandhi@gmail.com

Abstract

Background: Rheumatoid arthritis is an autoimmune disease that affects millions of people. Treatments of NSAIDs and biologics aimed at alleviating symptoms and preventing progression. Herbal remedies are increasingly popular for their low toxicity perception, although they may lead to side effects and allergic reactions. AI-infused herbal medicines combine AI analytical capabilities with herbal remedies to personalize therapy. By analyzing extensive data, including patient profiles and genetic markers, AI enhances the accuracy and effectiveness of herbal formulations, aiming to reduce treatment costs, minimize side effects, improve patient outcomes. **Objective:** To integrate Biotechnology tools with AI for efficient screening of plant based anti-rheumatic agents. **Methodology:** Current research is being conducted on AI-driven herbal therapies are Sulfated IgG N-glycans biomarker, Fuzzy inference systems, Image analysis based on 3D bone microstructure, Support vector machine, Random Forest and Naïve Bayes machine learning algorithms, Electronic phenotype algorithms. **Result:** Key finding are Effectively predict and diagnosis of RA, Potential for early identification and diagnosis of arthritis, Exhibited higher precision of genetic algorithm, Effectively detects cartilage damage parameters in RA patients, Explored potential clinical references for diagnosis and prognosis of RA. **Conclusion:** The integration of AI with traditional herbal medicines for the treatment of RA represents a significant advancement in healthcare practices.

Key words: Rheumatoid arthritis, Artificial intelligence, Herbal medicines

IC-2026 SSCPS/DBT/142

FORMULATION AND EVALUATION OF POLYHERBAL SKIN CLEANSING PREPARATION

Hemsagar Patel*, Dr. Saurabh Shrivastava
Shri Shankaracharya College of Pharmaceutical Sciences, Bhilai, C.G.
Email: patelhemsagar78@gmail.com

Abstract: The development of a safe and effective polyherbal skin cleansing preparation requires a systematic scientific approach beginning from selection of herbal drugs to formulation design. Skin cleansing products are intended to remove impurities, excess sebum, and microorganisms without disturbing the skin's natural protective barrier, and herbal ingredients are increasingly preferred due to their better safety profile and additional therapeutic benefits. In the present study, selected medicinal plants such as Azadirachta indica (Neem), Aloe vera, Curcuma longa (Turmeric), Ocimum sanctum (Tulsi), and Glycyrrhiza glabra (Liquorice) were chosen as active components based on their well- documented antimicrobial, anti-inflammatory, antioxidant, soothing, and skin-conditioning properties. The drug profile of these herbs highlights their rich phytochemical content, including flavonoids, phenolic compounds, saponins, tannins, and polysaccharides, which collectively contribute to effective cleansing and skin protection. Preformulation studies were carried out to evaluate organoleptic characteristics, solubility, pH, moisture content, particle size, and flow properties of the individual herbal extracts to ensure suitability for topical application. The methodology involved systematic analysis of physicochemical and stability-related parameters to support rational formulation development. The hypothesis of the study was that a properly designed polyherbal skin cleansing preparation, based on thorough preformulation studies, would exhibit good compatibility, stability, and skin-friendly characteristics while providing effective cleansing and protective action.

Keywords: Polyherbal skin cleansing preparation, Preformulation studies, Herbal drug profile, Phytochemical screening, Compatibility studies, Herbal cosmetics.

IC-2026 SSCPS/DBT/143

CRISPR CAS9: A Propitious Tool for Therapeutics Development

S.Nandini
Shri Shankaracharya Institute of Pharmaceutical Sciences and Research,Bhilai (C.G)
Email: snandini8120@gmail.com

Abstract: CRISPR-Cas9 (Clustered Regularly Interspaced Short Palindromic Repeats–CRISPR-associated protein 9) is a revolutionary gene-editing technology derived from the adaptive immune system of bacteria. It enables scientists to make precise modifications to the genome of living organisms, offering immense potential in medicine, agriculture, and biotechnology. At its core, the CRISPR- Cas9 system uses a guide RNA (gRNA) to direct the Cas9 endonuclease to a specific DNA sequence, where it induces a double-stranded break. This break is then repaired by the cell's natural DNA repair mechanisms. One of the main advantages of CRISPR-Cas9 is its simplicity, specificity, and cost-effectiveness compared to older genome-editing techniques like ZFNs and TALENs. It allows multiplexing targeting multiple genes simultaneously and has a wide range of applications, from correcting genetic disorders to developing disease-resistant crops. In medicine, CRISPR is being explored to treat genetic diseases such as sickle cell anemia, cystic fibrosis, and certain forms of cancer. In agriculture, it is used to improve yield, stress tolerance, and nutritional quality of crops. However, the use of CRISPR-Cas9 raises significant ethical concerns. Editing human embryos, for example, opens debates around "designer babies," unintended mutations, and long-term ecological impacts. Regulatory oversight and ethical guidelines are essential to prevent misuse and ensure responsible application. Despite these challenges, the future of CRISPR-Cas9 is promising. Researchers are refining its precision, reducing off-target effects, and developing newer variants like CRISPR-Cas12 and base editors. As the technology advances, it holds transformative potential in personalized medicine, synthetic biology, and beyond, marking a new era in genetic engineering.

Keywords:- CRISPR Cas9, designer babies, ethical concerns, genome editing

IC-2026 SSCPS/DBT/144

The Dual Role of Astrocytes in CNS Homeostasis and Dysfunction

Aarti Tiwari*, Pradeep Kumar Samal
Department of Pharmacy, Guru Ghasidas Vishwavidyalaya, (Central University), C.G
Email: aartitiwarildh@gmail.com

Abstract: Astrocytes are the most common type of glial cell in the central nervous system (CNS). They have many different functions that go beyond just supporting other cells. Astrocytes were once thought of as passive parts of the CNS. However, now they are known to be active regulators of homeostasis and active participants in both neurodevelopmental and neurodegenerative processes. This article looks at the both sides of astrocytic function: how they safeguard synaptic integrity, ion and neurotransmitter balance, and blood-brain barrier (BBB) stability, as well as how astrocytes can become activated and participate in the immune response by releasing cytokines, upregulating interferons, and modulating the blood–brain barrier and inflammation disease condition. Astrocytes affect and influence neuronal function through the tripartite synapse, gliotransmission, and the glymphatic system. This review describes how astrocytes are involved in important CNS illnesses such as Alzheimer's disease, Parkinson's disease, multiple sclerosis, amyotrophic lateral sclerosis, and ischemia. It also emphasizes how these cells can change from neuroprotective to neurotoxic states depending on the situation. Researchers look at important biochemical pathways, such as those involving toll-like receptors, GLP-1 receptors, and TREM2, to see if they can change how astrocytes respond. Astrocyte-derived substances, including BDNF, GDNF, and IL-10, are also essential for protecting and repairing neurons. Astrocytes interact with other CNS cells, especially microglia and endothelial cells, thereby altering the neuroimmune environment. Learning about the molecular processes that control astrocytic plasticity opens up new ways to treat glial dysfunction. This review focuses on the importance of astrocytes in the normal and abnormal functioning of the CNS, which has a significant impact on the development of neurotherapeutics that focus on glia.

Keywords: Astrocytes, Glial cell, Neurodegeneration, Receptors, Dysfunction

IC-2026 SSCPS/DBT/145

POLY CYSTIC OVARIAN SYNDROME

Aarti Tiwari, Pradeep Kumar Samal*
Department of Pharmacy, Guru Ghasidas Vishwavidyalaya, (Central University), C.G
Email: samalpharmacology@gmail.com

Abstract: Polycystic ovarian syndrome (PCOS) is the most common endocrine and inflammatory disorder in women associated with oligo-anovulatory infertility and cardiometabolic disorder. Insulin plays a vital role in PCOS; it is also responsible for regulating the action of ovarian and liver metabolic enzymes and also involved in the production of Androgens. The hyperandrogenism prevalence nearly (70-80%). In PCOS, the target tissue is controlled by sex hormone-binding globulin(SHBG) because this is a type of protein produced by hepatic and tightly bind with testosterone and as well as dihydrotestosterone (DHT) and estradiol.[3] Currently study reported, associated with rs6259 polymorphism with link SHBG level and PCOS in most Indian women, nearly 3-5%. The PCOS cases associated with isolated functional adrenal hyperandrogenism and the remaining case of PCOS maybe lack clinical evidence of steroids secretory dysfunction. Most of the females are obese in PCOS; the treatment approaches of PCOS are towards improving insulin tolerance reduce the level of androgen and maintain the normal menstrual cycle and regulate proper fertility. Nonpharmacological approaches are also helpful, like proper exercise, weight management, and maintain healthy diets. The etiology is still unclear, not clear, and has no cure. Some studies reported dysregulation of the gut microbiome and played the crucial role played in Pathogenesis in PCOS.
Keywords: Hyperandrogenism, SHBG, PCOS, Endocrine disorder, Insulin

