Two days
National Seminar
on

"Sustaining Comprehensive Feat of the Conservation Approaches for Endangered Species of Medicinal Plants of Chhattisgarh State using Artificial Intelligence"

Sponsored by

Chhattisgarh Tribal Local Health Traditions & Medicinal Plants Board (CGTLHT & MPB)

Co-Sponsored by

Jan Pragati Education Society (JPES), Raipur

October 30-31, 2025

Organized By
Columbia Institute of Pharmacy,
Village Tekari, Near Vidhan Sabha, Raipur (CG)- 493111; Mobile : +91- 8109777888
Visit us at: www.columbiaiop.ac.in; Email: cipraipur@gmail.com

NBA Accredited (UG Prog - B.Pharm.), DST-FIST Supported (PG Prog - M.Pharm.), Approved by Pharmacy Council of India [PCI], New Delhi, Affiliated by Chhattisgarh Swami Vivekanand Technical University {CSVTU}, Bhilai.

About the Institute

Columbia Institute of Pharmacy conducts D. Pharm., B.Pharm., M.Pharm., & Ph.D. courses. The Institute is managed and run by Jan Pragati Education Society. Columbia Institute of Pharmacy is accredited by National Board of Accreditation (NBA), New Delhi twice for UG Course in 2018 and 2022 till 2025. We have DST FIST Supported (PG Prog - M.Pharm.) It imparts the best education in the field of Pharmacy, in Central India. It has lush green campus, modern architecture constructed with ultra-modern facilities.

It constantly produces quality professionals in the field of Pharmacy. B.Pharm course was started in 2006. Post graduation course with specialization in Pharmaceutics and Pharmacology commenced in the year 2010 and in 2017-18 post-graduation courses in Pharmaceutical Analysis and Quality Assurance were started. Recently (2019-20), D.Pharm. and M.Pharm. (Phytomedicine) courses were started by the Institute.

All the courses are approved by PCI, New Delhi, DTE, Raipur and affiliated to CSVTU, Bhilai.

All the courses are approved by PCI, New Delhi, DTE, Raipur and affiliated to CSVTU, Bhilai. Also, we have B.Pharm. (Practice) Course in our institute. Columbia Institute of Pharmacy is also an approved Research Centre of CSVTU, Bhilai for conducting Ph.Dprogramme. It has well-furnished library, sophisticated instrument room, animal house, medicinal garden and library.

Executive Members

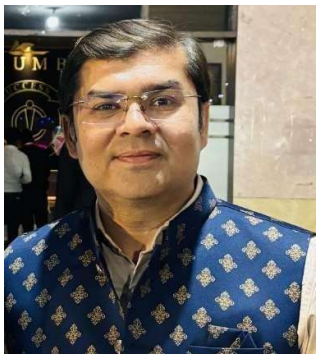
Shri. Kishore Jadwani,
Chairman,
Jan Pragati Education Society

Shri. Harjeet Singh Hura,
Secretary,
Jan Pragati Education Society

Prof. Ravindra Kumar Pandey
Principal,
Columbia Institute of Pharmacy, Raipur,
Chhattisgarh

Prof. Shiv Shankar Shukla
Professor,
Columbia Institute of Pharmacy, Raipur,
Chhattisgarh

Mr. Sagar Sahu
Organizing Secretary
Assistant Professor,
Columbia Institute of Pharmacy, Raipur,
Chhattisgarh



Mr. Gunjan Kalyani
Convenor
Assistant Professor,
Columbia Institute of Pharmacy, Raipur,
Chhattisgarh

Local Organizing Committee	
Scientific Committee	Prof. Trilochan Satapathy Dr. Bina Gidwani Dr. Monika Bhairam Dr. Disha Kesharwani Ms. Anjli Sinha
Registration & Public Relation	Mr. Shailendra Sharma Ms. Shilpa Sahu Ms. Renuka Verma Mr. Mahendra Sahu
Hospitality & Miscellaneous	Dr. Shashikant Chandrakar Mr. Shiv Kumar Bhardwaj Mr. Rahul Goswami Mr. Swapnil Lal Mr. Piyush Sahu Ms. Ayushi Gupta Mr. Bhishm Sahu Mr. Gourav Verma Mr. Somesh Agrawal
Stage Committee	Ms. Sandhya Mishra Ms. Poonam Sahu Ms. Manisha Verma Ms. Vedika Vaishnav

Preface

The convergence of Artificial Intelligence and Machine Learning with plant sciences is catalyzing a transformative shift in biodiversity conservation and ecological research.

Traditional plant identification techniques, while foundational, are constrained by scalability, subjectivity, and reliance on expert taxonomists.

Applications in citizen science, conservation planning, and automated species discovery are critically analysed, with emphasis on interpretability via Explainable AI frameworks such as SHAP and LIME.

This seminar systematically explores the role of AI in advancing plant taxonomy, real-time mobile identification tools, invasive species detection, and large-scale ecological monitoring. It highlights the critical role of curate datasets like Plant CLEF, iNaturalist, and Leaf Snap in training robust AI systems and discusses the integration of hyperspectral, infrared, and LiDAR data to enhance phenotype genotype mapping.

Ethical considerations, including data sovereignty, indigenous knowledge protection, and environmental sustainability of AI models, are also addressed.

Through interdisciplinary case studies and empirical results, this chapter underscores both the promise and limitations of current AI methodologies.

Future research directions include federated learning for collaborative model training, climate resilient AI models for predicting species response under anthropogenic stress, and integration of genomics with AI to reveal cryptic biodiversity.

As plant ecosystems face increasing threats, this seminar positions AI as a vital tool for scalable, transparent, and ethical conservation science.

Mr. Sagar Sahu
Organizing Secretary

Foreword

"The roots of our future health lie in the resilience of these ancient plants; their secure conservation will be achieved only by the synergistic precision of human intelligence, both traditional and artificial."

We are privileged to share the contents of this pertinent two-day National Seminar, centered on the vital theme: **"Sustaining Comprehensive Feat of the Conservation Approaches for Endangered Species of Medicinal Plants of Chhattisgarh State using Artificial Intelligence".**

The urgency underpinning this discourse is unmistakable. Chhattisgarh serves as a crucial phytochemical repository, housing numerous endangered medicinal plant species with distinctive biochemical characteristics essential for both traditional health practices and contemporary medication development. The swift exhaustion of these resources, propelled by human activities and regional climate changes, requires a fundamental change in conservation strategy — one that goes beyond conventional monitoring and integrates high-throughput data analysis.

This seminar represents a crucial initiative to promote the collaborative integration of ethnobotany, conservation biology, and computational science. Our aim is to transcend traditional floristic surveys and implement sophisticated approaches based on artificial intelligence and machine learning (ML). The seminars are meticulously designed to investigate:

- **Predictive Geospatial Modelling:** Employing AI algorithms on satellite imagery and environmental data for precise mapping of species distribution, habitat degradation, and danger vectors.
- **Sustainable Bioprospecting Frameworks:** Creating machine learning models to forecast optimal non-destructive harvesting yields and monitor population dynamics in real-time.
- **Integrated Phytochemical Profiling:** Utilising bioinformatics technologies to connect traditional knowledge with contemporary analytical chemistry for prioritised conservation based on medicinal significance.

We express our sincere gratitude to our sponsor, the **Chhattisgarh Tribal Local Health Traditions & Medicinal Plants Board (CGTLHT & MPB)**, for acknowledging the significant potential of this technological integration in tribal health and ecological stability. We recognise the esteemed co-sponsorship from the Jan Pragati Education Society (JPES), Raipur.

The Columbia Institute of Pharmacy in Raipur, Chhattisgarh, has gathered a notable group of researchers and specialists. We are assured that the scholarly discussions and methodological frameworks arising from this seminar will establish the forthcoming generation of efficient, data-informed conservation procedures, guaranteeing the resilience and enduring sustainability of the state's precious medicinal plant heritage.

Prof. Shiv Shankar Shukla
HOD, Dept. of Pharmaceutical Quality Assurance
Columbia Institute of Pharmacy,
Tekari, Near Vidhan Sabha, Raipur, Chhattisgarh, INDIA

Message from Chairman

Greetings from Jan Pragati Education Society (JPES), Raipur!

We are delighted to organize the National Seminar on "Sustaining Comprehensive Feat of the Conservation Approaches for Endangered Species of Medicinal Plants of Chhattisgarh State using Artificial Intelligence". This seminar brings together experts, researchers, and stakeholders to discuss innovative approaches for conserving endangered medicinal plants in Chhattisgarh.

We are honored to have esteemed guests and renowned experts in the field of medicinal plant conservation, who will share their knowledge and experiences through keynote lectures and presentations. Their valuable insights will undoubtedly enrich our understanding and contribute to the success of the seminar.

We appreciate the support of Chhattisgarh Tribal Local Health Traditions & Medicinal Plants Board. We are confident that the seminar will lead to meaningful discussions and recommendations for the conservation of these valuable plants.

Shri. Kishore Jadwani,
Chairman, Jan Pragati Education Society, Raipur

Message from Secretary

As we embark on this crucial discussion on sustaining the conservation approaches for endangered species of medicinal plants in Chhattisgarh, I am honored to share my thoughts with you. The state's rich biodiversity is a treasure trove of medicinal plants, and it is imperative that we take concerted efforts to preserve them.

The application of Artificial Intelligence in conservation is a promising approach, and I am confident that this seminar will provide a platform for sharing innovative ideas and best practices. I appreciate the efforts of the organizers and the sponsor, Chhattisgarh Tribal Local Health Traditions & Medicinal Plants Board (CGTLHT & MPB) Raipur, in bringing together experts and stakeholders to address this pressing issue.

I wish the seminar a grand success and hope that the deliberations will pave the way for effective conservation strategies.

Shri. Harjeet Singh Hura,
Secretary, Jan Pragati Education Society, Raipur, C.G.

Message from Principal

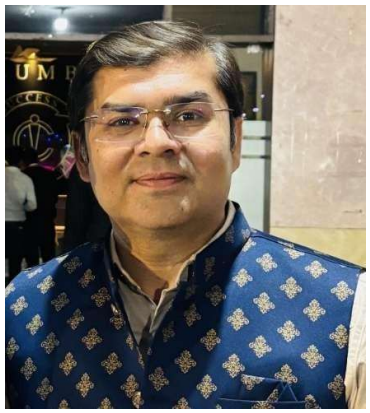
Greetings for the day, Raipur!

It is our privilege to host the National Seminar on "Sustaining Comprehensive Feat of the Conservation Approaches for Endangered Species of Medicinal Plants of Chhattisgarh State using Artificial Intelligence". This seminar will provide a platform for experts to share their knowledge and experiences on the conservation of medicinal plants, with a focus on the application of Artificial Intelligence.

We appreciate the support of Chhattisgarh Tribal Local Health Traditions & Medicinal Plants Board (CGTLHT & MPB) and Jan Pragati Education Society (JPES), Raipur, in organizing this important event. We are confident that the seminar will lead to meaningful discussions and recommendations for the conservation of these valuable plants.

Prof. Ravindra Kumar Pandey
Principal, Columbia Institute of Pharmacy, Raipur, Chhattisgarh

Message from Convenor



It is our great pleasure to organize the National Seminar on "Sustaining Comprehensive Feat of the Conservation Approaches for Endangered Species of Medicinal Plants of Chhattisgarh State using Artificial Intelligence". This seminar is being organized by Jan Pragati Education Society (JPES), Raipur, in collaboration with Chhattisgarh Tribal Local Health Traditions & Medicinal Plants Board (CGTLHT & MPB). The Chhattisgarh Tribal Local Health Traditions & Medicinal Plants Board (CGTLHT & MPB) has been working tirelessly to promote the conservation and sustainable use of medicinal plants in Chhattisgarh. Their efforts have been instrumental in highlighting the importance of medicinal plants in traditional healthcare systems and promoting their conservation.

We are honored to have renowned experts in the field of medicinal plant conservation, who will deliver keynote lectures and share their insights on innovative approaches for conservation, including the application of Artificial Intelligence. The seminar will provide a platform for experts, researchers, and stakeholders to share their knowledge and experiences, and deliberate on strategies for the conservation of endangered medicinal plants in Chhattisgarh.

We appreciate the support of CGTLHT & MPB and JPES, Raipur, in organizing this important event. We are confident that the seminar will lead to meaningful discussions and recommendations for the conservation of these valuable plants, and contribute to the development of sustainable conservation practices in Chhattisgarh.

Kalyani

Mr. Gunjan Kalyani
Convenor

Message from Organizing Secretary

It's our great pleasure to organize the National Seminar on "Sustaining Comprehensive Feat of the Conservation Approaches for Endangered Species of Medicinal Plants of Chhattisgarh State using Artificial Intelligence". I would like to extend my sincere gratitude to all our esteemed sponsors, including Chhattisgarh Tribal Local Health Traditions & Medicinal Plants Board (CGTLHT & MPB) and Jan Pragati Education Society (JPES), Raipur, for their generous support and patronage of this event.

Their support has been instrumental in making this seminar a reality, and we are grateful for their trust in our endeavour. We are confident that the seminar will provide a valuable platform for experts, researchers, and stakeholders to share their knowledge and experiences, and deliberate on strategies for the conservation of endangered medicinal plants in Chhattisgarh.

I would like to thank our esteemed speakers and delegates for their participation, and the organizing committee for their tireless efforts in making this event a success.

Mr. Sagar Sahu
Organizing Secretary

Eminent Prolocutors

October 30, 2025

Prof. (Dr.) Vimal Kumar
Dean, Faculty of Pharmacy, ITM SLS
Baroda University, Vadodara, Gujarat

Dr. Akanksha Pandey,
Assistant Professor
Department of Science, KDRCST, Raipur, C.G.

October 31, 2025

Prof. Vinod D. Rangari
Retd. Prof.
Guru Ghasidas Vishwavidyalaya
Bilaspur, Chhattisgarh

Dr. Koushlesh Kumar Mishra
Assistant Professor,
Department of Pharmacy,
Awadhesh Pratap Singh
University, Rewa, M.P

Two Days
National Seminar
on

"Sustaining Comprehensive Feat of the Conservation Approaches for Endangered Species of Medicinal Plants of Chhattisgarh State using Artificial Intelligence"

Sponsored by
Chhattisgarh Tribal Local Health Traditions & Medicinal Plants Board (CGTLHT & MPB)
Co-Sponsored by
Jan Pragati Education Society (JPES), Raipur
October 30-31, 2025

Programme Schedule

October 30, 2025

Time	Event
10:15 – 10:30 am	Registration and Tea/snacks
10:30 am – 11:45 am	Inauguration of Seminar
11:45 am – 1:00 pm	Plenary Scientific Session – I; Prof. (Dr.) Vimal Kumar Dean School of Pharmacy, Dean School of Sciences & Paramedical and Dean, Doctoral studies at ITM (SLS) Baroda University, Vadodara.
1:00 – 1:15 pm	Panel Discussion
1:15 – 2:15 pm	Lunch
2:30 – 3:20 pm	Plenary Scientific Session II; Dr. Akanksha Pandey Assistant Professor, Department of Science KDRCST, Krishna Vikash Group of Institutions, Raipur, Chhattisgarh
03:30 – 4:15 pm	Poster Presentation
4:15 – 4:35 pm	High Tea and Group Photo

October 31, 2025

Time	Event
10:15 – 10:30 am	Tea/Snacks
10.20 – 11:45 am	Plenary Scientific Session – III; Prof. Vinod D. Rangari Retired Professor, Department of Pharmacy, Guru Ghasidas Vishwavidyalaya, Bilaspur, Chhattisgarh.
11:45 am – 1:00 pm	Plenary Scientific Session – IV; Dr. Koushlesh Kumar Mishra Assistant Professor, Department of Pharmacy, Awadhesh Pratap Singh University, Rewa, M.P.
1:00 – 1:45 pm	Poster Presentation
1:45 – 2:15 pm	Lunch
2:30 – 4:15 pm	Valedictory Ceremony, Certificate distribution and Group Photo