IC-2026 SSCPS/DBT/146

FORMULATION AND EVALUATION OF NANO CARRIER DRUG DELIVERY SYSTEM

Shubham Patel*, Mr. Akash Dewangan
Shri Shankaracharya College of Pharmaceutical Sciences, Bhilai, C.G.
Email: sp665272@gmail.com

Abstract: The present study aimed at the development and characterization of a herbal extract-loaded nano cream incorporating Aloe vera, Ashwagandha (Withania somnifera), and Turmeric (Curcuma longa) for topical application. These herbal drugs are well known for their anti-inflammatory, antioxidant, wound healing, antimicrobial, and skin rejuvenating properties. Nano-based cream formulation was selected to enhance skin penetration, stability, and bioavailability of herbal actives.Herbal extracts were prepared using a suitable solvent extraction method and characterized for phytochemical constituents. The nano cream was formulated using the nano-emulsion technique, employing appropriate surfactants and co-surfactants. The prepared nano cream was evaluated for particle size, zeta potential, pH, viscosity, spreadability, homogeneity, drug content, and stability studies. In vitro diffusion studies were carried out to assess the release profile of herbal actives. Skin irritation studies were performed to ensure formulation safety. The optimized nano cream exhibited uniform particle size in the nanometer range, good physical stability, smooth texture, acceptable pH, and enhanced drug release compared to conventional cream formulations. Stability studies confirmed that the formulation remained stable under accelerated conditions. The results suggest that the developed herbal nano cream is safe, effective, and promising for topical delivery, offering improved therapeutic benefits for skin care and dermatological applications.
Keywords: Herbal nano cream, Aloe vera, Ashwagandha (Withania somnifera), Turmeric (Curcuma longa), Nano-emulsion, Topical drug delivery, Skin care formulation.

IC-2026 SSCPS/DBT/147

"DEVELOPMENT AND EVALUATION OF PHYTOACTIVE LOADED VESICLES FOR THE TREATMENT OF VECTOR-BORNE DISEASE"

Narendra kumar Cherukury
University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur, Chhattisgarh
Email: pharma.narendra1789@gmail.com

Abstract
Lymphatic filariasis is one of the neglected tropical vector-borne disease that demolish the lymphatic system, leading to chronic inflammation, lymphedema, and irreversible tissue destruction. Persistent oxidative stress and dysregulated inflammatory responses play a key role in disease progression and long-term morbidity. Despite the availability of antifilarial drugs, effective management of inflammation-associated complications remains a clinical challenge. Kaempferol, a naturally occurring flavonoid found abundantly in fruits and vegetables, exhibits potent antioxidant, anti-inflammatory, antimicrobial, and immunomodulatory properties. It effectively reduces oxidative stress and suppresses pro-inflammatory mediators involved in lymphatic tissue injury. However, the macrofilaricidal activity of kaempferol against adult filarial worms remains under investigation, and its ability to directly reduce microfilarial load is inconclusive. The therapeutic application of kaempferol is limited by its poor aqueous solubility and low oral bioavailability. Phytosomes are advanced lipid-based drug delivery systems that enhance the bioavailability of plant-derived bioactive compounds through phospholipid complexation. Phytosomal formulation of kaempferol may improve its bioavailability, tissue penetration, and therapeutic efficacy. Therefore, kaempferol phytosomes may serve as a promising adjunct strategy for managing inflammation and complications associated with lymphatic filariasis.
Keywords: Lymphatic filariasis, Kaempferol, Phytosomes, Anti-inflammatory activity, Bioavailability enhancement

IC-2026 SSCPS/DBT/148

Unlocking the Code: An Introduction to Gene Editing

Rupendra Kumar Sahu, NANDINI
Shri Shankaracharya Institute of pharmaceutical Sciences and Research, Bhilai (C.G)
Email: rupendra7973@gmail.com

Abstract
An Introduction to Gene Editing explores one of the most revolutionary advances in modern biology and medicine gene editing. At the heart of this innovation lies the ability to precisely alter the genetic code of living organisms, offering unprecedented control over hereditary information. Techniques such as CRISPR Cas9, TALENs, and ZFNs have empowered scientists to manipulate segments of DNA with high accuracy, enabling the correction of genetic disorders, the improvement of agricultural traits, and even the development of gene-based therapies. This abstract introduces the fundamental principles of gene editing how specific sequences of DNA are targeted and modified to achieve desired outcomes. The process typically involves a guide molecule (like guide RNA in CRISPR) that directs an enzyme (such as Cas9) to a precise genetic location, where it introduces breaks or edits in the DNA sequence. The cell natural repair mechanisms then fix these breaks, incorporating the intended genetic changes. The potential applications are vast. In medicine, gene editing promises cures for previously untreatable genetic diseases like sickle cell anemia, cystic fibrosis, and certain cancers. In agriculture, it can lead to more resilient, high-yield crops without the need for foreign DNA insertion. However, the power to rewrite life also raises significant ethical concerns, particularly in germline editing, where changes can be inherited by future generations.
Keywords: Gene editing, genetic code, genetic disorders.

IC-2026 SSCPS/DBT/149

Effect of magneto therapy for the treatment of Rheumatoid Arthritis

Kavita Sahu, Ankita Damahe*
Apollo College of Pharmacy, Durg

ABSTRACT
Rheumatoid Arthritis (RA) is a highly prevalent systemic disease affecting the connective tissue, producing inflammation of the joints with pain, impaired function and joint deformation Analgesic and NSAIDs drugs are helpful in decreasing pain and inflammation but there are many side effects such as anemia ,stomach irritation ,heart attack ,stroke ,kidney problem etc. In this article we discussed about the be perceived as a more natural and less harmful alternative to analgesic compounds of interest to health service researchers is the possibility that magneto therapy might help to reduce the economic burden of managing chronic musculoskeletal disorders. Magnets are extremely cheap to manufacture and prolonged treatment involves a single cost. Despite this, good quality scientific evidence concerning the safety, effectiveness and cost-effectiveness of magnet therapy is scarce.
Keyword- Rheumatoid Arthritis disease, treatment, Magneto therapy,

IC-2026 SSCPS/DBT/150

"*Allium cepa* as a Cytological Model for Understanding Mitotic Dynamics in Eukaryotic Cells"

Kavita Patel
Shri Shankracharya College of Pharmaceutical Sciences, SSPU, Junwani, Bhilai

Abstract: Mitosis is a fundamental biological process that governs growth, tissue regeneration, and genetic stability in all eukaryotic organisms. Direct observation of mitotic events at the cellular level provides critical insight into chromosome behavior and cell cycle regulation. In this study, *Allium cepa* (onion) root tips were employed as a model system due to their rapidly dividing meristematic cells and large, easily distinguishable chromosomes. Onion bulbs were cultivated in water to induce root growth, after which actively growing root tips were harvested and fixed using aceto-alcohol. The tissues were hydrolyzed with hydrochloric acid, stained with acetocarmine, and prepared as squash mounts for microscopic examination. Observations under low and high magnification revealed well-defined stages of the cell cycle, including interphase, prophase, metaphase, anaphase, and telophase. Interphase was the most prevalent stage, indicating active metabolic and preparatory cellular activity, while mitotic stages were clearly differentiated by characteristic chromosomal configurations. Chromosome condensation during prophase, equatorial alignment in metaphase, chromatid separation in anaphase, and nuclear reformation during telophase were distinctly visualized. These findings confirm that *Allium cepa* root tips serve as a reliable and effective cytological model for studying mitosis. The clarity of mitotic phase identification reinforces the central role of mitosis in cellular proliferation and genetic continuity and demonstrates the educational and scientific value of onion root tip assays in cell biology research.
Keywords: Mitosis; Allium cepa; Root tip meristem; Chromosome behavior; Cell cycle; Cytogenetics; Microscopic analysis

IC-2026 SSCPS/DBT/151

IMPACT OF REGULATORY CHANGES ON GENERIC DRUG APPROVAL

BHUMIKA SAHU*
Shri Shankaracharya College of Pharmaceutical Sciences, SSPU, Bhilai (c.g)
Email: Sahusoni823@gmail.com

ABSTRACT: Regulatory authorities responsible for the approval of generic drug applications include the Food and Drug Administration (FDA), European Medicines Agency (EMA), Pharmaceuticals and Medical Devices Agency (PMDA), Health Products and Food Branch (HPFB), and the Central Drugs Standard Control Organization (CDSCO). Generic drug manufacturers may submit an Abbreviated New Drug Application (ANDA), which relies on the safety and efficacy data generated by the innovator (reference) product and requires only the submission of bioequivalence studies. Obtaining regulatory approval for generic drugs is a complex and challenging process, particularly when applications are submitted simultaneously to multiple regulatory authorities. These authorities are responsible for ensuring the quality, safety, and efficacy of drug products throughout manufacturing and distribution. The pharmaceutical industry faces several challenges in the development and filing of generic drug applications, many of which can be minimized through the adoption of a standardized submission format. Variations in regulatory procedures across different countries remain a significant hurdle. To address these challenges, the International Council for Harmonisation (ICH) introduced the Common Technical Document (CTD) format, which is accepted by regulatory agencies in the United States, European Union, Japan, India, and Canada. Although the CTD provides a harmonized framework, certain regional differences in dossier requirements still exist. Therefore, strategic regulatory planning remains essential for the successful development and approval of generic drug products.

Keywords: Generic drug; Regulatory authority; Drug development; FDA; ANDA; ICH

IC-2026 SSCPS/DBT/152

"EXTRACTION AND ASSESSMENT OF HERBAL LEAF EXTRACT'S GASTRIC ULCER ACTIVITY IN WISTAR RATS"

Turkane Dhanush Ram[1], Hemant Badwaik
Shri Shankaracharya Institute of Pharmaceutical Sciences Research, SSPU, Bhilai, C. G. India
Email: turkanedhanushram@gmail.com

Abstract

The aim of the study was to evaluate the gastro-protective activity of Manilkara zapota leaf extract in rats. The leaf of M. zapota was air dried in the shade, powdered, and subjected to successive extraction in Soxhlet apparatus. The gastro-protective activity of the methanol extract of Manilkara zapota was evaluated using aspirin plus pylorus ligation and HCl plus ethanol-induced ulcer models. The result was observed in the Phytochemical analysis of various extracts of Manilkara zapota revealed the presence of glycoside, flavonoid, tannins, and phenolic compounds. Methanolic extract of Manilkara zapota extract treatment shows potent and effective gastro-protection against aspirin plus pylorus ligation and HCl plus ethanol-induced ulcer models. In pylorus-ligated rats, the extract decreases the secretion of pepsin, gastric acidity, volume, and increases gastric pH, glycoprotein, protein, superoxide dismutase, catalase, and non-protein sulfhydryl levels. In the HCl plus ethanol induced rats, the Methanolic extract of Manilkara zapota treatment significantly increased the prostaglandin secretion and protects the gastric mucosa compared to the control group rats. Finally the results of the study showed that Methanolic extract of Manilkara zapota possesses a preventive effect against gastric ulcer model in the experimental animals.

Keywords: Antiulcer, antioxidant, pylorus ligation.

IC-2026 SSCPS/DBT/153

ENHANCEMENT OF BIOAVAILABILITY OF ANTI-HYPERTENSIVE DRUG BY NOVEL DRUG DELIVERY SYSTEM

Banafar Alisha[1], Shukla Shiv Shankar[1], Tiwari Sandip Prasad[2]
[1]Department of pharmaceutics, Columbia Institute of Pharmacy, Raipur (C.G)
[2]Department of pharmaceutics, Faculty of Pharmacy, Kalinga University, Raipur (C.G)
Email: banafaralisha83@gmail.com

Abstract: Nano-particle based medicate conveyance frameworks, moreover known as nano drug delivery systems, show a promising approach to focused on treatment within the treatment of cardiovascular illnesses, which incorporate heart disappointment, arrhythmia, atherosclerosis, and myocardial dead tissue. A diagram of the use of nano-particles within the conclusion and treatment of cardiovascular infection is displayed in this work. The nano-particles that are examined incorporate natural and inorganic nano-particles, as well as multifunctional nano-particles. Nano-Drug Delivery Systems have the capacity to move forward restorative results whereas simultaneously minimizing side responses and focusing on particular zones. Usually fulfilled by precisely conveying solutions to atherosclerotic plaques and encompassing tissues. In expansion, these innovations make strides demonstrative capabilities of imaging modalities counting attractive reverberation imaging (MRI) and computed tomography (CT).The application of nanotechnology permits for the determination of issues such as non-specific cytotoxicity, destitute dissolvability, and restricted bioavailability. Both the plausibility of custom fitted sedate conveyance and the advance that has been made in cardiovascular nano-medicine have the potential to upgrade quiet results significantly.

Keywords: Anti-hypertensive, nano-particle based drug delivery, nano-medicine

IC-2026 SSCPS/DBT/154

"In Silico Screening and Analysis of Coumarin Derivatives for Rheumatoid Arthritis"

Ajit Kumar Pandey, Gitanjali Kashyap*
Shri Shankaracharya Professional University, Junwani, Bhilai, C.G. 490020.

Abstract:

Rheumatoid arthritis (RA) is a systemic autoimmune inflammatory disorder characterized by synovial inflammation, cartilage degradation, and joint deformity. Despite therapeutic advances, long-term management remains challenging due to adverse effects and limited patient responsiveness to existing treatments. Therefore, the identification of safer and effective therapeutic agents is essential.

Coumarin derivatives exhibit broad pharmacological activities, including anti-inflammatory and immunomodulatory effects. In this study, an **in silico pharmacological evaluation** was conducted to assess the anti-rheumatoid arthritis potential of selected coumarin derivatives. Molecular docking studies were carried out against major RA-associated molecular targets, including COX-2, TNF-α, JAK, and MMPs. Additionally, pharmacokinetic properties, drug-likeness, and toxicity profiles were evaluated using ADMET prediction tools. The results indicated that several coumarin derivatives possess strong binding affinity toward RA-related targets, accompanied by favourable pharmacokinetic and safety profiles. SAR analysis suggested that specific functional substitutions enhance biological relevance and target selectivity. Overall, the study supports coumarin-based compounds as promising therapeutic candidates for rheumatoid arthritis and provides a rational basis for further in vitro and in vivo investigations.

Keywords; Coumarin derivatives; Rheumatoid arthritis; In silico screening; Molecular docking; ADMET analysis; Structure–activity relationship

IC-2026 SSCPS/DBT/155

ROLE OF CINCHONA IN MANAGEMENT OF MALARIA

Punam Singh & Rakesh Tirkey
University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur, Chhattisgarh
Email: punamsinghxyz@gmail.com

ABSTRACT: Malaria is a mosquito-borne infectious disease of humans and other animals caused by protists (a type of microorganism) of the genus Plasmodium. It begins with a bite from an infected female mosquito, which introduces the protists via its saliva into the circulatory system, and ultimately to the liver where they mature and reproduce. The disease causes symptoms that typically include fever and headache, which in severe cases can progress to coma or death. Malaria is widespread in tropical and subtropical regions in a broad band around the equator, including much of Sub-Saharan Africa, Asia, and the Americas. The term malaria originates from Medieval Italian: mala aria — "bad air"; the disease was formerly called ague or marsh fever due to its association with swamps and marshland. Malaria was once common in most of Europe and North America, where it is no longer endemic, though imported cases do occur. Other Plasmodium species cause infections in certain animals. Several mammals, birds and reptiles have their own form of malaria. Cinchona bark yields quinine, the original malaria drug, used for centuries and still vital for drug-resistant malaria, though often combined with antibiotics like azithromycin due to side effects and resistance. It works by targeting the malaria parasite's blood stage, particularly Plasmodium falciparum, and is an essential medicine. Other related compounds, like quinidine, also possess antimalarial properties. The Cinchona plant is found primarily in the high forests of the Andes Mountains of South America (Peru, Ecuador, Colombia)

KYEWORD: Malaria Cinchona preventing malaria involves main strategies.

IC-2026 SSCPS/DBT/156

Platanus-Derm: A Transdermal Herbal Patch from Platanus orientalis for Sustained Pain and Inflammation Relief

Mansi Soni, Dr. Deependra Singh, Dr. Manju Singh
University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur, Chhattisgarh

Abstract: Platanus-Derm is a novel transdermal herbal patch that delivers standardized bioactive compounds from Platanus orientalis for sustained relief of pain and inflammation. Chronic inflammatory disorders—such as arthritis, musculoskeletal pain, and joint degeneration—remain major global health burdens. These challenges highlight the need for safer, long-acting, and patient-friendly alternatives. Platanus-Derm integrates traditional herbal knowledge with modern biotechnology to create the first transdermal system utilizing standardized *P. orientalis* extracts. The formulation delivers key phytochemicals—including flavonoids (kaempferol derivatives), pentacyclic triterpenoids, and tannins—through a controlled-release mechanism lasting 12–24 hours. Permeation enhancers such as terpenes and fatty acids are incorporated to improve transdermal absorption of both hydrophilic and complex herbal molecules. The innovation lies in its sustained-release design, enhanced bioavailability, and scientific standardization, addressing limitations seen in existing herbal patches that lack controlled delivery and consistency. With the global transdermal patch market growing and demand for natural, safe, and non-invasive therapies increasing, Platanus-Derm has strong commercialization potential. Future development will involve optimized extraction protocols, formulation refinement, and preliminary in vitro evaluations, followed by preclinical and clinical testing. As an accessible and GI-friendly alternative, Platanus-Derm represents a transformative step toward safer, technology-driven herbal pain management solutions.