Index

			Phytochemicals
13.	NS/CIP/MPB/2025/13	Yogesh Sahu	Conservation of Medicinal Plants: A Review
14.	NS/CIP/MPB/2025/14	Nikhil Mishra	Plant Conservation in India: Assessing Policies and Environmental Impact on Biodiversity
15.	NS/CIP/MPB/2025/15	Manisha Verm	Endemic Plant Species of India: Challenges and Conservation Strategies
16.	NS/CIP/MPB/2025/16	Umashankar Nirmalkar	The role of epigallocatechin gallate (EGCG) in cataract prevention and treatment
17.	NS/CIP/MPB/2025/17	Renuka Ekka	Comparative Study on Pharmacognostic and Biological Evaluation of Centella asiatica (L.) And Bauhinia variegata (L.) Leaf Extracts for Antioxidant, Antimicrobial and Anti-Inflammatory Activities
18.	NS/CIP/MPB/2025/18	Neha Mandle	Design and Development of Nanostructured Lipid Carrier System for the Management of Arthritis
19.	NS/CIP/MPB/2025/19	Apurva Yadav	Plumbagin Protects Diabetogenic Cataract Formation by Mitigating Lens Aldose Reductase and Oxidative Stress
20.	NS/CIP/MPB/2025/20	Aisha Shukla	Euphorbia hirta: Journey from a single potent candidate to multidimensional pharmacological activity
21.	NS/CIP/MPB/2025/21	Anshul Ram	Anticataract Activity of Phloretin in ex-vivo experimental cataract
22.	NS/CIP/MPB/2025/22	Miss. Anita Devi Chauhan	Development of Phytoconstituents for the Treatment of Parkinson Disease

23.	NS/CIP/MPB/2025/23	Dipesh Singh Rajput	Exploring the Molecular Mechanisms of Moringa oleifera in Diabetes Mellitus via in-Silico Approach
24.	NS/CIP/MPB/2025/24	Renuka Verma	AI-Assisted Conservation Framework for Endangered Medicinal Plant Species of Chhattisgarh
25.	NS/CIP/MPB/2025/25	Bina Gidwani	AI-Driven Conservation: Safeguarding Endangered Medicinal Flora in Chhattisgarh
26.	NS/CIP/MPB/2025/26	T. Lipika	A review on role of Costus igneus in diabetes management
27.	NS/CIP/MPB/2025/27	Aditi Verma	A review on spirulina as super food
28.	NS/CIP/MPB/2025/28	Deleshwar Kumar	Targeted Nanocarriers for Anti-Leishmanial Drug Delivery: Bridging Innovation and Application
29.	NS/CIP/MPB/2025/29	Poonam Sahu	Artificial Intelligence-Driven Strategies for Conservation of Endangered Medicinal Plants in Chhattisgarh
30.	NS/CIP/MPB/2025/30	Aanchal Dey	Ai based conservation: *Rauvolfia serpentina*
31.	NS/CIP/MPB/2025/31	Gunja Sahu	Ocular drug delivery system
32.	NS/CIP/MPB/2025/32	Veena Verma	Development of thermosensitive in- situ gel of flavonoid
33.	NS/CIP/MPB/2025/33	Shilpa Sahu	A Holistic Approach Integrating Traditional Knowledge, Modern Medicine, and Artificial Intelligence for Dual Health and Ecological Benefit
34.	NS/CIP/MPB/2025/34	Palak Guha	Fabrication of macroporous hydrogels via cryogelation for advanced biomedical applications

35.	NS/CIP/MPB/2025/35	Harsh Yadav	Health Benefits of Sesamum Indicum: A Short Review
36.	NS/CIP/MPB/2025/36	Neeraj Gupta	Preparation of Jelly from Dietary Fiber Isolated from Cassia fistula and Tamarindus indica Seeds
37.	NS/CIP/MPB/2025/37	Lokesh Janghel	Ayurveda in Diabetes Therapy
38.	NS/CIP/MPB/2025/38	Prashant Gnjendra	Nyctanthes Arbor-tristis Linn-A Immunostimulant
39.	NS/CIP/MPB/2025/39	Md Ashadullah	Prospects and Future Perspectives of Herbal Medicine
40.	NS/CIP/MPB/2025/40	Jeet Yadav	Use of Biomarker in Herbal Technology
41.	NS/CIP/MPB/2025/41	Manas Singh Chandel	Boerhavia diffusa - a hepatoprotective rejuvenator
42.	NS/CIP/MPB/2025/42	Dumesh	Curcuma zedoaria: a antivenom drug for cobra bite
43.	NS/CIP/MPB/2025/43	Ujjwal Singh	Proteolytic Activity of Gingiber Officinale and Ananas Comosus against Ankylosing Spondilitis
44.	NS/CIP/MPB/2025/44	Omkar Das Goswami	Sperm Immobilization activity of Allium sativum and Other Plant Extracts
45.	NS/CIP/MPB/2025/45	Om Kashyap	Herbal Remedies: A New Era for Psoriasis Diseases
46.	NS/CIP/MPB/2025/46	Junaid Quraishi	Genus Tinospora: Ethnopharmacology, Phytochemistry, and Pharmacology
47.	NS/CIP/MPB/2025/47	Anjali Mourya	Molecular Targeted Therapy of Cancer: The Progress and Future Prospect
48.	NS/CIP/MPB/2025/48	Sonali Bendale	Molecular Marker in Herbal Drug Technology
49.	NS/CIP/MPB/2025/49	Mohnish Sahu	Monoclonal Antibody: A Molecular Targeted Therapies for Cancer Treatment
50.	NS/CIP/MPB/2025/50	Sanju Kokila	Computational Modeling to Advance Deep Brain

			Stimulation for the Treatment of Parkinson's Disease
51.	NS/CIP/MPB/2025/51	Yashwant Dewangan	Management of Psoriasis with Nutraceuticals: An Update
52.	NS/CIP/MPB/2025/52	Siddharth Kumar Sahu	Advancements in Nanotechnology for Enhanced Ocular Drug Delivery
53.	NS/CIP/MPB/2025/53	Sejal Chouhan	A review on achyranthes aspera in treatment of hemorroids
54.	NS/CIP/MPB/2025/54	Shreyansh Jaiswal	A review on withania coagulans as antidiabtic suppliment
55.	NS/CIP/MPB/2025/55	Bhumika Sahu	Design synthesis and biological evaluation of some novel nitrogen mustard derivatives in the treatment of brain neoplasm
56.	NS/CIP/MPB/2025/56	Akanksha Kaushik	Nanorobots as emerging tools in cancer diagnosis and therapy: progress and future
57.	NS/CIP/MPB/2025/57	Kapil yadav	Stem Cell Therapy: Sources, Types, and Contemporary Trends in Regenerative Medicine
58.	NS/CIP/MPB/2025/58	Monika Rakse	Integrating Artificial Intelligence in the Conservation of Endangered Medicinal Flora of Chhattisgarh: A Comprehensive Approach
59.	NS/CIP/MPB/2025/59	Anju Daharia	In Silico Screening of Piperidine-containing Phytoconstituents as a-Glucosidase Inhibitors
60.	NS/CIP/MPB/2025/60	Sandhya Mishra	Recent advancement in herbal nanoformulations for topical delivery
61.	NS/CIP/MPB/2025/61	Disha Kesharwani	Solubility Augmentation of Diacerein by Solid Dispersion Technique

62.	NS/CIP/MPB/2025/62	Varsha Chandel	Conservation of Medicinal Plants: A Review of Threats and Strategies
63.	NS/CIP/MPB/2025/63	Heenal Agrwal	Endemic Plant Species of India: Challenges and Conservation Strategies
64.	NS/CIP/MPB/2025/64	Ankit Soni	Global endangered plant species: conservation methods, challenges, and strategies
65.	NS/CIP/MPB/2025/65	Nitin Kurey	Importance of Plant Biodiversity and Long-Term Conservation of Plant Genetic Resources via Biotechnological Strategies
66.	NS/CIP/MPB/2025/66	Sandeep Kumar	Contemporary Methods for Conservation of Endangered Plant Species- A Review
67.	NS/CIP/MPB/2025/67	Chaitanya Yadu	Artificial Intelligence and Machine Learning in Plant Identification and Biodiversity Conservation: Innovations, Challenges, and Future Directions
68.	NS/CIP/MPB/2025/68	Shailendra Kumar Sharma	Conservation of plant biodiversity by biotechnology methods
69.	NS/CIP/MPB/2025/69	Sonam Sahu	Sustainable harvesting and conservation strategies for ethnomedicinal plant biodiversity
70.	NS/CIP/MPB/2025/70	Khilesh Sahu	Evaluation and Conservation of Biodiversity of Plants used for Medicinal Purpose
71.	NS/CIP/MPB/2025/71	Lokesh Chainani	Medicinal plant conservation by tissue culture: Ex-situ & in-situ techniques
72.	NS/CIP/MPB/2025/72	Nikhil Sahu	Germplasm conservation, evaluation, characterization

			and improvement of genetic resources of fruit crops in India: Preserving of future fruit crops for the future
73.	NS/CIP/MPB/2025/73	Yashwant Koshle	Traditional Methods of Plant Conservation for Sustainable Utilization and Development
74.	NS/CIP/MPB/2025/74	Vineet Kumar Kashyap	Biodiversity and Conservation of Medicinal Plants
75.	NS/CIP/MPB/2025/75	Neha Verma	Biodiversity: Concept, threats and conservation
76.	NS/CIP/MPB/2025/76	Dhanendra Vishwakarma	A Review Study on Alternative Conservation and Management Methods to Sustain Medicinal Plants
77.	NS/CIP/MPB/2025/77	Vishwanath Sahu	AI in Conservation and Management Methods to Sustain Medicinal Plants
78.	NS/CIP/MPB/2025/78	Kamlesh sahu	Conservation of endangered medicinal plant species in Chhattisgarh
79.	NS/CIP/MPB/2025/79		
80.	NS/CIP/MPB/2025/80	Jhakeshwar Prasad	Therapeutic Potential of Antioxidant and Anti-inflammatory Activity of Genistein
81.	NS/CIP/MPB/2025/81	Sonali Soni	A critical bibliometric based research data analysis on anti-inflammatory investigations carried out on medicinal plants-(2018-2022)

Integrating Artificial Intelligence for the Conservation of Endangered Medicinal Plants of Chhattisgarh

Authors

Prof. Dr. K.P Namdeo[1], Dr. Neeli Rose Beck[1], Vinay Bisen[1*]

[1]Guru Ghasidas Vishwavidyalaya, Bilaspur, 495009, Chhattisgarh, India

Presenting Author: vinaybisen005@gmail.com

Abstract

Chhattisgarh, often called the "Herbal State of India," is rich in medicinal plants that are widely used in traditional tribal healthcare practices. These plants play a vital role in treating common illnesses such as fever, stomach problems, and skin diseases. However, many valuable species are now endangered due to uncontrolled harvesting, deforestation, and rapid changes in climate. The loss of such species would not only harm biodiversity but also result in the disappearance of precious tribal knowledge that has been passed from one generation to the next. To address this growing problem, modern technologies like Artificial Intelligence (AI) can provide innovative solutions. AI-based image recognition can make plant identification easier and faster, while ecological modeling can help map natural habitats and monitor changes in plant populations. Predictive algorithms can also suggest suitable regions for cultivation and assess the risks of extinction under future climate scenarios. In addition, AI tools can support phytochemical analysis, helping researchers to study medicinal compounds more efficiently without the need for excessive collection from the wild. By combining traditional wisdom with AI-driven approaches, sustainable conservation strategies can be created. This integrated method will not only protect endangered medicinal plants of Chhattisgarh but also open new opportunities for developing plant-based medicines in the future. The use of AI in conservation represents a practical, transparent, and forward-looking approach that can secure the natural heritage of the state for future generations.

Keywords: Medicinal plants, Healthcare practices, Artificial Intelligence, Sustainable Conservation Strategies.

NS/CIP/MPB/2025/02

Comprehensive Management of Grade 1 Diabetic Foot Ulcers: A Systematic Review of Evidence and Guidelines

Authors

Rahul Singh Bhaskar, Dr. K.P. Meena

Department of Pharmacy, Guru Ghasidas Vishwavidyalaya, Bilaspur, Chhattisgarh, 495001, India.

Abstract

Diabetic foot ulcers (DFUs) are a severe and prevalent complication of diabetes, with Grade 1 lesions representing the initial, superficial stage of ulceration. This review aims to consolidate and critically evaluate current evidence and guidelines for the management of Grade 1 DFUs to prevent disease progression and promote healing. A comprehensive literature search was conducted using PubMed, Scopus, and Web of Science databases for studies. The findings indicate that successful management of Grade 1 DFUs is multifactorial, requiring a structured approach built on several core pillars. These include rigorous glycemic control (target HbA1c <7%), radical pressure offloading with modalities such as total contact casts (considered the gold standard) or removable walkers, and meticulous local wound care involving sharp debridement to remove non-viable tissue and biofilm, followed by the application of advanced moist dressings. Furthermore, vigilant surveillance for early signs of infection and comprehensive, reinforced patient education are crucial components. The integration of these strategies within a multidisciplinary team framework, involving endocrinologists, podiatrists, wound care nurses, and orthotists, is fundamental to optimizing healing rates, which can exceed 80% with standard care, and significantly reducing the risk of recurrence and amputation.

Keywords: Diabetic Foot Ulcer; Grade 1; Offloading; Debridement.

NS/CIP/MPB/2025/03

The Role of *Carissa carandas* Phytoconstituents in Facilitating Wound Healing and Tissue Regeneration: A Review Analysis

Authors

Gangotri Kumari Chandra*, Kavi Bhushan Singh ChouhanChhatrapati Shivaji Institute of Pharmacy, Durg, Chhattisgarh, 491001Presenting Author:gangotrichandra5@gmail.com

Abstract

Carissa carandas (Karonda), a conventional medicinal shrub extensively employed in Ayurveda, Unani, and folk medicine, has garnered scientific interest due to its diverse pharmacological and phytochemical attributes. It highlights the plant's bioactive compounds and their mechanisms in wound healing and tissue regeneration. The leaves, fruits, and roots of *C. carandas* are abundant in flavonoids, tannins, terpenoids, alkaloids, and glycosides compounds recognized for their antioxidant, anti-inflammatory, and tissue-protective properties. The elevated phenolic content in the leaves supports substantial free radical scavenging capability, alleviating oxidative stress, which is a major impediment to effective wound healing. In addition to its antioxidant properties, *C. carandas* exhibits anti-arthritic, hepatoprotective, and antihyperlipidemic effects, hence reinforcing its regenerating capabilities. This review seeks to integrate traditional knowledge with contemporary phytopharmacology, emphasizing *C. carandas* as a potential botanical option for the development of innovative wound-healing formulations and bioactive medicines.

Keywords:*Carissa carandas*, Phytochemical constituents, Antioxidant activity, Traditional medicine, Wound healing.

AI & TECHNOLOGY IN PHARMA

AuthorAlisa Hussain, Harshal Lalwani, Yashab Nath
Department of Pharmaceutical Sciences, Amity University, Raipur, Chhattisgarh, India
Presenting Author: *hussainalisa2007@gmail.com*

Abstract

"Sustaining Comprehensive Feat of the Conservation Approaches for Endangered Species of Medicinal Plants of Chhattisgarh State using Artificial Intelligence"

Chhattisgarh, known as the "Herbal State" of India, possesses a rich biodiversity of medicinal plants that play a crucial role in traditional and modern therapeutic practices. However, overexploitation, habitat destruction, and unregulated harvesting have led to the endangerment of several valuable species. This study aims to develop and sustain comprehensive conservation approaches for endangered medicinal plant species using Artificial Intelligence (AI) tools. The research integrates **remote sensing, GIS mapping, and machine learning models** to identify critical habitats, predict extinction risks, and optimize reforestation strategies. AI-based data analytics will further support real-time monitoring and pattern recognition to assess environmental and anthropogenic impacts. Additionally, the project emphasizes community-based awareness programs and digital documentation of indigenous knowledge to strengthen local participation in biodiversity conservation. The proposed AI-driven framework offers a sustainable, data-intelligent, and scalable solution for protecting endangered medicinal plant species in Chhattisgarh. This initiative can serve as a model for other biodiversity-rich states of India, promoting a harmonious balance between technological advancement and ecological preservation.

Keywords: Artificial Intelligence, Conservation, Medicinal Plants, Chhattisgarh, Biodiversity.