Keywords: *Platanus orientalis,* Transdermal patch, Sustained relief, Inflammation, Bioavailability

IC-2026 SSCPS/DBT/157

Development and evaluation of Chronic inflammation using sulfosalzine drug loaded patch used in treatment of psoriasis

Rishikesh Singh
Noida institute of engineering and technology Pharmacy Institute, Greater Noida, Uttar Pradesh
Email: singhrishikesh00p@gmail.com

Abstract: Objective: Psoriasis is a chronic immune-mediated inflammatory skin disorder that requires long-term treatment, often associated with systemic side effects and poor patient compliance. The objective of the present study is to **design and evaluate a sulfasalazine-loaded transdermal patch** as a localized and controlled drug delivery system for the management of chronic inflammation in psoriasis. **Methods:** Sulfasalazine-loaded transdermal patches will be formulated using the solvent casting method with suitable polymeric matrices. The prepared patches will be evaluated for physicochemical parameters such as thickness uniformity, weight variation, folding endurance, surface pH, moisture content, and drug content uniformity. In-vitro drug release studies will be conducted to assess the release behavior of sulfasalazine. The anti-inflammatory potential will be investigated using an experimentally induced chronic inflammation model. **Expected Outcomes:** The proposed transdermal patch is expected to provide sustained drug release, improved local anti-inflammatory activity, and reduced systemic exposure. The formulation aims to enhance patient compliance by offering a non-invasive and controlled drug delivery approach. **Conclusion:** This ongoing research is expected to establish sulfasalazine-loaded transdermal patches as a promising alternative for the treatment of chronic inflammation associated with psoriasis, supporting further experimental and clinical investigations.

Keywords: Psoriasis; Chronic inflammation; Sulfasalazine; Transdermal patch; Transdermal drug delivery

IC-2026 SSCPS/DBT/158

Sustainable Plant Tissue Culture for Rheumatoid Arthritis Management in Chhattisgarh

Ms. Gayatri Dashriya and Dr. Rakesh Tirkey
University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur, Chhattisgarh
Email: dashriyagayatri@gmail.com

Abstract: Rheumatoid arthritis (RA) is a chronic autoimmune inflammatory disease that primarily affects joints, causing persistent synovial inflammation that can progress to cartilage destruction and joint ankylosis. In many cases, RA arises from the interaction between genetic predisposition and environmental factors, particularly tobacco exposure. Long-term use of conventional anti rheumatic drugs is often associated with adverse effects, highlighting the need for safer and sustainable therapeutic alternatives. Medicinal plants with anti-inflammatory, antioxidant, and immunomodulatory properties show significant potential in RA management but are limited by seasonal availability and overexploitation. Plant tissue culture techniques such as micropropagation, callus culture, cell suspension culture, and in vitro secondary metabolite production offer a sustainable and eco-friendly solution for the large-scale production of bioactive compounds with uniform quality. Chhattisgarh, rich in medicinal plant diversity, provides several seasonal and rare species with proven anti-arthritic potential, including Semecarpus anacardium (Bhallataka), Asparagus racemosus (Shatavari), Vitex negundo (Nirgundi), Gymnema sylvestre (Gudmar), and Andrographis paniculata (Kalmegh). This sustainable approach promotes biodiversity conservation while ensuring continuous availability of therapeutic resources for future phytopharmaceutical development. Keywords: Rheumatoid arthritis, medicinal, herb, plant tissue culture, micropropagation, Chhattisgarh.

IC-2026 SSCPS/DBT/159

Antioxidant Properties of Natural Bioactive Compounds: Sources, Mechanisms, and Applications

Mousmi Sahu*, Anju Daharia[a]
[a]Kamla Institute of Pharmaceutical Sciences, Bhilai, 490020
Email Id: mousmisahu967@gmail.com

Abstract: Natural bioactive compounds derived from medicinal plants have gained significant attention due to their potent antioxidant properties and their crucial role in health promotion and disease prevention. Traditionally, medicinal plants have been widely used in folk medicine for the management of cardiovascular disorders, inflammatory conditions, and cancer risk reduction. These plants are rich sources of bioactive phytochemicals, such as phenolics, flavonoids, alkaloids, terpenoids, and vitamins, which are extensively explored by the pharmaceutical industry for drug development. In addition to their therapeutic applications, natural antioxidants play a crucial role in the food and cosmetic industries as preservatives, due to their ability to inhibit oxidative degradation and microbial growth. Several plant families are recognized for their high antioxidant potential, including Lamiaceae (rosemary, sage, oregano, marjoram, basil, thyme, mint, and lemon balm), Apiaceae (cumin, fennel, and caraway), and Zingiberaceae (turmeric and ginger). The antioxidant activity of natural bioactive compounds is influenced by various factors such as plant species, environmental and climatic conditions, geographical origin, seasonal variations, stage of maturity at harvest, cultivation practices, and postharvest processing. Furthermore, the concentration, composition, and synergistic interactions of antioxidant constituents, particularly phenolic compounds, are key determinants of their efficacy. Accurate evaluation of antioxidant potential requires careful consideration of extraction methods, solvent selection, extraction conditions, and the choice of analytical assays. This review provides a comprehensive overview of natural bioactive compounds with antioxidant potential, highlighting their sources, influencing factors, and relevance in health protection and industrial applications.

Keywords: Natural bioactive compounds; Antioxidant potential; Medicinal plants; Phenolic compounds; Oxidative stress.

IC-2026 SSCPS/DBT/160

Effect of flavonoids on eye disorders

Dr. Rajesh Chaudhary*
Shri Shankaracharya college of Pharmaceutical Sciences, SSPU, Junwani, Bhilai, CG, India
Email: rajesh080987@gmail.com

Abstract: Eye disorders such as cataract, age-related macular degeneration (AMD), diabetic retinopathy, and glaucoma are among the leading causes of visual impairment and blindness worldwide. Oxidative stress, inflammation, and vascular dysfunction play a significant role in the pathogenesis of these ocular diseases. Flavonoids, a diverse group of naturally occurring polyphenolic compounds found abundantly in fruits, vegetables, tea, cocoa, and medicinal plants, have attracted considerable attention for their protective effects on eye health. These bioactive compounds exhibit strong antioxidant, anti-inflammatory, anti-angiogenic, and neuroprotective properties, which are crucial in preventing and slowing the progression of various eye disorders. Flavonoids such as quercetin, luteolin, catechins, anthocyanins, and hesperidin have been reported to reduce oxidative damage to ocular tissues, improve retinal blood flow, inhibit abnormal vascularization, and protect retinal ganglion cells. In age-related macular degeneration, flavonoids help in preserving photoreceptor function and reducing retinal degeneration. In diabetic retinopathy, they contribute to glycemic control and prevent microvascular damage. Additionally, certain flavonoids have shown potential in lowering intraocular pressure and protecting optic nerve cells in glaucoma. Despite promising experimental and clinical evidence, challenges such as poor bioavailability and limited clinical trials remain. Further research is required to establish optimal dosage, safety, and therapeutic applications. Overall, flavonoids represent a promising natural approach for the prevention and management of eye disorders.

Keywords: Flavonoids; Eye disorders; Antioxidants; Retinal protection; Oxidative stress

IC-2026 SSCPS/DBT/161

Role of Medicinal Herbs in Supporting Muscle Growth, Strength, and Recovery

Sahil patel
Shri Shankracharya College of Pharmaceutical Sciences, SSPU, Junwani, Bhilai
Email: sahilpatelofficial143@gmail.com

Abstract: Muscle growth (hypertrophy) is influenced by nutrition, exercise, hormonal balance, and recovery. In addition to conventional protein supplements and nutrients, several herbs have been traditionally used and scientifically studied for their potential role in supporting muscle growth, strength, and recovery. Herbs such as Ashwagandha (Withania somnifera) have shown promise in improving muscle mass, strength, and testosterone levels while reducing exercise-induced stress. Turmeric (Curcuma longa), rich in curcumin, helps reduce muscle inflammation and soreness, promoting faster recovery. Rhodiola
rosea - An adaptogenic herb that may reduce fatigue and improve endurance during workouts . Saffron improves the amount of testosterone A hormone called testosterone is essential for promoting weight and muscle loss. Ginger: There are many scientific pieces of evidence regarding the effectiveness of ginger for the alleviation of muscle soreness . Overall, these herbs may act as supportive agents in muscle growth by enhancing performance, recovery, and hormonal balance, especially when combined with resistance training and proper nutrition. Further clinical research is needed to establish standardized dosages and long-term safety.