A REVIEW ON NURTITIONAL AND FUNCATIONAL ROLE OF KODO MILLET

AuthorPriya Sahu* Dimpal Sinha, Chudamani Sahu
Shri Shankaracharya Institute of Pharmaceutical Sciences and Research,
Junwani, Bhilai
Presenting Author: pihusahu491223@gmail.com

Abstract

Kodo millet belongs to the Family: Poaceae, Subfamily: Panicoideae, Tribe: Paniceae, Genus: Paspalum and Species: Paspalum scrobiculatum L. Poaceae –The grass family is the fourth largest family of the flowering plants. It includes about 700-800 genera and 11000-13000 species distributed worldwide. Apart from a high degree of taxonomic diversity, the. family has unmatched ecological and economic diversity Kodo millets do not contain gluten and are useful for individuals who are non tolerent to gluten. Kodo millet is very easy to digest due to higher amount of lecithin, which is good for functioning of the nervous system. Regular use of Kodo millet is very useful for postmenopausal females with indications of cardiovascular disease such as high blood pressure and high level of cholesterol. It include higher amount of antioxidants that help against oxidative stress and maintain glucose concentrations in type-2 diabetes. Kodo millet is useful in curing asthma, migraine, blood pressure heart attack and atherosclerosis, diabetic heart disease. So, research on production of millet based products is emerging area to utilize its beneficial effect considering increasing population in developing countries

Key words: Kodo millet, cholesterol, glucose, atherosclerosis

NS/CIP/MPB/2025/06

A REVIEW ON SPIRULINA AS SUPER FOOD

Author

Aditi Verma* Rahul Singh, Rajput, Sandhya

Shri Shankaracharya Institute of Pharmaceutical Sciences and Research, JunwaniBhilai

Presenting Author: aditiverma1102003@gmail.com

Abstract

Spirulina are multicellular and filamentous blue-green microalgae belonging to two separate genera Spirulina and Arthrospira and consists of about 15 species. Arthrospira platensis is the most common and widely available spirulina and most of the published research and public health decision refers to this specific species. It grows in water, can be harvested and processed easily and has significantly high macro- and micronutrient contents Spirulina, is now worldwide used as a dietary supplement owing to its richness in protein (50-60%), antioxidants, essential fatty acids, etc. The amino acid composition of Spirulina protein ranks among the best in the plant world, more than that of soya beans. Nowdays Spirulina is considered as a 'superfood'. Its methodologies of cultivation, richness in nutrients and bioactive components, therapeutic properties in the health food circuits, and versatile utilization in various food supplements are elaborately introduced. All possible fortification of Spirulina platensis emphasizing the elevation of nutrient levels in bakery products, beverages, dairy products, extruded snacks, energy bars, infant foods, and confectionaries is briefed. Beyond, these algae convert carbon dioxide into organic substances and produce oxygen during their growth in alkaline and saline water thereby not wasting fresh water and allowing the production in barren areas. Such an organism with a plethora of health profits to humans, animals and the environment is limitless and has probably more to offer in the future.

Key words: super food, amino acid

NS/CIP/MPB/2025/07

A REVIEW ON LICHENS AVAILABLE IN CHATTISGARH STATE

Authors

Aditi Patwa* Priya patel, Lavina Chandrakar

Shri Shankaracharya Institute of Pharmaceutical Sciences and Research, Junwani, Bhilai

Presenting Author:aditipatwa2000@gmail.com

Abstract

Lichens are organisms which are formed through symbiotic association of fungi and algae or cyanobacteria. Lichen produces a great variety of secondary metabolites with various biological activities including antimicrobial, antiviral, antitumour, antioxidant, antihervivore, insecticidal, allelochemical and allergenic action. These compounds play a major role in providing photoprotection against intense radiation and can be used as an important candidate for antipyretic and analgesic drugs. Lichen metabolites act as major factor in metal homeostasis and pollution tolerance of lichen. This review describes the biological activities of secondary metabolites produced from lichen.The present paper enumerates an account of the lichen flora in Achanakmar-Amarkantak Biosphere Reserve (AABR) located in Central India which comprises 78 species belonging to 25 genera under nine families. Of these, twenty-two species have been reported for the first time from Central India. All the species are enumerated with their correct original citation, basionyms if any, their places of occurrence in the reserve area, distributional range and exsiccata have been provided.

Key words: Lichens, AABR, antihervivore, allelochemical

Effect of flaxseed (linum usitatissimum) on renal function

AuthorShashikala Bhagat
Guru Ghasidas Vishwavidyalaya, Bilaspur, Chhattisgarh
Presenting Author:- *bhagatshashikala48@gmail.com*

Abstract

Aim: - Effect of flaxseed (linum usitatissimum) on renal function.
Methods: - Renal function after using flaxseed on rats was estimated by measuring the parameters such as urine volume, serum creatinine, serum urea, urine creatinine and creatinine clearance. The rats were divided into four groups each containing four rats, the first group are control group received saline, the second group are testing group received flaxseed extract (100mg/kg body wt.), the third group are testing group received flaxseed extract (500mg/kg body wt.) and the fourth group are standard group received furosemide (10mg/kg body wt.). The urine volume, serum creatinine, serum urea, urine creatinine and creatinine clearance were measured. After a single dose of each intervention the variables were measured during 24hrs and the variables were measured after the daily dose for 14 days.
Results: - The increase in urine volume by flaxseed was observed as compared to control group and a significant increase in creatinine clearance was observed in the groups treated with flaxseed (100mg/kg and 500mg/kg). The high dose of flaxseed shows the high effect as compared to the low dose of flaxseed.

Keywords: Linum usitatissimum, renal function, serum creatinine, serum urea, creatinine clearance.

A Comprehensive Review on Medicinal Plants: Current Knowledge and Future Perspectives

Authors

Teerath Sahu[1*]

Gracious College of Education, Abhanpur, Raipur, Chhattisgarh, India

Presenting Author: *shivsahu2411@gmail.com*

Abstract

Chhattisgarh, often called the "Herbal State of India," is rich in medicinal plants that are widely used in traditional tribal healthcare practices. These plants play a vital role in treating common illnesses such as fever, stomach problems, and skin diseases. However, many valuable species are now endangered due to uncontrolled harvesting, deforestation, and rapid changes in climate. The loss of such species would not only harm biodiversity but also result in the disappearance of precious tribal knowledge that has been passed from one generation to the next. To address this growing problem, modern technologies like Artificial Intelligence (AI) can provide innovative solutions. AI-based image recognition can make plant identification easier and faster, while ecological modeling can help map natural habitats and monitor changes in plant populations. Predictive algorithms can also suggest suitable regions for cultivation and assess the risks of extinction under future climate scenarios. In addition, AI tools can support phytochemical analysis, helping researchers to study medicinal compounds more efficiently without the need for excessive collection from the wild. By combining traditional wisdom with AI-driven approaches, sustainable conservation strategies can be created. This integrated method will not only protect endangered medicinal plants of Chhattisgarh but also open new opportunities for developing plant-based medicines in the future. The use of AI in conservation represents a practical, transparent, and forward-looking approach that can secure the natural heritage of the state for future generations.

Keywords: Medicinal plants, Healthcare practices, Artificial Intelligence, Sustainable Conservation Strategies.

Conservation of Medicinal Plants: A Review of Threats and Strategies

Authors

Sagar Sahu[1], Gunjan Kalyani[1*]

[1] Columbia Institute of Pharmacy, Raipur, Chhattisgarh, India

Presenting Author: callmesagarsahu@gmail.com

Abstract

Medicinal plants encompass a wide array of species, each harbouring unique bioactive compound that contribute to their therapeutic properties. Importance of Medicinal Plants in health care and livelihood is well known fact. However, due to various factors severe depletion of the medicinal plant resources has been reported all over. Therefore, conserving medicinal plants is vital not only for the country's ecosystem, but also for its thousands of ethnic communities. There is a need to take corrective measures to conserve and augment the medicinal plants resources in the State. In present study various methods of conservation of medicinal plants and available biodiversity is discussed. So that a proper road map prepared for conservation of rich biodiversity available in medicinal plants. This will also help in protecting the endangered species.

Keywords: Conserving, Ethnic Communities, Medicinal Plants, Threats, Strategies.

Approaches And Policies for Medicinal Plants Conservation

Authors

Toran Sahu[1], Sagar Sahu[1], Gunjan Kalyani[1*]

[1] Columbia Institute of Pharmacy, Raipur, Chhattisgarh, India

Presenting Author: Toran Sahu

Abstract

Medicinal plant conservation is challenging, since the taxa occur during a wide selection of habitats and geographic regions. Their conservation threats and supreme use are diverse and users aren't only local rural communities but also distant urban citizens. Ex situ conservation remains the most remit and area of experience of botanic gardens. In situ conservation is the preferable methodology, since ex situ conservation tends to take place outside the range state of the target species. The preservation of species in place offers all the benefits of allowing survival to act, which can't be recreated ex situ. A policy trend positively linking biodiversity conservation by CBD, WTO, TRIPS, UNCTAD Bio Trade Initiative, MEA, Doha Declaration, GSPC, WHO, CITES with human development is gaining momentum and people's access rights to natural resources necessary for his or her survival have improved with policy provisions. In India a unique and pioneering program for conservation of wild medicinal plants has been initiated and it has involved establishment of a network of MPCA focused on conservation of prioritized wild medicinal plants. Seed banking was a vital backup to other conservation methodologies, and one that should be supported and expanded for medicinal plants.

Keywords: medicinal plants, conservation, approaches, policies, India, status.

Conservation and Sustainable Uses of Medicinal Plants Phytochemicals

Authors

Saurabh Sahu[1], Sagar Sahu[1], Gunjan Kalyani[1*]

[1] Columbia Institute of Pharmacy, Raipur, Chhattisgarh, India

Presenting Author: Saurabh Sahu[1]

Abstract

Plants play a key role in humans by providing uncountable ecosystem services and have sophisticated traditional medicinal importance. Food, flavors, clothing, fragrances, and shelters are major benefits of plant ecosystem. Medicinal plants gained wider recognition due to varying herbal products but these are disappearing at alarming rate. Climate change also affects medicinal resources and their conservation is of prime concern today. However, conservation strategies and resource management techniques minimize medicinal plant depletions at greater extent. Good farming practices and sustainable use solutions are progress by resource management techniques. Whereas conservation strategies promote both in situ and ex situ methods, which are further geared by sustainable usage of medicinal plant resources. Protecting medicinal plant resources are highly advocated in updated and reframed policy. Also, an awareness of the importance of medicinal plant and its sustainable usage is recommended from local to global platforms. Constructive policies and plans are needed for conserving and sustainable usage of important medicinal plants, which having herbal and ethnobotanical importance. Therefore, healthy medicinal plants maximize species diversity and intensity of many ecosystem services, which maintains soil, food, and climate security at the global scale. Further, a transdisciplinary approach is needed for targeting production, conservation, and sustainable usage of medicinal resources, which strengthen socioecological and economic paradigm. Moreover, scientific research and future recommendation are necessitated for defending medicinal losses as threatened and species rarity in the safeguards of humans which maintains environmental sustainability and ecological stability.

Conservation of Medicinal Plants: A Review

Authors

Yogesh Sahu[1], Sagar Sahu[1], Gunjan Kalyani[1*]

[1] Columbia Institute of Pharmacy, Raipur, Chhattisgarh, India

Presenting Author: Yogesh Sahu[1]

Abstract

Ayurveda [traditional medicine of India as per WHO], the holistic science of medicine, as practised and utilized by Indians at large since centuries is now being globally accepted which has increased the demand for medicinal plants. Majority of population in the developing countries like India depends on the traditional systems of medicine like Ayurveda for their primary healthcare needs. Increasing demand of medicinal plants leads to irrational cutting de forestation leading to depletion of the wild resources. Moreover, the natural and manmade calamities lead to further depletion of medicinal plant diversity. Conservation aims at supporting sustainable development by wing the bio logical resources in ways that don't deplete the world's variety of species or destroy their ecosystems. It involves measures such as collection, propagation, evaluation, disease identification and elimination, storage and distribution. Conservation of medicinal plants and their genetic resources can be undertaken by in-situ and ex-situ conservation. Ex-situ conservation involves conservation of medium plants outside their natural habitat used to safeguard them from destruction, replacement or deterioration. Ex-situ conservation includes procedure like seed storage, DNA storage, field gene banks and botanical gardens etc.

Keywords: Ayurveda, Medicinal plants, Conservation, In-situ, Ex-situ.

Plant Conservation in India:Assessing Policies and Environmental Impact on Biodiversity

Authors

Nikhil Mishra[1], Sagar Sahu[1], Gunjan Kalyani[1*]

[1] Columbia Institute of Pharmacy, Raipur, Chhattisgarh, India

Presenting Author: Nikhil Mishra

Abstract

Plant conservation in India is critical due to its status as one of the world's mega diverse countries, boasting nearly 8% of global species diversity. With over 45,000 plant species, many endemics to the country, India's rich biodiversity faces numerous challenges despite governmental efforts. Legislation such as the Wildlife Protection Act and Forest Conservation Act aims to mitigate threats like habitat loss and climate change. However, challenges persist, including deforestation, urbanization, and agricultural expansion. This paper examines India's diverse plant life, concentrated in biodiversity hotspots like the Himalayas and Western Ghats. It highlights the importance of plant biodiversity in sustaining ecosystems, supporting livelihoods, and contributing to cultural and medicinal practices. Urgent conservation measures are necessary to address threats and preserve India's invaluable plant heritage.

Keywords: Plant Conservation, Biodiversity Hotspots, Habitat Loss, Climate Change, Sustainable Resource Utilization.

Endemic Plant Species of India: Challenges and Conservation Strategies

Authors

Manisha Verma[1], Sagar Sahu[1], Gunjan Kalyani[1*]

[1] Columbia Institute of Pharmacy, Raipur, Chhattisgarh, India

Presenting Author: Manisha Verma[1]

Abstract

India is home to a rich diversity of endemic plant species, many of which face severe threats due to habitat destruction, climate change, and unsustainable human activities. This paper explores the current status of endemic plant species in India, highlights the challenges they face, and proposes conservation strategies. India boasts a significant number of endemic species, with many of them listed as threatened, underscoring the urgency for effective conservation. Habitat loss, primarily driven by urbanization, agriculture, and deforestation, is a major contributor to this decline. Climate change further exacerbates these threats, altering species distributions and accelerating the loss of suitable habitats. The paper discusses various conservation approaches, including in situ and ex situ methods, along with the importance of local community involvement in conservation efforts. Technological innovations such as GIS and satellite monitoring have proven to be instrumental in mapping biodiversity hotspots and enhancing conservation efforts. Policy frameworks like the Biological Diversity Act of 2002 have laid a foundation for species protection, but stronger enforcement and broader initiatives are needed. Finally, the paper outlines future directions for conservation, emphasizing the need for integrated approaches that combine technology, research, policy, and community participation. The survival of India's endemic plant species is crucial for maintaining ecological balance and safeguarding biodiversity for future generations.

Keywords: Endemic plants, biodiversity conservation, habitat loss, climate change, in situ conservation, ex situ conservation, India, community participation, conservation strategies, policy frameworks.

The role of epigallocatechin gallate (EGCG) in cataract prevention and treatment

Authors

Umashankar Nirmalkar*, Dr. Rajesh Choudhary

Shri Shankaracharya College of Pharmaceutical Sciences (SSCPS), Junwani, Bhilai, Chhattisgarh, 490020 (Shri Shankaracharya Professional University, Junwani, Bhilai, Chhattisgarh)

Presenting Author: umashankar.pharmacology@gmail.com

Abstract

Cataract, the main cause of visual impairment worldwide, is characterized by the clouding of the eye lens. Although surgical intervention is the primary treatment, the prevention for cataract formation through pharmacological approaches remain a critical area of research. Oxidative stress is important in cataract development because it causes lens protein to aggregate and denatured. Epigallocatechin gallate (EGCG) is a polyphenolic flavonoid compound present in green tea. EGCG is a potent antioxidant, having ability to resist oxidative stress and delayed cataract progression. This review examines the processes by which EGCG protects the lens, such as scavenging free radicals, preventing oxidative damage to lens protein and modulating inflammatory pathways and also focus on other activity like antioxidant, anti-inflammatory and anti-apoptotic properties of EGCG. In addition, we examine the preclinical and clinical data supporting the use of EGCG as a possible therapeutic agent for cataract prevention and management. While promising findings have emerged result, further research is necessary to elucidate the optimal dosage, route of administration, long term safety and efficacy of EGCG for clinical application. This review highlights the encouraging therapeutic potential of EGCG and recommends its incorporation into future strategies for management of cataract.

Keywords: Cataract, Epigallocatechin gallate, antioxidant, oxidative stress, green tea.

Comparative Study on Pharmacognostic and Biological Evaluation of *Centella asiatica* (L.) and *Bauhinia variegata* (L.) Leaf Extracts for Antioxidant, Antimicrobial and Anti-Inflammatory Activities

Authors

Renuka Ekka[1], Bharti Ahirwar*[2]

Department of Pharmacy, Guru Ghasidas Vishwavidyalaya, Koni, Bilaspur, Chhattisgarh, 495009 – India

Presenting Author: renu8326@gmail.com

Abstract

Background: Medicinal plants include a variety of bioactive substances that have anti-inflammatory, anti-microbial, and antibacterial properties. This study examines the pharmacognostic, phytochemical, antioxidant, antibacterial, and anti-inflammatory properties of ethanolic leaf extracts of *Bauhinia variegata* (L.) and *Centella asiatica* (L.).