Keywords: Muscle hypertrophy, Muscle growth, Herbal supplements, Ashwagandha, Turmeric (Curcumin), Rhodiola rosea, Saffron, Ginger, Muscle strength.

IC-2026 SSCPS/DBT/162

Preparation and Evaluation of Quinine Ointment

Jayant sahu
Shri Shankracharya College of Pharmaceutical Sciences, SSPU, Junwani, Bhilai
Email: jayantsahu285@gmail.com

Abstract: Quinine ointment is a topical pharmaceutical formulation prepared for its analgesic, antipruritic, and mild local anesthetic properties. The preparation involves incorporating quinine, usually in the form of quinine sulfate or quinine hydrochloride, into a suitable ointment base such as simple ointment, white soft paraffin, or emulsifying ointment. The drug is finely powdered and levigated with a small quantity of levigating agent to ensure uniform dispersion. The mixture is then gradually incorporated into the base by geometric dilution with continuous trituration until a smooth, homogeneous ointment is obtained. The prepared quinine ointment is evaluated for parameters such as uniformity, consistency, spreadability, and stability. This formulation is intended for external use and should be stored in a well-closed container, protected from light and heat, to maintain its efficacy and stability.

Keywords: Quinine ointment, topical formulation, analgesic, antipruritic, consistency, stability, external use, storage conditions.

IC-2026 SSCPS/DBT/163

MULTIPLE UNIT PARTICULATE SYSTEM OF A BRONCHODILATOR FOR THE TREATMENT OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE

Vikas Kumar*, Dr. Alpana Ram
Department of Pharmacy, Guru Ghasidas Vishwavidyalaya (A Central University), Koni, Bilaspur, C.G. India, 495009
Email: vikasdixena1995@gmail.com

ABSTRACT
Chronic Obstructive Pulmonary Disease (COPD) is a progressive respiratory disorder characterized by irreversible airflow limitation and chronic airway inflammation Bronchodilators are the primary therapeutic agents used in the management of COPD; however, conventional dosage forms often lead to variable drug release, poor bioavailability, and increased systemic side effects. To address these limitations, the Multiple Unit Particulate System (MUPS) has gained significant attention as an advanced drug delivery system. MUPS comprises multiple discrete units such as pellets, beads, or microspheres, which are filled into capsules or compressed into tablets. In bronchodilator therapy, MUPS provides uniform drug distribution, reduced risk of dose dumping, improved gastrointestinal transit, and controlled or sustained drug release. This system enhances therapeutic efficacy while minimizing adverse effects and inter-patient variability. Furthermore, MUPS improves patient compliance due to flexible dosing and better safety profiles. Thus, bronchodilator-loaded MUPS represents a promising approach for effective and long-term management of COPD.
Keywords: Multiple Unit Particulate System (MUPS), COPD therapy, Pulmonary drug delivery, Controlled release pellets, Bronchodilator Precision drug delivery.

IC-2026 SSCPS/DBT/164

''FORMULATION AND PHARMACOLOGICAL EVALUATION OF SHANKHPUSHPI-BASED POLYHERBAL SYRUP FOR NEUROPROTECTIVE AND NOOTROPIC ACTIVITY IN STRESS-INDUCED COGNITIVE IMPAIRMENT''

Chanchal Sahu
Rungta Institute of Pharmaceutical Sciences (RIPS) Kohka Bhilai Chhattisgath, 490024
Email: sahuchanchal653@gmail.com

ABSTRACT:
Cognitive decline, another name for cognitive impairment, can happen gradually or abruptly, and it might be transient or more permanent. It might depend on normal age or be associated with other neurological illnesses, such as Alzheimer disease (AD), and it is a growing public health concern. The importance of lifestyle factors, such as food habits, in promoting healthy aging and preventing cognitive decline in later life is now widely recognized. Dietary polyphenols, which include phenolic acids, are among the natural chemicals that have received a lot of attention lately. Supplementing with them has been linked to improved cognitive function and the prevention of cognitive decline. There aren't much human research examining the relationship between phenolic acid consumption and cognitive results, despite their therapeutic promise. In this review, we present preclinical evidence that various dietary polyphenols, including cinnamic aldehyde, ellagic acid, and rosmarinic acid, can have neuroprotective and pro-cognitive effects through various molecular mechanisms, such as the regulation of inflammatory status and pro-oxidant and antioxidant machinery. Further, more extensive in vivo research is required to support the encouraging preclinical findings. Future research should determine which of the various metabolites generated as a result of phenolic acid consumption may oversee the possible neuroprotective effects of this subgroup of polyphenols, even though phenolic acids have excellent pharmacokinetic properties and can accumulate in the brain at pharmacologically relevant levels.
KEYWORDS: Cognitive Decline, Phenolic acids, Neuroprotective, Oxidative Stress, Brain Health, Aging.

IC-2026 SSCPS/DBT/165

"Phytoconstituents for Targeted Metabolic Regulation in Diabetes"

Nikita Singh Banafar
Kamla Institute of Pharmaceutical Sciences, Bhilai, 490020
Email: nikitabanafar40@gmail.com

Abstract
Diabetes Mellitus is a complex metabolic syndrome characterized by chronic hyperglycemia resulting from defects in insulin secretion, insulin action, or both. Despite the availability of various oral hypoglycemic agents, current therapies are often limited by adverse side effects, such as hypoglycemia and weight gain, and the phenomenon of secondary failure. This research proposal aims to perform the pharmacological profiling of selective phytoconstituents for targeted metabolic regulation. The study utilizes an integrated scientific approach comprising In-silico, In-vitro, and In-vivo evaluations. Initially, molecular docking and dynamic simulations will be executed to predict the binding affinity of these bioactives against critical metabolic targets, specifically Protein Tyrosine Phosphatase 1B (PTP1B) for reversing insulin resistance and Sodium-Glucose Cotransporter-2 (SGLT-2) for managing renal glucose reabsorption. Following computational screening, the glucose uptake potential and mechanism of GLUT-4 translocation will be validated using In-vitro cell line assays. Finally, the anti-hyperglycemic efficacy and organ-protective effects of the prioritized leads will be assessed in Streptozotocin (STZ)-induced experimental diabetic models. The expected outcome of this study is to identify potent natural leads that offer a multi-targeted therapeutic approach with a superior safety profile compared to conventional synthetic drugs .
Keywords: Phytoconstituents, Diabetes Mellitus, PTP1B Inhibition, SGLT-2 Modulation, GLUT-4 Translocation, Insulin Resistance

IC-2026 SSCPS/DBT/166

Puerarin as a potential immunomodulator: Mechanistic insights from in silico and in vitro assessment

Rakesh Tirkey
University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur, Chhattisgarh 492010
Email: rakeshtirkey99@gmail.com

Abstract: Immune-mediated inflammatory diseases (IMIDs) comprise a heterogeneous group of disorders characterized by systemic inflammation and multiorgan involvement, including inflammatory bowel disease (IBD), uveitis, rheumatoid arthritis (RA), psoriasis, systemic lupus erythematosus (SLE), ankylosing spondylitis, sarcoidosis, atopic dermatitis (AD), connective tissue disorders, asthma, and certain neurological conditions such as multiple sclerosis (MS). Despite heterogeneous clinical presentations, these multifactorial diseases are unified by immune system dysregulation and overlapping genetic and environmental risk factors. However, the Immunotherapeutics currently used for their treatment are frequently accompanied by significant adverse effects, including bone marrow suppression, hepatotoxicity, and nephrotoxicity. Hence, this study aimed to explore a potential novel immunosuppressive candidate with least side effect for immune-mediated disorders, with the immunomodulatory effects of puerarin investigated through in vitro and in silico methodologies. The results demonstrated that puerarin exerted a significant suppressive effect on lipopolysaccharide (LPS)-stimulated RAW 264.7 macrophages through downregulation of IL-6 and TNF-α release. Additionally, the in-silico study revealed that puerarin exhibits considerable binding affinity for the selected immune protein, thereby elucidating its underlying immunomodulatory mechanism. Overall, the finding indicates that puerarin could emerge as a more favourable alternative to existing immunosuppressive medications.
Keywords: phytochemical, immunomodulatory, in vitro, in silico.

IC-2026 SSCPS/DBT/167

Formulation and Evaluation of Aspirin Orodispersible Films for Post-Stroke Dysphagia: A Preliminary Investigation

Preeti Sen*, Dr. Manju Rawat Singh, Dr. Deependra Singh
University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur, Chhattisgarh, India
Email: preetisen613@gmail.com

Abstract: Aspirin (Acetylsalicylic Acid, ASA) is a key antiplatelet agent used for immediate loading and secondary prevention of ischemic stroke. Dysphagia affects up to 50% of stroke survivors, leading to poor medication adherence and increased risk of recurrent stroke. Conventional solid oral dosage forms are often difficult to swallow in these patients, emphasizing the need for patient-friendly alternatives. This study aimed to formulate and evaluate Orodispersible Films (ODFs) of ASA for rapid, water-free administration. Films were prepared using the solvent casting method, with three formulations (F1–F3) incorporating different hydrophilic polymers, including hydroxypropyl methylcellulose (HPMC E5), polyethylene oxide (PEO), and Pullulan, and propylene glycol as a plasticizer. Taste-masking agents were included to improve palatability. The characterization included in vitro disintegration in simulated saliva, folding endurance, drug content uniformity, and preliminary stability testing. The optimal formulation was identified based on rapid disintegration, acceptable mechanical strength, uniform drug distribution, and effective taste masking. The results suggest that the optimized ODF provides a safe, convenient, and patient-centric dosage form for post-stroke patients with dysphagia. By enabling fast and reliable administration of ASA without water, this delivery system has potential to improve medication compliance and therapeutic outcomes in stroke survivors.

Keywords: Orodispersive Film, Acetylsalicylic Acid, In Vitro Disintegration, Solvent Casting, Dysphagia

IC-2026 SSCPS/DBT/168

Plant Biotechnology Strategies for Enhancing Antidepressant Potential of Medicinal Herbs"

Ms. Manju patel and Dr. Rakesh Tirkey
University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur, Chhattisgarh
Email: manjupatel9068@gmail.com

Abstract: Depression is a major global mental health disorder, and the limitations of conventional antidepressant drugs, including adverse effects and variable efficacy, have increased interest in plant-based therapeutics. Medicinal herbs possess a wide range of bioactive phytochemicals such as alkaloids, flavonoids, terpenoids, and phenolic compounds that exhibit antidepressant activity through modulation of neurotransmitters, neurotrophic factors, oxidative stress, and inflammatory pathways. However, low yield, variability in phytochemical content, and overexploitation of natural resources limit their therapeutic potential. Plant biotechnology offers innovative strategies to enhance the antidepressant potential of medicinal herbs by improving both the quality and quantity of bioactive compounds. Techniques such as plant tissue culture, cell suspension culture, hairy root culture, metabolic engineering, and elicitation have been successfully employed to increase the production of antidepressant-related secondary metabolites under controlled conditions. Additionally, genetic transformation and omics-based approaches facilitate the identification and regulation of key biosynthetic pathways involved in neuroactive compound synthesis. Integration of plant biotechnology with emerging tools such as artificial intelligence and bioinformatics further accelerates the screening, optimization, and standardization of herbal antidepressants. These sustainable and eco-friendly approaches not only ensure consistent phytochemical profiles but also reduce dependence on wild plant populations. Overall, plant biotechnology represents a promising platform for the development of safer, effective, and sustainable antidepressant agents from medicinal herbs.

Keywords: Plant biotechnology; Antidepressant activity; Medicinal, herb; Tissue culture; Sustainable drug development

IC-2026 SSCPS/DBT/169

Radiolabeled nanomaterials for biomedical applications

Tanuj Pandey[1], Prerana Sahu[1]
Rungta Institute of Pharmaceutical Sciences
Email: tanujpandey@anjaneyauniversity.ac.in

Abstract: Application of nanotechnology principles in drug delivery has created opportunities for treatment of several diseases. Nanotechnology offers the advantage of overcoming the adverse biopharmaceutics or pharmacokinetic properties of drug molecules, to be determined by the transport properties of the particles themselves. Through the manipulation of size, shape, charge, and type of nanoparticle delivery system, variety of distribution profiles may be obtained. However, there still exists greater need to derive and standardize definitive structure property relationships for the distribution profiles of the delivery system. When applied to radiopharmaceuticals, the delivery systems assume greater significance. For the safety and efficacy of both diagnostics and therapeutic radiopharmaceuticals, selective localization in target tissue is even more important. At the same time, the synthesis and fabrication reactions of radiolabelled nanoparticles need to be completed in much shorter time. Moreover, the extensive understanding of the several interesting optical and magnetic properties of materials in nanoscale provides for achieving multiple objectives in nuclear medicine. This review discusses the various nanoparticle systems, which are applied for radionuclides and analyses the important bottlenecks that are required to be overcome for their more widespread clinical adaptation.

IC-2026 SSCPS/DBT/170

Formulation of an ocular drug delivery system of Roflumilast

Gunja sahu*, Siddharth sahu**
Shir Shankaracharya College of Pharmaceutical Sciences, Junwani
Email id: gunjasahu792@gmail.com

ABSTRACT
An efficient protocol for the formulation and physio-chemical characterization of roflumilast loaded polymeric systems using Moringa Oleifera gum and synthetic Eudragit polymer has been used in the present study. The gum was sparingly soluble in water at room temperature and form a colloidal solution. Solubility of the gum gradually increased in the solvent gradient (80% ethanol, deionized water, 0.05 M HCl, and 0.05 M NaOH) at 90°C. The eudragit gum was highly soluble in DMSO and ethanol. Nanoparticles of roflumilast and polymers were prepared by the solvent displacement technique. A total of 6 formulations were developed in which 3 formulations contain roflumilast drug (10mg) along with moringa oleifera gum polymer(50mg, 100mg, 150mg) and 3 formulations contain roflumilast drug (10mg) along with eudragit polymer (100mg, 200mg, 300mg). Scanning electron microscopy revealed the formation of a uniform and well-dispersed polymeric network with reduced particle aggregation. The developed system exhibited amorphous characteristics and improved stability compared to pure roflumilast. In vitro drug release studies demonstrated a sustained and controlled release pattern of roflumilast from the Moringa gum–Eudragit matrix. The results suggest that the nanoparticle of natural and synthetic polymers effectively enhances the solubility and release profile of roflumilast, highlighting its potential application in the development of a biocompatible and efficient drug delivery system.
Keywords: Moringa oleifera gum polymer, Eudragit polymer,roflumilast, Nanoparticle.

IC-2026 SSCPS/DBT/171

Eco-Friendly Therapeutics: The Role of Green Biotech in Urolithiasis

Jyoti Pujari and Rakesh Tirkey
University institute of pharmacy, Pt.Rvishankar Shukla University Raipur, Chhatishgarh
Email: jyotipujari334@gmail.com

Abstract: Urolithiasis is the deposition of calcified stones in the kidneys or ureters that affects the functioning of the bladder and urethra. In everyday clinical practice, it is a prevalent pathologic multifaceted urological disorder. Characterized by severe visceral pain that has a major impact on a patient's everyday activities and quality of life. The incidence and prevalence of kidney stones have steadily increased, driven by factors such as dietary habits (particularly high Sodium consumption), hereditary predisposition, and Environmental conditions, including climatic variations. Projections indicate a considerable rise in populations at Risk, from 40% in 2000 to an estimated 56% by 2050 and potentially up to 70% by 2095. The drugs presently used for the treatment of urolithiasis have many adverse side effects; therefore, alternatives are needed. In some recent years, This is where Green Biotechnology comes in. We are moving towards 'Eco-Friendly Therapeutics' by investigating medicinal plants like Ficus Racemosa L (Goolar), Phaseolus vulgaris (beans), Rosa sinensis L.(Gurhal) , Moringa oleifera Lam (Drumstick tree), Punica granatum (Pomegranate) extracts. From a pharmacology perspective, these natural compounds act as potent anti-urolithiatic agents by mechanisms such as increasing urine pH and actively inhibiting crystal formation. The benefit here is clear: we use sustainable sourcing and reduce the harsh chemical synthesis associated with traditional drug manufacturing.

Keyword:- Urolithiasis, Green biotechnology, Medicinal plant

IC-2026 SSCPS/DBT/172

NANO-BIOREMEDIATION: SYNERGISTIC USE OF NANOPARTICLES AND MICROBES TO REMOVE INDUSTRIAL DYES

Shan Ansari, Rakesh Tirkey
University Institute of Pharmacy, Pandit Ravishankar Shukla University, Raipur
Email: sa721775@gmail.com

Abstract: Environmental pollution is one of the most important issue the world is facing nowadays and its progressing each year. In recent time when we take a look account into the textile and dye based industries has led to continuous disposing colored liquid water which contains many non-biodegradable waste, organic and inorganic matter, surfactants, heavy metal and many more substance in the water bodies. Classical methods are not enough to clean up the dyes as it has high operating power, low biodegradability and sludge formation which contains iron oxide. Simultaneously, Nano bioremediation be the turning point, so by the efficient use of nanoparticles we can cleanup that waste pollution. Various microorganisms have activity for the removal of dyes, bacteria strains such as KI (Pseudomonas Putida) and SL14 (Serratiaproteamaculans). The role of Nano bioremediation plays a key role for the control of the water pollution cause by textile dyes.

Keywords: Nano-bioremediation, remediation, biodegradable.