Materials and Methods: Pharmacognostic and phytochemical characteristics were examined after ethanolic extracts were extracted using Soxhlet extraction. Alkaloids, phenolics, flavonoids, and saponins were all quantified. Agar well diffusion was used to measure the antibacterial activity, H_2O_2, FRAP, and ABTS assays to measure the antioxidant activity, and protein denaturation and membrane stabilisation tests were used to measure the anti-inflammatory activity.

Results: The phytochemical content of *Centella asiatica* was greater than that of *Bauhinia variegata* [alkaloids: 220.17 ± 2.86 mg/g; phenolics: 172.69 ± 1.21 mg GAE/g; flavonoids: 446.85 ± 0.60 mg QE/g; saponins: 246.78 ± 1.01 mg diosgenin/g/g]. Comparing C. asiatica to B. variegata exhibited greater antioxidant activity (FRAP: 217.59 µg/mL; ABTS: 218.76 µg/mL; H_2O_2: 259.20 µg/mL) and stronger antibacterial inhibitory zones, especially against S. aureus and E. coli. Both extracts had strong anti-inflammatory properties; however, *Centella asiatica* enhanced membrane stabilisation and stronger suppression of protein denaturation were more notable.

Discussion: As a result, its higher phenolic and flavonoid content, which improves radical scavenging and inhibits bacterial cell integrity, *Centella asiatica* exhibits improved antioxidant and antibacterial activity. These combined effects support its historic medical usage and its powerful anti-inflammatory properties.

Conclusion:*Centella asiatica* demonstrates stronger antioxidant, antibacterial, and anti-inflammatory activity than *Bauhinia variegata*, highlighting its promise as a natural therapeutic and nutraceutical candidate.

Keywords:*Centella asiatica*, *Bauhinia variegata*, antioxidant, antibacterial, anti-inflammatory,

Design and Development of Nanostructured Lipid Carrier System for the Management of Arthritis

Authors

Neha Mandle*, Jaya Shree

Shankaracharya College of Pharmaceutical Sciences, Junwani, Bhilai

Presenting Author: nehamandle1996@gmail.com

Abstract

Rheumatoid arthritis has increasingly become common among older adults. It has been demonstrated that the plant-derived isoflavonoid daidzein reduces the levels of interleukins and proinflammatory cytokines associated with the advancement of rheumatoid arthritis. The fundamental goals of this paper were to develop, optimize, and describe a DZ-loaded NLC-based gel for decreasing rheumatoid arthritis symptoms. By using melt emulsification ultrasonication techniques, the NLCs were prepared and optimized by the Box-Behnken design. DSC, XRD, and FTIR were used for compatibility studies of the formulation. particle size, polydispersity index, and zeta potential are the main characteristics of the formulation. Further in vivo, ex vivo, and *in vitro* stability and drug release were also performed. After optimization, the formulation successfully incorporates Glyceryl monostearate as a solid lipid, Tocopherol as a liquid lipid & Poloxamer as a surfactant. The results of in vivo research, topical application of DZ-NLCs-Gel to rheumatoid arthritis successfully decreased paw volume, TNFα & ILs (1β, 6, & 10) and raised blood antioxidant levels of CAT, SOD, GSH, and LPO. The results indicate that DZ-NLCs-Gel works better than traditional DZ-Gel via inhibiting the CFA-induced arthritis in Wistar rats. The findings suggest that Daidzein exhibits potential therapeutic agent for managing diseases such as rheumatoid arthritis, by inhibiting oxidative stress and inflammatory conditions.

Keywords: Daidzein, Optimization, Nanostructured lipid carrier, Topical Gel, Rheumatoid arthritis.

Plumbagin Protects Diabetogenic Cataract Formation by Mitigating Lens Aldose Reductase and Oxidative Stress

Authors

Apurva Yadav, Rajesh Choudhary

Shri Shankaracharya Professional University, Junwani, Bhilai, Chhattisgarh

Presenting Author:apuyadav07@gmail.com

Abstract

Objectives: The polyol pathway plays an important pathophysiological role in diabetic-related ocular complications, including cataracts, one of the major causes of ocular blindness. The current paper investigated the protective effects of plumbagin against diabetogenic cataract formation, focusing on exploring its possible mechanism of action. The study investigates antioxidant activity, aldose reductase inhibitory activity, and anticataract activity in experimental pharmacological models. In the ex-vivo study, goat lenses were incubated in artificial aqueous humor with high concentrations of glucose (55.5 mM) and plumbagin (20, 50, and 100 µg/mL), which was assessed against cataract control lenses. The in-vitro study showed that plumbagin inhibits DPPH free radical and lens aldose reductase activity. The ex-vivo study showed that plumbagin prevents lenticular opacity against the glucose-induced model. The plumbagin exposure significantly ($P < 0.05$) increased the antioxidant activity (CAT, SOD, and GSH) and reduced the malonaldehyde level. Moreover, plumbagin treatment significantly ($P < 0.05$) restored the lens protein content. The results concluded that plumbagin has promising anticataract activity by inhibiting lens aldose reductase and mitigating lenticular oxidative stress, making it a potential anticataract agent for diabetic conditions.

Keywords: Aldose reductase activity, Anticataract activity, Antioxidant activity, Diabetic cataract, Plumbagin

Euphorbia hirta: Journey from a single potent candidate to multidimensional pharmacological activity

Authors

Aisha Shukla[1], Khusbu Yadav[1], Priyanka Mishra[1], Laxmi Banjare[1]

[1]Shri Shankaracharya Institute of Pharmaceutical Science and Research, Bhilai Durg, 490020

Presenting Author: banjare.laxmi2@gmail.com

Abstract

A common medicinal plant in folk and traditional medicine systems is *Euphorbia hirta*. This plant has demonstrated encouraging results against a number of infectious diseases and human ailments. Thus, a summary of *Euphorbia hirta* therapeutic properties and benefits is necessary. *Euphorbia hirta's* phytochemistry and pharmacology were gathered from a variety of international resources, including Web of Science, ERIC, PubMed, and Scopus. Rich in phytochemistry, *E. hirta* showsimpressive efficacy against gastrointestinal, respiratory, and genital illnesses. Significant preclinical anticancer potential has been demonstrated by various extracts of this plant against a variety of cancer cell lines. It functions as a potent antiviral agent and has demonstrated strong efficacy against poliovirus, dengue virus, coxsackievirus, human immunodeficiency virus, and simian immunodeficiency virus.

Keywords: Ethnopharmacology, *Euphorbia hirta*, Phytochemistry, multidimensional pharmacological action.

Anticataract Activity of Phloretin in *ex-vivo* experimental cataract

Authors

Anshul Ram and Rajesh Choudhary

[1]Departmentof Pharmacology, Shri Shankaracharya College of Pharmaceutical Sciences, Shri Shankaracharya Professional University, Bhilai-490020, Chhattisgarh, India.

Presenting Author: anshul.croma@gmail.com

Abstract

The present study investigates the anticataract efficacy of phloretin by assessing its aldose reductase inhibitory and antioxidant properties against ex vivo experimental models in gout lenses. To induce diabetogenic cataract, a glucose-induced model was employed. In this model, gout lenses were incubated in high concentrations of glucose (55.5 mM) within a physiological salt solution, along with phloretin (50, 100, and 200 µg/mL). The effects of phloretin were compared to cataract control lenses. The results of the ex vivo model demonstrated that phloretin maintains lens transparency and mitigates cataract maturation. Furthermore, phloretin exposure significantly enhanced antioxidant activity (CAT, SOD, and GSH) and decreased malonaldehyde levels. Additionally, phloretin exposure significantly restored lens protein content. The findings suggest that phloretin exhibits promising anticataract activity by inhibiting lens aldose reductase and oxidative stress.

Keywords: Phloretin, Anticataract activity, Diabetic cataract, Aldose reductase activity, Oxidative stress, Antioxidant activity

Development of Phytoconstituents for the Treatment of Parkinson Disease

Authors

Miss. Anita Devi Chauhan*, Dr. Manoj Goyal

Madhyanchal Professional University

Presenting Author: gudiyachauhan0606@gmail.com

Abstract

Parkinson's disease (PD) is a neurodegenerative disorder which is characterized by typical symptoms including gradual progressive muscle rigidity, tremor and loss of motor skills. Although there is no definitive cure for PD, the extract of some medicinal plants and their ingredients have been suggested to relieve its symptoms and to prevent disability in patients. Parkinson's disease (PD) is considered as the most common neuronal destructive disease after Alzheimer's disease (AD). This neurodegenerative disorder results from progressive damage in dopamine secreting cells in substantia nigra. Oxidative stress and neuro-inflammation have been recognized as key causes in dopaminergic neurons death in various forms of PD. Although it was formerly considered a bland lipid storage disease, substantial advances in basic and experimental science have illuminated the role of inflammation and the underlying cellular and molecular mechanisms that contribute to atherogenesis. Sleep problems are an under-emphasized cause of disability in Parkinson's disease (PD) and may be seen independently of PD, associated with primary PD pathology, or as a result of antiparkinsonian medications. Common sleep disorders include excessive daytime sleepiness, rapid eye movement (REM) sleep behavior disorder, night-time wakefulness and restless legs syndrome It is possible to have a great quality of life with PD. It is essential to work with your doctor and follow recommended therapies in order to successfully treat symptoms. Develop a plan with your doctor to stay healthy. Medicinal plants have been recognized since antiquity as a veritable tool in the management of ailments. as a veritable tool in the management of ailments. Traditional herbal medicine has been embraced as an alternative to orthodox medicine in several developing and developed nations.

Keywords: Parkinson Disease, Neurogenerative disorder, Dopaminergic Neurons, Traditional Herbal Medicines.

Exploring the Molecular Mechanisms of *Moringa oleifera* in Diabetes Mellitus *viain-Silico* Approach

Authors

Dipesh Singh Rajput[1], Partha Pratim Roy[1], Jagadish Singh[1]

[1]*Laboratory of Drug Discovery and Ecotoxicology, Department of Pharmacy, Guru Ghasidas Vishwavidyalaya, Bilaspur 495009, India*

Presenting author:*rajdipeshsinghdev@gmail.com*

Abstract

Moringa oleifera, a traditional medicinal plant, has attracted significant attention for its multi-target therapeutic potential, particularly in modulating glucose metabolism and inflammation. This study employed an integrated *in-silico* strategy to elucidate the molecular mechanisms underlying its anti-diabetic activity. A total of 200 phytochemicals were retrieved from the IMPPAT database, of which 74 compounds met the oral bioavailability (OB ≥ 0.50) and drug-likeness (DL ≥ 0.50) criteria. Target prediction using SwissTargetPrediction identified 63 potential human protein targets, while cross-referencing with diabetes-associated genes from GeneCards revealed 56 overlapping targets. Network pharmacology and protein-protein interaction (PPI) analyses highlighted ESR1, PTGS2, and MMP9 as hub proteins closely linked to inflammation, oxidative stress, and metabolic regulation. Gene Ontology (GO) and Kyoto Encyclopedia of Genes and Genomes enrichment analyses indicated that these targets are primarily involved in pathways associated with hormone regulation, detoxification, inflammatory response and metabolic homeostasis. Molecular docking, performed using Discovery Studio Client 4.1, demonstrated that several phytocompounds particularly lauric acid, luteolin, kaempferol, apigenin and hesperetin exhibited strong binding affinities toward the key proteins. Lauric acid consistently displayed the highest binding energy and favourable interactions with all three targets, surpassing standard reference compounds. The observed interactions were stabilized through hydrogen bonding, hydrophobic contacts, and van der Waals forces.

Overall, the findings suggest that *M. oleifera* demonstrates anti-diabetic effects through multi-target modulation of metabolic, hormonal, and inflammatory pathways. Lauric acid is identified as a potential lead compound for further diabetes therapy validation.

Keywords: Diabetes mellitus, *Moringa oleifera,* Molecular docking, multi-target mechanism, Network pharmacology

AI-Assisted Conservation Framework for Endangered Medicinal Plant Species of Chhattisgarh

Authors

Renuka Verma*, Trilochan Satapathy

Columbia Institute of Pharmacy, Vill-Tekari, Near Vidhansabha, Raipur-493111, C.G., India

Email: renuka@columbiaiop.ac.in

Abstract

Chhattisgarh, often known as the "Herbal State of India," is endowed with rich biodiversity and an abundance of medicinal plant species that serve as a vital resource for traditional and modern healthcare systems. However, rapid urbanization, deforestation, unsustainable harvesting, and climate change have led to the depletion and endangerment of several medicinally important plant species. The present study emphasizes the need for a sustainable and comprehensive conservation framework that integrates Artificial Intelligence (AI)-driven approaches with traditional ecological knowledge. AI tools such as machine learning, remote sensing, and geographic information systems (GIS) can facilitate the identification of critical habitats, predict species distribution, monitor ecological changes, and assess population dynamics. These technologies enable early detection of threats, data-driven prioritization of conservation zones, and formulation of adaptive management strategies. Additionally, integrating local community participation and ethno-botanical data with AI-based predictive modelling can strengthen both in-situ and ex-situ conservation initiatives. This interdisciplinary approach not only ensures the preservation of endangered medicinal plants but also promotes sustainable utilization and restoration of degraded ecosystems. Overall, the application of artificial intelligence offers a promising pathway to achieve long-term ecological balance and safeguard the Phyto-pharmaceutical wealth of Chhattisgarh for future generations.

Keywords: Medicinal plants, Chhattisgarh, Artificial intelligence, Conservation strategies, endangered species, Biodiversity management, Machine learning, Sustainable development

AI-Driven Conservation: Safeguarding Endangered Medicinal Flora in Chhattisgarh

Authors

*[1]Bina Gidwani, [1]Shiv Shankar Shukla, [1]Ravindra Kumar Pandey, [2]Amber Vyas

[1]Columbia Institute of Pharmacy, Raipur (C.G.) [2]University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur (C.G.)

*Email – beenagidwani@gmail.com

Abstract

The State of Chhattisgarh, India, is a significant biodiversity hotspot, particularly rich in medicinal plant species. However, a growing number of these botanicals are facing endangerment due to over-exploitation, habitat loss, and climate change, posing a critical threat to both local ecosystems and traditional medicinal practices. This study proposes and evaluates the integration of Artificial Intelligence (AI) technologies to substantially enhance the efficacy and scope of current conservation efforts. The research focuses on developing a comprehensive conservation framework that leverages AI for several key functions: predictive modeling of species distribution and vulnerability under future climate scenarios; automated identification and monitoring of endangered populations using remote sensing data and drone imagery; and the establishment of a smart database for real-time tracking of *in situ* and *ex situ* plant populations. Specifically, Machine Learning algorithms will be trained on ecological, geographical, and anthropogenic data to prioritize conservation sites and tailor intervention strategies. The outcomes of this AI-driven approach are expected to provide a scalable, data-informed, and resource-efficient roadmap for the sustainable conservation of Chhattisgarh's endangered medicinal plants, offering a vital model for similar biodiversity challenges globally.

Keywords: AI, conservation, medicinal plants, Chhattisgarh

A REVIEW ON ROLE OF *COSTUS IGNEUS* IN DIABETES MANAGMENT

Authors

T. Lipika*

Shri Shankaracharya Institute Of Pharmaceutical Sciences and Research,

JunwaniBhilaiPresenting author: tlipika1704@gmail.com

Abstract

Diabetes mellitus is a chronic metabolic disease characterized by high blood sugar (glucose) levels, resulting from the body's inability to produce enough insulin or effectively use the insulin it produces. India's diabetes prevalence is high and rapidly growing, with recent estimates from International Diabetes Federation (IDF) showing about 10.5% prevalence in 2024 and a projected rise to 10.4% by 2030.*Costus igneus,* commonly known as insulin plant, has been traditionally reported for its anti-diabetic, anti-oxidant, anti-inflammatory, anti-proliferative, anti-urolithiasis, hypolipidemic, neuroprotective and anti-microbial activity. Commonly it is known as Spiral flag, is a member of Costaceae and a newly introduced plant in India from South and Central America. In southern India, it usually grows as an ornamental plant and its leaves are used as a dietary supplement in the treatment of diabetes mellitus. Recently, a number of researches have been carried out to evaluate the anti-diabetic potential of this plant. Besides, it has been proven to possess various pharmacological activities. Further, various phytochemical investigations reveal the presence of carbohydrates, triterpenoids, proteins, alkaloids, tannins, saponins, flavonoids, steroid, and appreciable amounts of trace elements. This presentation is an attempt to compile and explore the different pharmacological and phytochemical studies reported till date.