IC-2026 SSCPS/DBT/173

Formulation and evaluation of herbal balm

Pankaj Kumar
Columbia Institute of Pharmacy Raipur
spankajkumar572@gmail.com

Abstract: Introduction: Herbal balms are topical semi-solid dosage forms commonly used for the relief of pain and inflammation due to their analgesic and anti-inflammatory properties. They are widely accepted because of their safety, ease of application, and minimal side effects. The present study focuses on the formulation of an herbal balm using selected herbal ingredients and its evaluation for physicochemical characteristics. **Methodology:** The herbal balm was prepared by the hot-melt method. Base materials were melted on a water bath and uniformly mixed with herbal active constituents to obtain a homogeneous formulation. The molten mass was transferred into suitable containers and allowed to solidify at room temperature. **Result and Discussion:** The prepared herbal balm exhibited smooth texture, uniform appearance, and acceptable organoleptic properties. Evaluation parameters such as pH, homogeneity, spreadability, extrudability, and skin irritation were within acceptable limits, indicating suitability for topical application. Stability studies conducted for three months showed no significant changes in physical characteristics, confirming formulation stability. **Conclusion:** The formulated herbal balm was stable and safe; however, in-vivo pharmacological studies are recommended to confirm therapeutic efficacy and optimize clinical performance.

IC-2026 SSCPS/DBT/174

Development of Thermosensitive In-situ gel of Flavonoid Bioactive

Veena Verma*, Dr. Swarnali Das Paul**
Shri Shankaracharya College of Pharmaceutical Sciences, Junwani, Bhilai
Email: veenaverma515@gmail.com

ABSTRACT

An efficient protocol for the formulation and physio-chemical characterization of quercetin loaded polymeric systems using Moringa Oleifera gum and synthetic Eudragit polymer has been used in the present study. The gum was sparingly soluble in water at room temperature and form a colloidal solution. Solubility of the gum gradually increased in the solvent gradient (80% ethanol, deionized water, 0.05 M HCl, and 0.05 M NaOH) at 90°C. The eudragit gum was highly soluble in DMSO and ethanol. Nanoparticles of quercetin and polymers were prepared by the solvent displacement technique. A total of 6 formulations were developed in which 3 formulations contain quercetin drug (10mg) along with moringa oleifera gum polymer(50mg, 100mg, 150mg) and 3 formulations contain quercetin drug (10mg) along with eudragit polymer (100mg, 200mg, 300mg). Scanning electron microscopy revealed the formation of a uniform and well-dispersed polymeric network with reduced particle aggregation. The developed system exhibited amorphous characteristics and improved stability compared to pure quercetin. In vitro drug release studies demonstrated a sustained and controlled release pattern of quercetin from the Moringa gum–Eudragit matrix. The results suggest that the nanoparticle of natural and synthetic polymers effectively enhances the solubility and release profile of quercetin, highlighting its potential application in the development of a biocompatible and efficient drug delivery system.

Keywords:- Quercetin, Moringa oleifera gum, Eudragit, Nanoparticle, flavonoids.

IC-2026 SSCPS/DBT/175

Nanoinformatics-Based Metal–Quinazoline Nanoarchitectures for Epigenetic Targeting and Radiotherapy-Synergized Anticancer Activity

Mayank Garhewal[1], Yogesh Vaishnav[1,*]
[1]Department of Pharmacy, Guru Ghasidas Vishwavidyalaya (A Central University), Bilaspur 495009, Chhattisgarh, India

Abstract

This study presents an integrated computational investigation of quinazoline derivatives as histone deacetylase (HDAC) inhibitors employing 2D and 3D QSAR modeling, Pharmacophore modeling, Toxicity study, virtual combinatorial library used for design metal conjugate quinazoline derivative from compound 02 which gives the best predicted biological activity 7.861 nM on the basis of 2D & 3D qsar model, density functional theory (DFT), and molecular docking. The robust 2D QSAR model demonstrated high predictive accuracy with r2=0.9543, q2=0.8314, and external predictivity predr2=0.7635 revealing descriptors such as T2C4, XlogP, and SsOHcount influencing HDAC inhibitory activity. Two 3D QSAR models developed by the k-nearest neighbor method yielded comparable internal predictivity (q2=0.7374) with Model 1 showing slightly better external predictivity (predr2=0.6031) and Model 2 providing greater reliability with lower prediction error (predr2=0.5985 predrse2=0.9284). DFT calculations revealed significantly reduced HOMO-LUMO gaps for metal-conjugated ligands compared to the reference SAHA, indicating enhanced electron delocalization and reactivity; the Cu-conjugate showed a gap of −0.0507eV versus −0.1432eV for SAHA. Molecular docking against HDAC (PDB ID 1C3S) confirmed superior binding affinities for metal-conjugated nanoparticles, with Au-conjugates exhibiting the highest docking score of −12.82 kcal/mol compared to −9.86 kcal/mol for SAHA. By integrating multiple analytical approaches, this work reveals the structural and electronic factors essential for effective HDAC inhibition and identified metal–ligand conjugates as promising leads for anticancer therapy.

Keywords: Quinazoline Derivatives, HDAC Inhibitor, Radiosensitization, Pharmacophore, Molecular Docking.

IC-2026 SSCPS/DBT/176

Development of a validated first order derivative spectroscopic method for Faropenem

Deepti Patel[1*], Dr. Ajit Pandey[1]
Kamla institute of pharmaceutical sciences, Bhilai, Durg-491001, Chhattisgarh, India
Email: deeptipatel0302@gmail.com

Abstract:

Present research work discusses the development of First Order Derivative Spectroscopy method for the determination of Feropenem. Simple, specific, accurate and cost effective spectroscopic method has been developed for the estimation of Feropenem in bulk as well as formulation. The spectra showed sharp peak at 329.8 nm when n=3 and linearity was measured at 329.8 nm. The polynomial regression data for the calibration plots showed good linear relationship in the concentration range of 10-100mcg/ml with y= 0.0006x-0.0003 and r^2= 0.996. Since the aim of the work was to develop a simple, accurate and economical first order derivative spectroscopy, therefore there will be a good choice for the researchers to opt this method for analysis of Feropenem.

Keywords- Faropenem, Linearity.

IC-2026 SSCPS/DBT/177

CLINICAL ADVANCES IN RADIOPHARMACEUTICAL THREAPY IN CANCER

Ashwary Jain[1], Dr.Gyanesh Sahu[2]
[1]Rungta Institute of Pharmaceutical Sciences, [2]Rungta Institute of Pharmaceutical Sciences & Research
Email: ashwaryjain01@gmail.com

Abstract: Radiopharmaceutical therapy (RPT) is emerging as a safe and effective targeted approach to treating many types of cancer. In RPT, radiation is systemically or locally delivered using pharmaceuticals that either bind preferentially to cancer cells or accumulate by physiological mechanisms. Almost all radionuclides used in RPT emit photons that can be imaged, enabling non-invasive visualization of the biodistribution of the therapeutic agent. Compared with almost all other systemic cancer treatment options, RPT has shown efficacy with minimal toxicity. New innovations have significantly enhanced the precision, safety, and therapeutic outcomes of cancer treatment. Agents like Lutetium-177, Iodine-131, and Actinium-225 have shown remarkable success in treating cancers such as prostate, thyroid, and neuroendocrine tumors. The benefits of radiopharmaceutical therapy in cancer include higher treatment specificity, reduced systemic toxicity, improved patient quality of life, and the ability to monitor therapeutic responses in real time. The recent work embraces, Radiopharmaceutical therapy a cutting-edge, targeted cancer treatment that combines high therapeutic precision, minimal systemic toxicity, and real-time imaging to improve both treatment outcomes and patient quality of life.

IC-2026 SSCPS/DBT/178

Development of a Validated Analytical Method of Linezolid by First Order Derivative Spectroscopy.

Gyanjyoti Pant[1*], Dr.Ajit Pandey[1]
Kamla institute of pharmaceutical sciences, Bhilai, Durg-491001, Chhattisgarh, India
Email: gyanjyotipant@gmail.com

Abstract-Present research work discusses the development of First Order Derivative Spectroscopy method for the determination of Linezolid. Simple, specific, accurate and cost effective spectroscopic method has been developed for the estimation of Linezolid in bulk as well as formulation. The spectra showed sharp peak at 239 nm when n=3 and linearity was measured at 239 nm. The polynomial regression data for the calibration plots showed good linear relationship in the concentration range of 5-25mcg/ml wit y= 0.0019x-0.0004 and r^2= 0.9986. Since the aim of the work was to develop a simple, accurate and economical first order derivative spectroscopy, therefore there will be a good choice for the researchers to opt this method for analysis of Linezolid.