Key words: IDF, Hypolipidemic, Anti Diabetic, Anti-Urolithiasis

A REVIEW ON SPIRULINA AS SUPER FOOD

Authors

Aditi Verma* Rahul Singh, Rajput Sandhya
Shri Shankaracharya Institute Of Pharmaceutical Sciences and Research,JunwaniBhilai Presenting Author: Aditiverma1102003@gmail.com

Abstract

Spirulina are multicellular and filamentous blue-green microalgae belonging to two separate genera Spirulina and Arthrospira and consists of about 15 species. Arthrospira platensis is the most common and widely available spirulina and most of the published research and public health decision refers to this specific species. It grows in water, can be harvested and processed easily and has significantly high macro- and micronutrient contents Spirulina, is now worldwide used as a dietary supplement owing to its richness in protein (50-60%), antioxidants, essential fatty acids, etc. The amino acid composition of Spirulina protein ranks among the best in the plant world, more than that of soya beans. Nowdays Spirulina is considered as a 'superfood'. Its methodologies of cultivation, richness in nutrients and bioactive components, therapeutic properties in the health food circuits, and versatile utilization in various food supplements are elaborately introduced. All possible fortification of Spirulina platensis emphasizing the elevation of nutrient levels in bakery products, beverages, dairy products, extruded snacks, energy bars, infant foods, and confectionaries is briefed. Beyond, these algae convert carbon dioxide into organic substances and produce oxygen during their growth in alkaline and saline water thereby not wasting fresh water and allowing the production in barren areas. Such an organism with a plethora of health profits to humans, animals and the environment is limitless and has probably more to offer in the future.

Key words: super food, amino acid

Targeted Nanocarriers for Anti-Leishmanial Drug Delivery: Bridging Innovation and Application

Authors

[1]*Deleshwar Kumar*[*,] [2]*Saurabh Shrivastava*

[1]Shri Shankaracharya Professional University, Junwani, Bhilai (C.G.)

[2]Shri Shankaracharya College of Pharmaceutical Sciences, Junwani, Bhilai (C.G.)

[*] Presenting Author:*deleshwarkumar54@gmail.com*

Abstract

Leishmaniasis, a neglected tropical illness spread by sandfly vectors and caused by Leishmania parasites, continues to pose a serious threat to global health. Even though they work well, conventional chemotherapeutic choices are constrained by problems such high toxicity, low absorption, lengthy treatment duration, and developing drug resistance. By creating drug delivery methods, diagnostic instruments, and vaccine carriers based on nanotechnology, these constraints have been addressed in recent years. Liposomes, polymeric nanoparticles, metallic nanostructures, and nanoliposomes are examples of nanoparticles that provide enhanced pharmacokinetics, restricted drug release, and targeted delivery to infected macrophages. Additionally, early intervention is made possible by the quick and accurate diagnosis of Leishmania species made possible by nano diagnostics. This review focuses on recent developments in the use of nanotechnology for leishmaniasis prevention, diagnosis, and treatment, highlighting present difficulties, translational hurdles, and future research avenues required for clinical application.

Keywords: Leishmaniasis, protozoan parasites, herbal medicine, Target Drug Delivery, Nanotechnology.

Artificial Intelligence-Driven Strategies for Conservation of Endangered Medicinal Plants in Chhattisgarh

Authors

Poonam Sahu[1]*, Dr. Trilochan Satapathy[1]

Columbia Institute of Pharmacy, Vill- Tekari, Near Vidhansabha, Raipur, 493111, C.G, India

Abstract

Chhattisgarh, distinguished for its extensive medicinal plant diversity, is increasingly threatened by habitat degradation, overharvesting, and anthropogenic pressures, rendering several species endangered. The urgent need for effective and sustainable conservation strategies is underscored by the ecological, pharmacological, and cultural significance of these plant resources. This study explores the application of artificial intelligence (AI) as a transformative approach to enhance the conservation of endangered medicinal flora in the region. Advanced AI methodologies, including machine learning algorithms, predictive modeling, and remote sensing technologies, offer robust tools for accurate habitat characterization, population assessment, and real-time monitoring of species at risk. Predictive analytics facilitate the identification of vulnerable taxa, optimization of restoration initiatives, and projection of environmental impacts on plant distributions. Moreover, AI-driven analyses of large ethnobotanical and ecological datasets enable the integration of traditional knowledge with environmental parameters, supporting informed prioritization of conservation targets. By synergizing AI technologies with community-based conservation frameworks, adaptive strategies can be developed that reconcile biodiversity preservation with sustainable resource utilization. This integrative approach not only enhances the precision, efficiency, and scalability of conservation programs but also establishes a model for proactive management of medicinal plant diversity. The implementation of AI-enabled conservation strategies represents a forward-looking paradigm that harmonizes technological innovation, ecological stewardship, and scientific rigor, ensuring the long-term protection of Chhattisgarh's endangered medicinal plants and safeguarding their therapeutic, cultural, and environmental value for future generations.

Key words: Artificial intelligence, Biodiversity management, Chhattisgarh, Endangered species, Medicinal plant conservation.

AI Based Conservation: Rauvolfia Serpentina

Authors

Dey Aanchal, Jaiswal Shreyansh, Banchhor Sameer

Shri Shankaracharya Institute of Pharmaceutical Science & Research,

Bhilai, CG, India

Presenting Authors:*aanchaldey30@gmail.com*

Abstract

Rauvolfia serpentina Benth. Ex Kurz. commonly known as sarpagandha (Apocynaceae) is threatened with extinction in India due to indiscriminate collection and over-exploitation. The alkaloid reserpine is isolated from the root and is widely used to treat hypertension, and other problems. It is used in European, Ayurvedic, Unani, Homeopathic and Sidha systems of medicines.

There is alarming rise in the demand of this plant based raw material throughout the world in view of safe use of the drug. Destructive harvesting from wild has led to depletion of natural habitat. IUCN has kept this plant under endangered status. Conservation measures to save this high value medicinal plant is to develop in situ and ex situ multiplication. AI-assisted bioinformatics can analyze the plant's genome to identify genes responsible for reserpine production (the key alkaloid). Machine learning algorithms can optimize in vitro propagation (e.g., tissue culture) by predicting the best hormone and nutrient combinations for rapid growth.Predictive models can guide breeding and cloning strategies to maintain genetic diversity.

Conclusion: The integration of AI-based technologies in the conservation of Rauvolfia serpentina offers a promising approach to monitoring, protecting, and sustainably utilising this endangered medicinal plant. By enabling precise data analysis and predictive modeling, AI can play a crucial role in preserving its genetic diversity and ensuring its long-term survival.

Keywords: Rauvolfia serpentina, sarpagandha, reserpine, anti-hypertensive, threat assessment, conservation measure.

OCULAR DRUG DELIVERY SYSTEM

Author

GUNJA SAHU

Department of pharmaceutics Shri Shankaracharya college of pharmaceutical sciences Junwani, Bhilai Chhattisgarh, India Pincode-490020

Presenting author: *gunjasahu792@gmail.com*

Abstract

The major challenge faced by today's pharmacologist and formulation scientist is ocular drug delivery. Topical eye drop is the most convenient and patient compliant route of drug administration, especially for the treatment of anterior segment diseases. Delivery of drugs to the targeted ocular t issues is restricted by various precorneal, dynamic and static ocular barriers. Also, therapeutic drug levels are not maintained for longer duration in target tissues. In the past two decades, ocular drug delivery research acceleratedly advanced towards developing a novel, safe and patient compliant formulation and drug delivery devices/techniques, which may surpass these barriers and maintain drug levels in tissues. Anterior segment drug delivery advances are witnessed by modulation of conventional topical solutions with permeation and viscosity enhancers. Also, it includes development of conventional topical formulations such as suspensions, emulsions and ointments. Various nanoformulations have also been introduced for anterior segment ocular drug delivery. On the other hand, for posterior ocular delivery, research has been immensely focused towards development of drug releasing devices and nanoformulations for treating chronic vitreoretinal diseases. These novel devices and/or formulations may help to surpass ocular barriers and associated side effects with conventional topical drops. Also, these novel devices and/or formulations are easy to formulate, no/negligibly irritating, possess high precorneal residence time, sustain the drug release, and enhance ocular bioavailability of therapeutics. An update of current research advancement in ocular drug delivery necessitates and helps drug delivery scientists to modulate their think process and develop novel and safe drug delivery strategies. Current review intends to summarize the existing conventional formulations for ocular delivery and their advancements followed by current nanotechnology based formulation developments. Also, recent developments with other ocular drug delivery strategies employing in situ gels, implants, contact lens and microneedles have been discussed.

DEVELOPMENT OF THERMOSENSITIVE IN– SITU GEL OF FLAVONOID

Author

Veena Verma

Department of Pharmaceutics

Shri Shankaracharya College of Pharmaceutical Sciences, Junwani, Bhilai, Chhattisgarh, India, 490020

Presenting Author: veenaverma515@gmail.com

Abstract

The ocular route of drug delivery presents significant challenges due to physiological barriers such as tear turnover, blinking, and limited corneal permeability, which result in poor bioavailability of conventional eye drops. To overcome these limitations, thermosensitive in situ gels have emerged as an effective approach for sustained and enhanced ocular drug delivery. In this study, a thermo-sensitive in situ gel was developed for the ocular delivery of flavonoids (such as prunetin) to improve therapeutic efficacy and prolong precorneal residence time. The formulation was designed using temperature sensitive polymers like poloxamer 407 and poloxamer 188, with carbopol 934 as a viscosity enhancer to achieve sol–gel transition at physiological temperature (35–37°C). The prepared gels were evaluated for parameters such as clarity, pH, gelation temperature, viscosity, drug content, in vitro drug release, and ocular irritation. The optimized formulation exhibited instant gelation upon contact with ocular temperature, sustained drug release over an extended period, and good ocular tolerance. The results suggest that thermosensitive in situ gel systems provide a promising alternative to conventional eye drops by enhancing ocular bioavailability, reducing dosing frequency, and improving patient compliance.

Keywords: In – situ, Flavonoid, Poloxamer, Carbopol

A Holistic Approach Integrating Traditional Knowledge, Modern Medicine, and Artificial Intelligence for Dual Health and Ecological Benefit

Authors

*[1]Shilpa Sahu, [1]Bina Gidwani, [1]Shiv Shankar Shukla, [1]Ravindra Kumar Pandey,

[1]Columbia Institute of Pharmacy, Raipur (C.G.)

*Email – shilpasahu.pharma@gmail.com

Abstract

Gout, a painful and increasingly prevalent form of arthritis, affects a significant portion of the population in Chhattisgarh. Traditional and modern medical systems often rely on plant-derived compounds such as colchicine, commonly sourced from *Gloriosa superba*, and probenecid, a synthetic uricosuric agent that is sometimes used in combination therapy. However, overharvesting of colchicine-producing plants, coupled with habitat loss, has led to the endangered status of key medicinal species in the region. This study proposes a comprehensive, AI-assisted approach that integrates traditional knowledge, modern pharmacology, and conservation science to address both public health and ecological sustainability. Through ethnobotanical surveys, we explore the traditional use of gout-treating plants by tribal communities in Chhattisgarh. Using artificial intelligence tools, we propose a framework for habitat suitability modeling, real-time plant population monitoring, and predictive analysis to guide conservation priorities. AI can also aid in optimizing cultivation practices, ensuring sustainable yields of medicinal compounds without jeopardizing biodiversity. Moreover, we emphasize the importance of community involvement, capacity building, and digital documentation of indigenous knowledge systems. By aligning modern medicine's demand with traditional ecological wisdom and AI-enabled conservation strategies, this integrated model supports the dual goal of improving human health and preserving endangered medicinal flora. This interdisciplinary strategy not only promotes sustainable healthcare but also strengthens the biocultural heritage of Chhattisgarh, offering a replicable model for other regions facing similar challenges.

Keywords: AI, Chhattisgarh, Colchicine, Probenecid, Conservation strategies

FABRICATION OF MACROPOROUS HYDROGELS VIA CRYOGELATION FOR ADVANCED BIOMEDICAL APPLICATIONS

Author

PALAK GUHA,

Presenting Author: palakguha2001@gmail.com

University Institute of Pharmacy, PRSU, Raipur, C.G., India

Abstract

Hydrogels have emerged as versatile biomaterials in drug delivery, tissue engineering, and wound healing due to their tunable porosity, biocompatibility, and high-water content. Among various fabrication methods, cryogelation has gained significant attention for producing macroporous hydrogel matrices with interconnected channels. This process involves polymerization or crosslinking of monomeric or polymeric precursors under sub-zero temperatures, where ice crystals act as porogens. Upon thawing, large interconnected pores are formed, imparting high permeability and mechanical resilience to the structure. Cryogels can be fabricated from both natural polymers (gelatin, chitosan, alginate) and synthetic polymers (polyvinyl alcohol, polyacrylamide), with crosslinkers such as glutaraldehyde or carbodiimides. Their unique properties enable efficient nutrient and waste exchange, making them particularly suitable for cell culture scaffolds, injectable systems, and controlled release formulations. Recent advances highlight their role in regenerative medicine, immunotherapy, and biosensing. Despite challenges such as scalability, reproducibility, and limited control over pore size distribution, cryogelation remains a promising technique for next-generation biomedical hydrogels. Future research is expected to focus on green crosslinking approaches, hybrid polymer systems, and integration with nanotechnology for enhanced therapeutic efficacy.

Keywords: Cryogelation, Macroporous Hydrogels, Tissue Engineering, Drug Delivery, Injectable Hydrogels

Health Benefits of *Sesamum Indicum*: A Short Review

Author

Harsh Yadav*

Shri Shankaracharya College of Pharmaceutical Sciences, Junwani – 490020, Bhilai, Chhattisgarh, India

Abstract

Sesamum indicum is the primary source of sesame oil. Sesame has one of the highest oil contents of any seed. Sesame (*S. indicum* L.) is originated in India. Sesame seeds have been widely employed in culinary as well as traditional medicines for their nutritive, preventive, and curative properties. Sesame is an important source of phytonutrients such as omega-6 fatty acids, flavonoid phenolic anti-oxidants, vitamins, and dietary fiber with potential anti-cancer, as well as health promoting properties. Sesame seeds have been widely employed in culinary as well as traditional medicines for their nutritive, preventive, and curative properties. Sesame is an important source of phytonutrients such as omega-6 fatty acids, flavonoid phenolic anti-oxidants, vitamins, and dietary fiber with potential anti-cancer, as well as health promoting properties. The antimicrobial effectiveness of Sesame oil and its products against bacterial and common skin infection are seen. Sesame oil contains vitamin E in abundance along with vitamin B complex and vitamin A which helps nourish and rejuvenate skin. Sesame oil is also very beneficial in the cure and prevention of acne due to its oil pulling properties. Studies show the presence of carboxylic acids and phenolic groups in essential oils especially some of the most potent antioxidants such as sesamol, sesamolin, and sesamin. The decoction of both leaves and roots has been found to be effective against chicken pox and measles (anti-viral) and used as hair shampoo for *Taenia capitis*. Hence, the following review is done to understand the pharmacological action of sesame oil.

Keywords: *Sesamum indicum*, Antioxidants, Anti-inflammatory, Anti-microbial, Anti-pyretic.

Preparation of Jelly from Dietary Fiber Isolated from *Cassia fistula* and *Tamarindus indica* Seeds

Author

Neeraj Gupta*

Shri Shankaracharya College of Pharmaceutical Sciences, Junwani – 490020, Bhilai, Chhattisgarh, India

Abstract

The increase in diabetic, obesity and gastro intestinal disorder has increased the demand of dieteryfibre products. Five jelly formulations were prepared using Pectin ,*Tamarindis indica* soluble fibre (TSF) and *Cassia fistula* soluble fibre(CSF) either combination or alone and stored at 4 degreecelcius and 43 degreecelcius from first to sixty days for evaluation of shelf life . Jelly samples were evaluated for physical and sensory properties. Pectin and the combination of dietryfibres had reduced syneresis as compared to the TSF Jelly. The combination of TSF with CSF resulted in to an appreciably higher moisture content and lower total soluble content in comparison of Pectin combinations. The overall acceptability, odour, taste, texture, spredability and sensory attributes for TSF and CSF combination averaged 4.5-.75 in a 5- point hedonic scale consumer acceptance study. There are medical studies about the benefits of DF consumption such as falling serum cholesterol concentration, lowering the risk of coronary heart disease, reducing blood pressure, aiding weight control, improving glycemic control, reducing the risk of certain types of cancer and improving gastro intestinal functions as a result fibres from different sources and compositions are been obtained and DF fortification of foods is increasing. The use of a DF, which combines the physiological properties of the fibre with other properties such as high water holding capacity (WHC), provides an interesting area of application.

Keywords: Diabetic; Obesity; Dieteryfibre; Gastro intestinal disorder.

Ayurveda in Diabetes Therapy

Author

Lokesh Janghel*

Shri Shankaracharya College of Pharmaceutical Sciences, Junwani – 490020, Bhilai, Chhattisgarh, India

Abstract

Diabetes mellitus describes a group of complex metabolic disorders with a partial or absolute insufficiency of insulin secretion and with various degrees of insulin resistance. These disorders are generally characterized by chronic hyperglycemia and glucose intolerance. There are two major type of diabetes: type 1– the insulin dependent diabetes mellitus (IDDM) and type 2- the non-insulin dependent diabetes mellitus. According to ayurveda, diabetes is a metabolic kapha type of disorder in which diminished functioning of agni leads to a tendency toward high blood sugar. (Ayurveda recognizes 24 forms of the disease commonly classified under Prameha - 4 are due to Vata dosha, 6 are due to Pitta dosha, and 10 are caused by Kapha dosha. The main causes of these diseases are fat, urine, and Kapha buildups due to foods, liquids and lifestyle. Ayurvedic practitioners attack diabetes using a multiprong approach. First, they address diet modification, eliminating sugar and simple carbohydrates, and emphasizing complex carbohydrates. Protein is limited, since excessive intake can damage the kidneys. Fat is also limited because there is often a deficiency of pancreatic enzymes, making fat digestion difficult. Since many diabetics have autoantibodies, a cleansing program is instituted. Panchakarma is typically used for this purpose. This begins with herbal massages and an herbal steam sauna, followed by fasting to cleanse the body. This is followed by an herbal purge for the liver, pancreas, and spleen. Colon therapy is next, first to cleanse the digestive tract and then to reconstitute the system. Ayurvedic practitioners also use several herbal preparations for diabetics. Exercise is another cornerstone of ayurvedic treatment of diabetes. Yoga and breathing exercises are traditionally used.

Keywords: Ayurveda; Diabetes mellitus; Insulin resistance; Auto-antibodies.

NS/CIP/MPB/2025/38

Nyctanthes Arbor-tristis Linn-A Immunostimulant

Author

Prashant Gnjendra*

Shri Shankaracharya College of Pharmaceutical Sciences, Junwani – 490020, Bhilai, Chhattisgarh, India

Abstract:

Nyctanthes arbor-tristis (Night-flowering Jasmine) is a species of *Nyctanthes*, native to southern Asia, from northern Pakistan and Nepal south through northern India and southeast to Thailand. It is a shrub or a small tree growing to 10 m tall, with flaky grey bark. The leaves are opposite, simple, 6–12 cm long and 2–6.5 cm broad, with an entire margin. The flowers are fragrant, with a five- to eight-lobed white corolla with an orangeredcentre; they are produced in clusters of two to seven together, with individual flowers opening at dusk and finishing at dawn. The fruit is a flat brown heart-shaped to round capsule 2 cm diameter, with two sections each containing a single seed.*Nyctanthesarbortristis* L. (Oleaceae), a plant widely used in the traditional medicinal systems of India, has recently been reported to possess hepatoprotective, antileishmanial, antiviral and antifungal activities. In the present study strong stimulation of antigen specific and nonspecific immunity, as evidenced by increases in humoral and delayed type hypersensitivity (DTH) response to sheep red blood cells (SRBC) and in the macrophage migration index (MMI), has been demonstrated in mice fed with 50% ethanolic extract of seeds, flowers and leaves of this plant. Maximum activity was found in the seeds in which the active principle(s) appear to be mainly associated with lipids. In flowers and leaves, however, the major activity was found in the aqueous fraction of the 50% ethanol extract. The immunostimulant substance(s) found in *N. arbor-tristis* L. are likely to play a role in its antiamoebic, antileishmanial, antiviral and certain other activities.

Keywords: *Nyctanthes arbor-tristis;* Immunostimulant screening; Ayurveda.

NS/CIP/MPB/2025/39

Prospects and Future Perspectives of Herbal Medicine

Author

Md Ashadullah*

Shri Shankaracharya College of Pharmaceutical Sciences, Junwani – 490020, Bhilai, Chhattisgarh, India

Abstract:

Traditional medicine is the synthesis of therapeutic experience of generations of practicing physicians of indigenous systems of medicine. A vast majority of population particularly those living in villages depend largely on herbal medicines. Throughout the history of mankind, many infectious diseases have been treated with herbals. The traditional medicine is increasingly solicited through the tradipractitioners and herbalists in the treatment of infectious diseases. The rapid increase in consumption of herbal remedies worldwide has been stimulated by several factors, including the notion that all herbal products are safe and effective.

Keywords: Herbal Medicine, Plant, Infectious Disease, Perspectives, Remedies.

Use of Biomarker in Herbal Technology

Author

Jeet Yadav*

Shri Shankaracharya College of Pharmaceutical Sciences, Junwani – 490020, Bhilai, Chhattisgarh, India

Abstract

DNA-based molecular markers have proved their utility in fields like taxonomy, physiology, embryology, genetics or some other biological state of an organism. Molecular biomarkers nowadays are widely used in herbal technology as number of constituents from the herbs can be used as biomarker and used for exhibiting diverse pharmacological activity. Molecular biomarkers are widely used in producing genetic variation/genotyping many medicinal plants, in the determination of adulteration/substitution, in medicinal plant breeding, in food and neutraceuticals application such as identification of disease resistant genes, diversity analysis of exotic germplasms, sex identification of dioeceous plant and in phylogenetic analysis. For chemical profiling various analytical methods such as thin layer chromatography and high performance liquid chromatography is commonly used but it is limited because of their variable source and chemical complexity. Thus for quantitative studies use of specific marker is preferred option. These markers together with DNA useful in various in-vitro and in-vivo herbal technology. Thus it is become a widely used practice today and in near future.

Keywords: Biomarkers, Genetic variation/genotyping, Neutraceuticals, Chromatography.

NS/CIP/MPB/2025/41

Boerhavia Diffusa - A Hepatoprotective Rejuvenator

Author

Manas Singh Chandel*

Shri Shankaracharya College of Pharmaceutical Sciences, Junwani – 490020, Bhilai, Chhattisgarh, India

Abstract

*Boerhaviadiffusa*Linn.(F: Nyctaginaceae) a medicinal plant, commonly called hog weed, is known as 'erimmirii' (which literally means waterfood) and in Sanskrit as "Punarnava", is widely distributed over the tropical, subtropical and temperate regions of the world and is found throughout India and Brazil. It is traditionally used mostly in treating different ailments like asthma, urinary disorders, leucorrhea, rheumatism, and encephalitis. In addition different solvent extract of this plant proved to have different pharmacological activities viz. immunosuppressant, anti-diabetic, anti-oxidant, anti-cancer, analgesic, hepatoprotective, anti-viral, antifungal and antifibrinolytic activity.

Keywords: *Boerhaviadiffusa*L; Hepatoprotective.

Curcuma Zedoaria: A Antivenom Drug For Cobra Bite

Author

Dumesh*

Shri Shankaracharya College of Pharmaceutical Sciences, Junwani – 490020, Bhilai, Chhattisgarh, India

Abstract:

Curcuma zedoaria is the name for a perennial herb and member of the genus Curcuma Linn., family Zingiberaceae. The plant is native to India and Indonesia. It was introduced to Europe by Arabs around the sixth century, but its use as a spice in the West today is extremely rare, having been replaced by ginger. Analytical supercritical fluid extraction (SFE) was used to investigate the chemical constituents of Curcuma zedoaria, a very useful Chinese herbal medicine. The qualitative and quantitative analysis of extracts was performed by gas chromatography with mass spectrometry. The effects of pressure, temperature and flow rate of the extracting fluid on the extraction efficiency of SFE were investigated quantitatively. It was found that at a fixed density, changing temperature in a given experimental range had no great influence on the distribution of SFE products, but that an appropriate increase of flow rate and fluid volume improves the extraction efficiency. SFE using supercritical carbon dioxide was a more efficient extraction technique than steam distillation.

Keywords: Curcuma zedoaria, Chromatography, Extraction technique.

Proteolytic Activity of Gingiber Officinale and Ananas Comosus against Ankylosing Spondilitis

Author

Ujjwal Singh*

Shri Shankaracharya College of Pharmaceutical Sciences, Junwani – 490020, Bhilai, Chhattisgarh, India

Abstract:

Proteolytic activity of tuber part of Gingiber officinale and fruit of Ananas comosus were found to be active against Ankylosing spondilitis. Ankylosing spondilitis is a member of the group of the Spondyloarthritis, with a strong genetic predisposition. Complete fusion results in a complete rigidity of the spine, a condition known as bamboo spine. Gingiberofficinale is one of the richest source of zingibain and Ananas comosus is the richest source of Bromelain which is having excellent power to control inflammation in autoimmune diseases. Gingiber also contain vitamin c which very useful to neutralize the free radical which are responsible for inflammation.

Keywords: Gingiber officinale, Proteolytic activity, Ankylosing spondilitis, Inflammation.

Current Trends in Phytopharmacolgy of Herbal Drug

Author

Omkar Das Goswami*

Shri Shankaracharya College of Pharmaceutical Sciences, Junwani – 490020, Bhilai, Chhattisgarh, India

Abstract:

Herbal medicines are the oldest remedies known to mankind. Herbs had been used by all cultures throughout history but India has one of the oldest, richest and most diverse cultural living traditions associated with the use of medicinal plants. In the present scenario, the demand for herbal products is growing exponentially throughout the world and major pharmaceutical companies are currently conducting extensive research on plant materials for their potential medicinal value. In many journals, national and international, we find an increasing number of research publications based on herbal drugs. Many analysis-based studies regarding pharmacological research in India have been conducted in the past. Out of these, one study has shown an upward trend in indigenous drug research but there are only few studies on the exclusive analysis of herbal drug research in India. Therefore, the present study was undertaken to analyze the recent trends of herbal drug research in India keeping the Indian Journal of Pharmacology as a marker. Herbal medicines form a major part of remedies in traditional medical systems such as Ayurveda, Rasa Sidha, Unani, and Naturopathy. Hence all animal and clinical studies on herbal medicines were reviewed. The data for the years 1981-1983 were taken as baseline for the comparison of recent herbal drug research trends. The present study showed that interest has increased in herbal drug research in India, which supported the findings of Adithan (1996), with maximum utilization of the phytotherapeutic approach wherein crude plant preparations were used. The maximum work was observed with polyherbal preparations.

Keywords: Herbal medicines, Phytotherapeutic approach, Polyherbal preparations.

Sperm Immobilization activity of Allium sativum and Other Plant Extracts

Author

Omkar Das Goswami*

Shri Shankaracharya College of Pharmaceutical Sciences, Junwani – 490020, Bhilai, Chhattisgarh, India

Abstract:

Medicinal plants are the nature's gift to human being. It plays a vital role to preserve our health. There are many Indian medicinal plants, which were reported to possess antifertility property; they acted either by preventing implantation or by suppressing spermatogenesis. The correct investigation of possible spermicidal agents through screening a number of edible medicinal plants with antimicrobial activity is essential, for reducing various side effects in human beings. The present investigation had been carried out on screening a number of edible medicinal plants, namely Allium sativum (family Lilliaceae), Zingiber officinale (Zingiberaceae), Curcuma longa (Zingiberaceae), Curcuma amada (Zingiberaceae), Allium cepa (Lilliaceae) and so forth at an aim to identify active extracts for the future development of herbal spermicidal agents. The crude aqueous extract of the bulb of Allium sativum L. showed the most promising results by instant immobilization of the ram epididymal sperm at 0.25 g/mL and human ejaculated sperm at 0.5 g/mL. Sperm immobilizing effects were irreversible and the factor of the extract responsible for immobilization was thermostable up to 90.The crude aqueous extract of A. sativum bulb possesses spermicidal activity.

Keywords: Allium sativum, Spermatogenesis, Spermicidal agents, Antifertility property.

Herbal Remedies: A New Era for Psoriasis Diseases

Author

Om Kashyap*

Shri Shankaracharya College of Pharmaceutical Sciences, Junwani – 490020, Bhilai, Chhattisgarh, India

Abstract:

The objective of this study was to review and explore the top 15 currently herbal remedies used and the historically used herbal remedies in the treatment of psoriasis. Psoriasis is undoubtedly distressing, affected individuals are typically otherwise healthy and thus well suited to thoughtful outpatient care. Recent advances in our understanding of psoriasis have provided parallel advances in topical treatments. Specifically herbals, there is limited scientific data regarding their benefits and interactions. About 75% of patients have mild to moderate psoriasis, amenable to topical treatment is lifetime controlling herbals remedies like Aloe, Cayenne, Chamomile, Dong Quai, Emu oil, Evening prime rose oil, Fish oil, Tea tree oil, Turmeric, Slippery elm, Wintergreen ,Shark cartilage, Milk thistle, Glucosamine, Flexseed oil are needed. Herbal remedies for treatment psoriasis diseases to overcome the adverse effect, antagonistic effect and bioavailability of drug.

Keyword: Psoriasis, Herbal remedies, Topical Treatment.

Genus Tinospora: Ethnopharmacology, Phytochemistry, and Pharmacology

Author

Junaid Quraishi*

Shri Shankaracharya College of Pharmaceutical Sciences, Junwani – 490020, Bhilai, Chhattisgarh, India

Abstract:

The genus Tinospora includes 34 species, in which several herbs were used as traditional medicines by indigenous groups throughout the tropical and subtropical parts of Asia, Africa, and Australia. The extensive literature survey revealed Tinospora species to be a group of important medicinal plants used for the ethnomedical treatment of colds, headaches, pharyngitis, fever, diarrhea, oral ulcer, diabetes, digestive disorder, and rheumatoid arthritis. Indian ethnopharmacological data points to the therapeutic potential of the T. cordifolia for the treatment of diabetic conditions. While Tinospora species are confusing in individual ingredients and their mechanisms of action, the ethnopharmacological history of those plants indicated that they exhibit antidiabetic, antioxidation, antitumor, anti-inflammation, antimicrobial, antiosteoporosis, and immunostimulation activities. While the clinical applications in modern medicine are lacking convincing evidence and support, this review is aimed at summarizing the current knowledge of the traditional uses, phytochemistry, biological activities, and toxicities of the genus Tinospora to reveal its therapeutic potentials and gaps, offering opportunities for future researches.

Keywords: Tinospora, Phytochemistry, Antidiabetic, Antitumor, Anti-inflammation, Antiosteoporosis, Immunostimulation activities.

Molecular Targeted Therapy of Cancer: The Progress and Future Prospect

Author

Anjali Mourya*

Shri Shankaracharya College of Pharmaceutical Sciences, Junwani – 490020, Bhilai, Chhattisgarh, India

Abstract:

Cancer has become a major public health problem worldwide. Researches focus on the new approaches for cancer treatments that involve the specific targets of the cancer disease. The premise of targeted therapy in oncology is the fundamental reliance of tumor cells on biological pathways to which drugs inhibiting those pathways can be applied. Tumor resistance to anticancer drugs is a well-known clinical phenomenon that is now yielding its secrets to investigation at the molecular level. Resistance of immunotherapeutic agents is a matter of concern that is believed to influence the effectiveness of anticancer therapies. The intrinsic or acquired drug resistance directly impacts on the survival and the prognosis of patients with cancer. This review presents the application of molecule targeted therapy in cancer treatment. A particular focus is on the potential mechanism that can facilitate further improvement of anticancer.

Keywords: Cancer, Molecular targeted therapy, Drug resistance.

Molecular Marker in Herbal Drug Technology

Author

Sonali Bendale*

Shri Shankaracharya College of Pharmaceutical Sciences, Junwani – 490020, Bhilai, Chhattisgarh, India

Abstract:

Herbal drug technology is used for converting botanical materials into medicines, where standardization and quality control with proper integration of modern scientific techniques and traditional knowledge is important. The use of chromatographic techniques and marker compounds to standardize botanical preparations has limitations because of their variable sources and chemical complexity. DNA-based molecular markers have utility in the fields like taxonomy, physiology, embryology, genetics, etc. DNA-based techniques have been widely used for authentication of plant species of medicinal importance. Pharmacognosy mainly addresses quality-related issues using routine botanical and organoleptic parameters of crude drugs, with chromatographic and spectroscopic techniques. The new Pharmacognosy includes all the aspects of drug development and discovery, where biotechnology-driven applications play an important role. Current focus on chemotypes-driven fingerprinting and related techniques requires integration with genotype-driven molecular techniques so that an optimal characterization of botanical materials is possible. This review provides a brief account of various DNA-based technologies that are useful in genotyping and quick identification of botanicals with suitable examples.