Keywords: Linezolid, Antibiotic activity

IC-2026 SSCPS/DBT/179

FORMULATION AND CHARACTERISATION OF POLYHERBAL MICRO-SUSPENSION FOR DIABETIC COMPLICATIONS

Chumman Lal Sahu*, Dr. Rajesh Choudhary
Shri Shankaracharya College of Pharmaceutical Sciences, Bhilai, C.G.
Email: sahuchumman313@gmail.com

Abstract: Diabetes and its devastating micro- and macrovascular complications like nephropathy, neuropathy, retinopathy, and cardiovascular disease are continuously rising and increasing the health burden globally. The current conventional pharmacotherapy focuses on controlling hyperglycemia and often has limitations including side effects, high costs, and an inability to fully prevent or reverse the progression of complications. This has spurred a significant interest in exploring alternative and complementary therapies, particularly those derived from natural sources.Traditional medicinal systems, especially Ayurveda, have a rich history of using medicinal plants and polyherbal formulations for managing diabetes and its associated symptoms. Many of these traditional remedies are known for their anti-hyperglycemic, antioxidant, anti-inflammatory, and organ-protective properties. A plethora of research supports that either single herb or polyherbal combinations effectively manage diabetes and its complications through a variety of mechanisms, including improved insulin secretion and tissue sensitivity, increased glucose uptake, organ protective action against oxidative stress, and anti-inflammatory action.

Keywords: Diabetic, Cardiovascular Diseases, Polyherbal, Micro Suspension, Ayurveda

IC-2026 SSCPS/DBT/180

Formulation development and optimization of floating microballoons for oral delivery of diltiazem hydrochloride

Deepak Kumar Yadav
Shri Shankaracharya Professional University, Bhilai, Junwani Road, Pin Code-490020
Email: deepakyadavup0905@gmail.com

Abstract: Diltiazem hydrochloride is a calcium channel blocker widely used in the management of hypertension and angina pectoris; however, its short biological half-life and limited absorption window in the upper gastrointestinal tract necessitate frequent dosing, which may reduce patient compliance. The present study focuses on the formulation development and optimization of floating microballoons as a gastroretentive drug delivery system to enhance the oral bioavailability and sustain the release of diltiazem hydrochloride. Floating microballoons were designed to remain buoyant in gastric fluid, thereby prolonging gastric residence time and improving drug absorption. Microballoons were prepared using a solvent evaporation technique with suitable polymers such as ethyl cellulose and hydroxypropyl methylcellulose, selected for their buoyancy and controlled-release properties. Formulation variables, including polymer concentration and drug–polymer ratio, were systematically optimized using a statistical design of experiments approach to achieve desirable physicochemical characteristics. The prepared microballoons were evaluated for particle size, surface morphology, percentage yield, drug entrapment efficiency, buoyancy, and in-vitro drug release behavior. Optimization aimed to obtain microballoons with high floating ability, uniform size distribution, adequate drug loading, and sustained drug release over an extended period. In-vitro dissolution studies demonstrated a controlled and prolonged release profile of diltiazem hydrochloride, suggesting the potential of the optimized formulation to maintain therapeutic plasma concentrations for a longer duration. The floating behavior of microballoons in simulated gastric fluid confirmed their suitability as a gastroretentive system. Overall, the study indicates that floating microballoons are a promising approach for improving the oral delivery of diltiazem hydrochloride by enhancing gastric retention, reducing dosing frequency, and potentially improving patient compliance. This formulation strategy may serve as an effective platform for other drugs with similar absorption characteristics.

IC-2026 SSCPS/DBT/181

Dual ROS/pH-Responsive Glycyrrhetinic Acid–Encapsulated Chitosan Nanocarriers for Targeted Rheumatoid Arthritis Treatment

Astha Verma[1#], Chanchal Deep Kaur[2]
[1]Rungta College of Pharmaceutical Sciences and Research, Bhilai, India.
[2]Rungta College of Pharmaceutical Sciences and Research, Raipur, India.
Email: astha.pharmacy2207@gmail.com

Rheumatoid arthritis (RA) is a chronic inflammatory joint disease characterized by cartilage degradation, bone erosion, stiffness, reduced bone strength, and continuous pain. Prolonged systemic administration of conventional drugs often causes adverse side effects. To address this, targeted and site-specific drug delivery approach has been designed by exploiting the pathological microenvironment of RA. In this study, Chitosan (CS) was conjugated with Thioketal linker (TK) via EDC/NHS chemistry. Modified chitosan (CS-TK) nanoparticles were prepared through ionic gelation method encapsulating Glycyrrhetinic acid (GA), a promising anti-inflammatory bioactive with potential inhibitor of MAPK/NF-κB pathway and is coated with Hyaluronic acid by electrostatic interaction. The optimized hyaluronic acid–coated nanoparticles undergo CD44 receptor–mediated endocytosis, where elevated ROS levels in inflamed tissues induce the breakdown of thioketal linkages, resulting in drug release within the acidic intracellular environment of the affected cells. In- vitro studies revealed CS-TK/GA nanoparticles had a mean particle size of 200 nm, a polydispersity index of 0.3, a zeta potential of +26.4 mV, and improved drug loading. GA exhibited comparative high and sustained release from CS-TK/GA in an acidic pH of 5.5 and H_2O_2 environment. Preliminary results indicate that GA-loaded nanoparticles are a promising therapeutic approach for RA, with in vivo studies expected to confirm their efficacy.

Key Words: Rheumatoid Arthritis, Glycyrrhetinic acid, Chitosan, Hyaluronic acid, Targeted delivery

IC-2026 SSCPS/DBT/182

Ethical Considerations and Model Selection in Osteomyelitis Treatment

Deepak Kumar Biswas
Kamla Institute of Pharmaceutical Sciences – Shri Shanharacharya Technical campus, Bhilai
Email: deepakpharma412@gmail.com

Abstract: Osteomyelitis is a severe infection of the bone, most often caused by Staphylococcus aureus. The understanding of its pathogenesis is limited, primarily due to the scarcity of experimental models that accurately replicate the human condition. Currently, the use of such models is heavily regulated to prevent unnecessary animal suffering, ensuring adherence to animal welfare standards and the exploration of alternative methods in line with existing European laws. The necessity for animal models in orthopedics has led to the development of innovative therapeutic strategies and the enhancement of traditional surgical techniques, contributing to the evolution of personalized medicine. Generally, choosing a suitable animal model that faithfully represents the human pathology of osteomyelitis while accounting for the various factors that affect different clinical manifestations remains a considerable challenge. This review provides a comprehensive overview of the diverse animal models employed in osteomyelitis research, including those involving rodents, rabbits, birds/chickens, pigs, minipigs, dogs, sheep, and goats. We examine the features of each model and the related clinical scenarios, offering a foundational rationale for experimental selection. This review underscores the critical role of selecting an appropriate animal model in osteomyelitis research to enhance result accuracy and support the development of new treatment and management strategies.

Keywords: Osteomyelitis, Animal models, Hematogenous osteomyelitis, Orthopedics

IC-2026 SSCPS/DBT/183

Exploration Of Mushroom Biodiversity And Sustainable Cultivation Practices In Surajpur District, Chhattisgarh, India

Ms. Riya Mandal, Dr. Parakh Sehgal
Shri Shankaracharya Professional University, Bhilai Chhattisgarh-490020
Email: riyarmandal@gmail.com

Abstract:

Aim: To explore the diversity of wild edible mushrooms and traditional ethnomycological knowledge (TEK) in Surajpur District. The study aims to enhance the potential of mushroom cultivation practices to identify ways they can be improved and expanded. The outcomes will support awareness among rural communities about sustainable and profitable mushroom cultivation and the formulation of novel mushroom-based products and contribute to rural entrepreneurship and livelihood generation in Chhattisgarh. **Background:** Mushroom cultivation has gained global attention as an eco-friendly and economically viable practice that provides nutritional, medicinal, and socio-economic benefits. Mushrooms offer a practical solution by converting agro-waste into nutritious food and a profitable income source. Traditional knowledge about edible mushrooms (TEK) plays a key role in identifying species, understanding their ecological roles, and guiding sustainable harvesting. **Study:** This study will document the diversity of wild edible mushrooms in forest regions and local markets in Surajpur District and collect information on local TEKs through surveys and interviews with rural communities. Current mushroom cultivation methods will be assessed to identify areas for improvement. **Conclusion:** The findings will promote awareness of sustainable, profitable, and eco-friendly mushroom cultivation among rural communities. By promoting waste recycling, income generation, and nutritional security, it serves as a powerful tool for rural entrepreneurship, women's empowerment, and environmental sustainability. By integrating traditional knowledge with improved cultivation techniques and value-added products, the study aims to support rural entrepreneurship, enhance livelihoods, and contribute to the socio-economic development of Chhattisgarh and the achievement of sustainable development goals (SDGs).

Keywords: Mushroom Cultivation, Rural Entrepreneurship, Sustainability, Traditional Ethnomycological Knowledge (TEK), Women Empowerment