Keywords: DNA molecular markers, Embryology, Genetics, Fingerprinting, Herbal drug technology.

Monoclonal Antibody: A Molecular Targeted Therapies for Cancer Treatment

Author

Mohnish Sahu*

Shri Shankaracharya College of Pharmaceutical Sciences, Junwani – 490020, Bhilai, Chhattisgarh, India

Abstract:

The systemic use of cytotoxic agents to disrupt mitosis in rapidly dividing cancer cells, with foreseeable dose-limiting haematological toxicities. Targeted therapies affect specific cellular molecular mechanisms promoting cancer cell survival and proliferation, enabling treatment tailored to specific tumour characteristics. The key pathways include the hormonal axis, growth factor receptor-mediated tyrosine kinases and cellular immune system. Monoclonal antibodies can target extracellular ligands or cell surface growth factor receptors. Tyrosine kinase inhibitors prevent signal transduction from the intracellular portion of the receptors. Monoclonal antibodies represent a major advance in treatment of acute lymphoblastic leukemia (ALL). Targeted delivery of these agents based on leukemic cell-surface receptor recognition, improves efficacy and minimizes off-target toxicity. The antigens CD19, CD20, CD22 and CD52, are the most common antigens to which monoclonal antibodies in B-cell ALL have been directed. This review will focus on mechanisms of action and clinical applications to monoclonal antibody therapy in the context of cancer.

Keywords: Cancer, immunotherapy, Monoclonal antibodies, targeted therapy, tyrosine kinase inhibitors

Computational Modeling to Advance Deep Brain Stimulation for the Treatment of Parkinson's Disease

Author

Sanju Kokila*

Shri Shankaracharya College of Pharmaceutical Sciences, Junwani – 490020, Bhilai, Chhattisgarh, India

Abstract:

Deep brain stimulation is effective at improving motor symptoms of Parkinson's disease. However, the mechanism of action remains unclear and more efficient approaches to stimulation may improve patient quality of life. Here we review how computational models have been used to understand and advance the therapy. We describe two classes of models: (1) abstract models, which aim to replicate behaviors without simulating exact patient measures, and (2) clinically predictive models, which aim to simulate patient specific parameters. Abstract models can be used to develop novel patterns of stimulation while clinically predictive models can be used to aid clinicians in selecting therapeutic stimulation parameters for each patient. These principles can likely be applied to stimulation therapies for a number of disorders.

Keywords: Computational Modeling;Mechanism of action; Parkinson's disease

Management of Psoriasis with Nutraceuticals: An Update

Author

Yashwant Dewangan*

Shri Shankaracharya College of Pharmaceutical Sciences, Junwani – 490020, Bhilai, Chhattisgarh, India

Abstract:

Psoriasis is a chronic skin disorder that speeds up the life cycle of skin cells, typically on the surface of the skin. Additional skin cells form thick scales and red fixes which are awfully itchy and sometimes painful. Although there are many therapeutic systems available to get symptomatic relief, unfortunately replete cure for psoriasis is not yet reported. Moreover, poor treatment outcomes as well as high toxicity profile of drugs makes these therapies more inconvenient to treat psoriasis. In search of alternative and complementary therapy for this disease, the focus has been shifted to nutraceuticals; few of them were reported since ages. It includes vitamins, herbal extracts, phytochemicals and dietary supplements. In this review, the attempt has been made to highlight key nutraceuticals for better management of psoriasis. Supplementation of appropriate nutraceuticals may improve the quality of patient's life and have positive impact on overall state of disease

Keywords: Psoriasis management, Nutraceuticals, Phytochemicals, Dietary supplements.

Advancements in Nanotechnology for Enhanced Ocular Drug Delivery

Authors

Siddharth Kumar Sahu*, Swarnali Das Paul**

Shri Shankaracharya Professional University, Junwani – Bhilai, CG.

*Presenting Author: ksiddharth800@gmail.com

Abstract:

Traditional ocular drug delivery faces significant challenges, including poor drug bioavailability and the need for frequent administration, largely due to the eye's anatomical barriers. Nano based drug delivery systems offer a promising solution to these limitations by enhancing drug penetration, providing sustained release, increasing drug retention time, and improving therapeutic efficacy in ocular treatments. This approach has the potential to offer a novel and more effective strategy for managing high IOP and mitigating glaucoma progression by enabling efficient and sustained delivery of drug to the affected ocular tissues, leveraging its anti-inflammatory properties to address pathological components of glaucoma. Nano based drug delivery systems offer a promising solution to these challenges by enhancing drug penetration, providing sustained release, increasing drug retention time, and improving therapeutic efficacy in ocular treatments.

Keywords: nanotechnology, ocular drug delivery, glaucoma, IOP, nanoparticle

A REVIEW ON *ACHYRANTHES ASPERA* IN TREATMENT OF HEMORROIDS

Authors

Sejal Chouhan*, Nikita Singh, Sonal Yadav

Shri Shankaracharya Institute Of Pharmaceutical Sciences and Research,JunwaniBhilai

Presenting Authors: sejalchouhan1878@gmail.com

Abstract

Hemorrhoids are swollen, inflamed veins around anus or the lower part of your rectum.There are two types External hemorrhoids and Internal hemorrhoids. Achyranthes aspera (Amaranthaceae) is an important medicinal herb found as a weed throughout India. Though almost all of its parts are used in traditional systems of medicines, seeds, roots and shoots are the most important parts which are used medicinally. In many review papers it is reported that wide numbers of phytochemical constituents have been isolated from the plant which possesses various activities like,diuretic, purgative, laxative, antiasthmatic, hepatoprotective, anti-allergic and various other important medicinal properties.but it is effectively used in Ksharasutra therapy for treatment of Hemorroids. In this specialized Ayurvedic procedure, a medicated thread is prepared using the ash of the burnt Achyranthes aspera plant. The thread is used as a ligating agent for certain types of anorectal conditions, including piles and fistula-in-ano It grows abundantly throughout the state, particularly in disturbed areas like wastelands, roadsides, and open fields, including in districts like Durg and Sarguja. While it does not have extensive commercial farming, The State Medicinal Plants Board and other agencies support the cultivation of high-demand medicinal species. These programs focus on promoting sustainable harvest and processing of wild herbs to benefit local communities.

Key words: Hemorroids ,Ksharasutra therapy, fistula-in-ano

A REVIEW ON *WITHANIA COAGULANS* AS ANTIDIABTIC SUPPLIMENT

Authors

Aanchal Dey* Shreyansh Jaiswal, Sameer Banchhor

Shri Shankaracharya Institute Of Pharmaceutical Sciences and Research,JunwaniBhilai

Presenting Authors: shreyansh246810@gmail.com

Abstract

Diabetes mellitus is a chronic disease affecting more than 300 million people worldwide. Long term use of currently available treatments is associated with adverse effects ranging from cardiovascular conditions, renal disorders, liver ailments, and weight gain. Subsequently, a significant diabetic population seeks herbal medicines that are said to control blood sugar levels. Withaniacoagulans L. Dunal. Withaniacoagulans (family Solanaceae) is commonly known as "Paneer kephool" in Hindi WithaniacoagulansDunal., which is known for the hypoglycemic property Different plant parts and bioactive components like with anolides exhibited anti-diabetic activity.it is mainly grown is different states of INDIA but not cultivated in our state.it needs the dry, warm climate and well-drained soil for growth. The drier, warmer areas of Chhattisgarh with well-drained soil are primarily found in the central and western parts of the Chhattisgarh Plain.districts like Kawardha, which receive some of the lowest rainfall in the state are best for cultivation of Withaniacoagulans.

Key words: Diabetes mellitus, Paneer kephool,

DESIGN SYNTHESIS AND BIOLOGICAL EVALUATION OF SOME NOVEL NITROGEN MUSTARD DERIVATIVES IN THE TREATMENT OF BRAIN NEOPLASM

Author

Bhumika Sahu

SCHOOL OFPHARMACY, CHOUKSEY ENGINEERING COLLEGE BILASPUR(C.G)

Presenting Authors: bhumi2901@gmail.com

Abstract

According to the World Health Organization (WHO), Cancerremains a major worldwide health concern as of 2025. About 3,21,731 new instances of malignant brain tumours are diagnosed in 2022. More than 35 million more instances of cancer could be reported by 2050. Tumourscanbecategorized as either Malignant or Benign.Financial burden and side effects are major cause in cancer treatment, it can affectpatient as well as family membersfinanciallyandpsychologically.Experts recognize that the effects of the medication onbrain are limited due to lack of availability of drugcaused by blood brain barrier's (BBB), it plays major role while developing drugs for brain distribution. One of the protein Human glutathione S transferases22GS is overexpressed in glioblastoma (GBM) and other brain cancers.The designed nitrogen mustard groups have a high binding affinity in these 22GS Protein, as per studies using a computational technique.Research on benzodiazepine SAR indicates that the nucleus contains the pharmacophores that show CNS action. Consequently, a compound's anticancer capabilities will be strengthened by the addition of these pharmacophore groups.The designed compoundsareselected for synthesis on the basis of Docking, DFT, and MD simulation studies. The designed nitrogen mustard derivatives exhibited antitumour activity against the cell line U87glioblastoma.

Key words: WHO,Brain tumor, Human glutathiones transferase, glioblastoma,BBB

NANOROBOTS AS EMERGING TOOLS IN CANCER DIAGNOSIS AND THERAPY: PROGRESS AND FUTURE

Author

Akanksha Kaushik*

Chouksey engineering college, School of pharmacy, Bilaspur- 495009, Chhattisgarh

Presenting Authors: akankshakaushik884@gmail.com

Abstract

Early detection and diagnosis of cancer remain unaddressed medical concerns. The poor prognosis of cancer stands as the prime culprit for treatment failure and leads to high mortality rates. Thus, developing novel, precise and more sensitive diagnosis and therapeutic modalities is the present need. Nanobotes at present, are now at the forefront of multidisciplinary research. With advancements in molecular biology, and engineering science, nanobots can be precisely designed as flexible assembled nanosized machines in cancer diagnosis and therapy. Over the past decade, microbots as minimally invasive tools have already gained popularity in various challenging surgeries (e.g. heart bypass surgery). Various practical applications of nanobots for cancer therapeutics have slowly but steadily got momentum to be transitioned from in vivo experiments to in vivo applications. By modulating surface properties and tuning with precise control signals, these nanosized tools can target cancer cell with utmost specificity with diminished toxic effects on the healthy cells; the prime drawback of routine chemotherapy. The review briefly analyses recent development in nanorobotic- based strategies investigated towards the diagnosis and treatment of various cancers, particularly emphasizing their key features and their applications in targeted drug delivery. Side by side, some light has been through on the crucial limitations for wider clinical acceptability.

Keywords: Nanorobots, Cancer diagnosis, Therapy, Advancements

Stem Cell Therapy: Sources, Types, and Contemporary Trends in Regenerative Medicine

Author
KAPIL YADAV
SCHOOL OF PHARMACY, CHOUKSEY ENGINEERING COLLEGE BILASPUR (C.G)
Presenting Authors: kapilyadav12000@gmail.com

Abstract

In recent years, the utilization of stem cells has emerged as a promising approach for treating a wide spectrum of diseases, offering a potential therapeutic avenue for various medical conditions. Stem cells, with their unique ability to generate identical cells and serve as the foundation of tissues, organs, and the human body, are pivotal in regenerative medicine. The cryopreservation of stem cells ensures their long-term viability and clinical utility. Stem cell therapy has witnessed significant advancements, finding application in the treatment of ailments such as diabetes, stroke, and various degenerative disorders. According to CBC Canada, the cost of stem cell therapy typically ranges from $5,000 to $8,000, underlining the growing importance of this therapeutic modality. Regulatory oversight for stem cell therapies is provided by the FDA's Center for Biologics Evaluation and Research (CBER), ensuring safety and efficacy in clinical applications. This review seeks to provide a comprehensive overview of diverse stem cell sources and types, shedding light on the current status and trends in stem cell therapy. By examining the multifaceted landscape of stem cell research and its evolving role in regenerative medicine, this review contributes to a better understanding of this dynamic field.

Keywords: Stem cells, regenerative medicine, cryopreservation, therapy, FDA.

Integrating Artificial Intelligence in the Conservation of Endangered Medicinal Flora of Chhattisgarh: A Comprehensive Approach

Author
Monika Rakse
LCIT School of Pharmacy Bilaspur (C.G.)
Presenting Authors: monika.rakse06@lcit.edu.in

Abstract

Chhattisgarh, widely recognized as the "Herbal State of India," possesses rich biodiversity and a remarkable variety of medicinal plant species that have long supported traditional healthcare systems and rural livelihoods. However, rapid industrialization, deforestation, overharvesting, and climate change have led to the decline and endangerment of several valuable medicinal flora. This study presents a comprehensive approach to the conservation of endangered medicinal plant species in Chhattisgarh through the integration of Artificial Intelligence (AI) and ecological data analysis. By employing advanced AI techniques—such as machine learning algorithms for species distribution modeling, remote sensing for habitat assessment, and predictive analytics for risk evaluation—the research aims to identify priority conservation zones and forecast population dynamics under changing environmental conditions. The integration of traditional ecological knowledge with AI-driven insights offers a novel pathway for designing effective, data-based conservation and restoration strategies. The study ultimately seeks to establish a sustainable, adaptive framework that not only safeguards Chhattisgarh's medicinal biodiversity but also promotes community participation and evidence-based policy formulation for long-term ecological resilience.

Keywords: Artificial Intelligence (AI); Endangered medicinal plants; Conservation; Biodiversity; Chhattisgarh; Species distribution modeling; Remote sensing; Sustainable management; Traditional ecological knowledge; Predictive analytics

NS/CIP/MPB/2025/59

In Silico Screening of Piperidine-containing Phytoconstituents as α-Glucosidase Inhibitors

Author

Anju Daharia[a*], Mansa Shrivastava[a]

Kamla Institute of Pharmaceutical Sciences, Bhilai, Chhattisgarh, India, 490020, Chhattisgarh

Presenting Authors: anjudaharia055@gmail.com

Abstract

The present study reports the computational design and in silico evaluation of a piperidine-containing phytoconstituents as potential α-glucosidase inhibitor. These compounds are aimed at mitigating postprandial hyperglycemia by delaying carbohydrate hydrolysis and glucose absorption. Molecular docking simulations were conducted using Molegro Virtual Docker (MVD) v6.0, while PyMOL 2.4.0, SwissADME, and pkCSM tools were employed for molecular visualization and ADMET profiling. Among the piperidine-containing phytoconstituents, compounds **B12, B4**, and **B6** exhibited the lowest binding energies -164.199, -163.741, and -161.622 kcal/mol, respectively against the α-glucosidase enzyme (PDB ID: 3A4A), surpassing the standard drug (Rutin). The presence of electron-donating substituents such as *p-methoxy*, *o-methyl*, and *p-amino dimethyl* was found to enhance the interaction energy and inhibitory potential, likely due to improved hydrogen-bonding and π-π interactions within the active site of target protein. ADMET predictions revealed acceptable pharmacokinetic behavior and favorable drug-likeness profiles. Collectively, the integrated computational findings identify several piperidine-containing phytoconstituents as promising leads for further synthesis and biological validation in the management of hyperglycemia-related complications.

Keywords: Hypoglycemic, Piperidine, α-glucosidase, *In silico*, ADMET.

RECENT ADVANCEMENT IN HERBAL NANOFORMULATIONS FOR TOPICAL DELIVERY

Author

Sandhya Mishra [1], Ravindra Kumar Pandey[*2], Shiv Shankar Shukla[3]

Department of Pharmaceutics, Columbia Institute of Pharmacy, Raipur, Chhattisgarh-493111 ,India [1]

Department of Pharmacognosy, Columbia Institute of Pharmacy, Raipur, Chhattisgarh-493111 ,India [2]

Department of Quality Assurance, Columbia Institute of Pharmacy, Raipur, Chhattisgarh-493111 ,India [3]

Presenting Authors: sandhyamishra2911@gmail.com

Abstract

The use of herbal medicines has gained popularity throughout the world in recent times. Often seen as natural alternatives with fewer side-effects than synthetic medicines, these medicinal plants and their phytochemical constituents are thought to have potential applications in the management of a wide range of health conditions. As such, many whole herbal preparations, herbal extracts and isolated phytocontituents have been subjected to pharmacological and clinical research, in which the *in vitro* demonstrated benefits of the phytochemical constituents do not translate directly to *in vivo* and clinically demonstrated benefits. This has highlighted issues such as poor bioavailability, stability and distribution of herbal medicines when administered in traditional dosage forms and paved the way for research into the incorporation of herbal medicines into novel drug delivery systems. Nanotechnology is one of the key novel drug delivery methods under investigation, with nanoformulations thought to have a wide variety of benefits in comparison with conventional preparations of plant constituents, which include enhanced permeability, solubility, bioavailability, therapeutic activity, stability, improved distribution within tissues and sustained delivery. The present review examines the available research into the use of nanoformulations in the topical delivery of herbal medicines. It identifies the various nanoformulation approaches that have been developed and successfully used as means to enhance the topical delivery of natural bioactives, including nanoemulsions, liposomes, phytosomes, microspheres, transferosomes. The review also highlights the pressing need for safety considerations and validated toxicity guidelines in the development of such novel drug delivery systems.

Keywords: Topical delivery, Nanoformulations, Phytoconstituents

Solubility Augmentation of Diacerein by Solid Dispersion Technique

Author

Disha Kesharwani*, Swarnali Das Paul[1], Rishi Paliwal[2], Trilochan Satapathy[3], Sandhya Mishra[4]

*,3&4 Columbia Institute of Pharmacy, Raipur, C.G. [1]Shri Shankaracharya College of Pharmaceutical Sciences, Bhilai, C.G, India [2]Faculty of Pharmacy, IGNTU, Amarkantak, Madhya Pradesh, India

Presenting Authors: sandhyamishra2911@gmail.com

Abstract

The solubility of a medicine is the primary determinant of its absorption and therapeutic efficacy. The current study aims to improve the solubility and rate of dissolution of diacerein, a medication that is poorly soluble due to its BCS class II status. In order to achieve the goal of solubility augmentation, the current study concentrated on creating Hydroxy Propyl β-cyclodextrin inclusion complexes of diacerein. The most widely used technique among the several documented approaches for improving the poorly soluble drug's aqueous solubility is the creation of a solid dispersion. A drug and a polymer made up the created solid dispersion, with the drug distributed as amorphous particles within the polymer matrix. To improve the physical stability, solubility, and rate of dissolution of diacerein, the right polymer type and ideal drug-to-polymer ratio must be chosen. In this study, solid diacerein dispersions were created using varying ratios of PEG 6000 and Hydroxy Propyl β-cyclodextrin. The diacerein solid dispersion was created using three different techniques: kneading, melting, and physical mixing. The final dissolving rate was significantly increased, and the optimized Hydroxy Propyl β-cyclodextrin-based solid dispersion formulation shows six times greater drug solubility than pure DCN powder. To estimate the increased solubility, the generated solid dispersion was examined using a variety of techniques, including FTIR, PXRD, and DSC. The effective conversion of DCN from a crystalline to an amorphous form, which confers improved solubility and dissolution rate, was validated by FTIR, PXRD, and DSC analysis. According to the study, the diacerein inclusion complex made by kneading it with hydroxy propyl β-cyclodextrin in a 1:1 ratio exhibited the highest solubility.

Keywords: Hydroxy Propyl β-cyclodextrin, Diacerein, DSC, FTIR, PXRD

NS/CIP/MPB/2025/62

Conservation of Medicinal Plants: A Review of Threats and Strategies

Authors

Varsha Chandel[1], Rishi Gupta[1], Rudrapratap Yadav[1], Sagar Sahu[1], Gunjan Kalyani[1*]

[1] Columbia Institute of Pharmacy, Raipur, Chhattisgarh, India

Corresponding Author: gnjnkalyani@gmail.com

Presenting Authors:

Abstract

Ex-situ conservation is an important approach for preserving plant diversity by protecting species outside their natural habitats. Medicinal gardens serve as one of the most effective forms of ex-situ conservation, helping to safeguard valuable medicinal plants that are threatened by habitat loss, overexploitation, and climate change. These gardens act as living repositories where medicinal species are cultivated, studied, and maintained under controlled and protected conditions. Establishing a medicinal garden ensures the long-term survival of rare and endangered plant species while supporting research, education, and sustainable use of herbal resources. They also provide opportunities for the propagation and reintroduction of species into their natural environments when conditions improve. Techniques such as seed storage, vegetative propagation, and tissue culture are often used to maintain genetic diversity and plant health. Medicinal gardens contribute significantly to pharmacognosy, ethnobotanical studies, and public awareness about the importance of plant conservation. Institutions and universities across India are developing such gardens to preserve indigenous knowledge and promote the scientific study of medicinal flora. Thus, the ex-situ conservation strategy through medicinal gardens not only aids in biodiversity conservation but also supports the discovery of new drugs and the sustainable use of natural resources for future generations.

Keywords: Ex-situ conservation, medicinal plants, biodiversity, medicinal garden, plant propagation, genetic diversity, pharmacognosy, sustainable use.

Endemic Plant Species of India: Challenges and Conservation Strategies

Authors

Heenal Agrwal[1], Rishikant[1], Sagar Sahu[1], Gunjan Kalyani[1*]

[1] Columbia Institute of Pharmacy, Raipur, Chhattisgarh, India

Corresponding Author: gnjnkalyani@gmail.com

Abstract

India is home to a rich diversity of endemic plant species, many of which face severe threats due to habitat destruction, climate change, and unsustainable human activities. This paper explores the current status of endemic plant species in India, highlights the challenges they face, and proposes conservation strategies. India boasts a significant number of endemic species, with many of them listed as threatened, underscoring the urgency for effective conservation. Habitat loss, primarily driven by urbanization, agriculture, and deforestation, is a major contributor to this decline. Climate change further exacerbates these threats, altering species distributions and accelerating the loss of suitable habitats. The paper discusses various conservation approaches, including in situ and ex situ methods, along with the importance of local community involvement in conservation efforts. Technological innovations such as GIS and satellite monitoring have proven to be instrumental in mapping biodiversity hotspots and enhancing conservation efforts. Policy frameworks like the Biological Diversity Act of 2002 have laid a foundation for species protection, but stronger enforcement and broader initiatives are needed. Finally, the paper outlines future directions for conservation, emphasizing the need for integrated approaches that combine technology, research, policy, and community participation. The survival of India's endemic plant species is crucial for maintaining ecological balance and safeguarding biodiversity for future generations.

Keywords: Endemic plants, biodiversity conservation, habitat loss, climate change, in situ conservation, ex situ conservation, India, community participation, conservation strategies, policy frameworks.

Global Endangered Plant Species: Conservation Methods, Challenges, And Strategies

Authors

Ankit Soni[1], Bhumika Verma[1], Sagar Sahu[1], Gunjan Kalyani[1*]

[1] Columbia Institute of Pharmacy, Raipur, Chhattisgarh, India

Corresponding Author: gnjnkalyani@gmail.com

Abstract

Endangered plant species are rapidly declining due to various anthropogenic factors, threatening biodiversity globally. This study investigates the current conservation status of endangered plant species worldwide, identifies key threats, and evaluates the effectiveness of different conservation strategies. The methods included extensive literature reviews, data analysis from global databases, and case studies from diverse regions. Results show that habitat destruction, climate change, invasive species, and over-exploitation are the major drivers of plant species decline. In-situ conservation (protected areas, habitat restoration) and ex-situ conservation (seed banks, botanical gardens) are essential strategies for preserving endangered species. However, the lack of funding, political support, and public awareness hinder the effectiveness of these methods. The findings underscore the need for integrated approaches that combine conservation with sustainable development to address global plant species loss. In conclusion, preserving plant diversity is crucial for ecosystem stability, human survival, Significance | Endangered plant species serve as foundational components of ecosystems, providing essential services and sustaining biodiversity, yet they face significant threats that demand immediate and effective conservation strategies.

Keywords: Endangered plant species, biodiversity, in-situ conservation, ex-situ conservation, habitat destruction, climate change, global strategies.

NS/CIP/MPB/2025/65

Importance of Plant Biodiversity and Long-Term Conservation of Plant Genetic Resources via Biotechnological Strategies

Authors

Nitin Kurey[1], Sagar Sahu[1], Gunjan Kalyani[1*]

[1] Columbia Institute of Pharmacy, Raipur, Chhattisgarh, India

Corresponding Author: gnjnkalyani@gmail.com

Abstract

Although climate changes are predicted to be an increasingly dominant threat to plant biodiversity, the degradation of ecosystems witnessed to date has been largely driven by factors such as human-induced habitat loss and fragmentation, overexploitation, pollution and the introduction of invasive species. Given the evidence that climate changes and anthropogenic pressures have greatly increased the extinction of natural populations of species, we can recognize that human-induced land use and climate changes are perhaps the greatest threats to terrestrial biodiversity. In this context, effective prioritization of conservation efforts is critical for the sustainability of biodiversity, as current environmental changes are likely to continue in the future. The protection of biodiversity is an important issue that concerns the entire world population. Causes such as anthropogenic pressures, great fires, introduction of new species from different regions, invasion of cultivars and dominant species cause a dramatic impact on plant biodiversity as well as an increase in the number of threatened species. Plant biodiversity constitutes the natural source of products used in the food and pharmaceutical industries and also provides basic different raw materials. On the other hand, plant biodiversity is important in the development of species and more productive species that are more resistant to biological and environmental stresses, and in providing new genetic information for feeding programs. Today, biotechnological methods include the most suitable methods for the pathogen-free short-, medium- and long-term preservation of ornamental plants, medicinal and aromatic plants and woody species that are in danger of extinction. In vitro conservation strategies are especially important in the protection of plant species that are vegetatively propagated and have seeds that are intolerant to desiccation. In addition, in vitro techniques provide a reliable platform for the international exchange of plant material, enable the creation of large collections using minimal space, enable the acquisition of valuable materials for wild spe cies recovery, and facilitate molecular research and ecological studies.

Keywords: Biodiversity, Biotechnology, Cryopreservation, In Vitro Conservatio

NS/CIP/MPB/2025/66

Contemporary Methods for Conservation of Endangered Plant Species- A Review

Authors

Sandeep Kumar[1], Tushar Dewangan[1], Tasmiya Khwaja[1], Sagar Sahu[1], Gunjan Kalyani[1*]

[1] Columbia Institute of Pharmacy, Raipur, Chhattisgarh, India

Corresponding Author: gnjnkalyani@gmail.com

Abstract

Plant biodiversity and its conservation becomes a great need of millennium because beyond fulfilling basic requirements plants provide essential ecosystem services that sustain life on the planet by producing oxygen and sequestering carbon dioxide. 22% to 47% of the world's flora is in serious decline. In India among 49,000 plant species 20% are threatened or endangered. These are disturbing trends and an alarm to protect, preserve and conserve natural plant habitat. In such present scenario globally and domestically different strategies and modules are followed to restore plant biodiversity. In this review we are highlighting some potential methods for the conservation and further manipulation of rare and endangered plant species.

Key Words: Biodiversity, Gene bank, Ex-situ and In-situ conservation, cryopreservation, Invitro-storage, Tissue Bank.

Artificial Intelligence and Machine Learning in Plant Identification and Biodiversity Conservation: Innovations, Challenges, and Future Directions

Authors

Chaitanya Yadu[1], Sagar Sahu[1], Gunjan Kalyani[1*]

[1] Columbia Institute of Pharmacy, Raipur, Chhattisgarh, India

Corresponding Author: gnjnkalyani@gmail.com

Abstract

The convergence of Artificial Intelligence and Machine Learning with plant sciences is catalyzing a transformative shift in biodiversity conservation and ecological research. Traditional plant identification techniques, while foundational, are constrained by scalability, subjectivity, and reliance on expert taxonomists. In contrast, AI-powered methods—particularly those using deep learning architectures such as Convolutional Neural Networks, Support Vector Machines and Generative Adversarial Networks —demonstrate remarkable accuracy and efficiency in classifying plant species based on multimodal datasets including leaf morphology, flower phenotypes, and remote sensing imagery. This chapter systematically explores the role of AI/ML in advancing plant taxonomy, real-time mobile identification tools, invasive species detection, and large-scale ecological monitoring. It highlights the critical role of curate datasets like Plant CLEF, iNaturalist, and Leaf Snap in training robust AI systems and discusses the integration of hyperspectral, infrared, and LiDAR data to enhance phenotype-genotype mapping. Applications in citizen science, conservation planning, and automated species discovery are critically analysed, with emphasis on interpretability via Explainable AI frameworks such as SHAP and LIME. Ethical considerations, including data sovereignty, indigenous knowledge protection, and environmental sustainability of AI models, are also addressed. Through interdisciplinary case studies and empirical results, this chapter underscores both the promise and limitations of current AI methodologies. Future research directions include federated learning for collaborative model training, climate-resilient AI models for predicting species response under anthropogenic stress, and integration of genomics with AI to reveal cryptic biodiversity. As plant ecosystems face increasing threats, this chapter positions AI as a vital tool for scalable, transparent, and ethical conservation science.

Keywords: Artificial Intelligence, Machine Learning , Convolutional Neural Networks, Plant CLEF, iNaturalist, and Leaf Snap.

Conservation of plant biodiversity by biotechnology methods

Authors

Shailendra Kumar Sharma[1], Sagar Sahu[1], Gunjan Kalyani[1*]

[1] Columbia Institute of Pharmacy, Raipur, Chhattisgarh, India

Corresponding Author: gnjnkalyani@gmail.com

Abstract

Several methods of plant preservation are currently used in the Republic of Kazakhstan: 1) field gene banks in natural growing areas and pomological collections; 2) preservation of seeds at +4°C, –18°C, and –196°C; 3) cold storage of in vitro shoots at +4°C and +10 ± 2°C; 4) cryopreservation of plant tissues and organs at –196°C; 5) preservation of plant DNA at –80°C. Ex situ field collections of plants in Kazakhstan are maintained in botanical gardens of the Republic, arboretums, pomological gardens, nurseries, peasant and farm enterprises, and personal plots. The largest collection of fruit and berry plants is located in the Pomological Garden and includes about 4 thousand varieties, more than 40 thousand hybrids and wild forms of various crops.

Keywords: Plant Collections, Seed Collections, In Vitro Collections, Cryogenic Collections.

Sustainable harvesting and conservation strategies for ethnomedicinal plant biodiversity

Authors

Sonam Sahu[1], Sagar Sahu[2], Gunjan Kalyani[2*]

[1]Mother Teresa College of Nursing, Kumhari, Chhattisgarh

[2] Columbia Institute of Pharmacy, Raipur, Chhattisgarh, India

Corresponding Author: gnjnkalyani@gmail.com

Abstract

The collection and use of medicinal plants is one field where eco-friendly methods are crucial. Unfortunately, the indiscriminate harvesting and habitat destruction of these precious botanical resources are threatening their very survival, despite their important role in human healing for ages. Medicinal plants are an invaluable boon to human health and environmental well-being, serving as natural cures for a wide range of diseases. Not all areas have problems with unsustainable harvesting, thus it's important to do evaluations on a local level. One advantage of using local expertise for short-term evaluations is the positive reception it has received. Much research has gone into the topic of medicinal plant conservation and sustainable usage. The future of medicinal plants, ecosystems, and the healing power of nature may be brightened by bringing together scientific understanding, community involvement, and cultural sensitivity.

Keywords: Harvesting, unsustainable, medicinal, cultural and plants.

Evaluation and Conservation of Biodiversity of Plants used for Medicinal Purpose

Authors

Khilesh Sahu[1], Rahul Chandrakar[1], Sagar Sahu[1], Gunjan Kalyani[1*]

[1] Columbia Institute of Pharmacy, Raipur, Chhattisgarh, India

Corresponding Author: gnjnkalyani@gmail.com

Abstract

India is a very rich hub of plant biodiversity, many of those are therapeutically and medicinally useful. The rich resources are disappearing at an alarming state because of over-exploitation. Some of the endangered medicinal plants are *Saussaurea lappa, Picrorrhiza kurroa, Swertia chirata, Holostemma annnularis, Rauwolfia serpentina*. Normally there are two methods of conservation: in situ and ex situ conservation. Many techniques were also fol lowed in ancient times to conserve or cultivate plants. There is a need to conserve the medicinal plants to prevent their total extinction from the natural flora. The expanding trade in medicinal plants has implications for the survival of several plant species. Growing demand for therapeutic products from indigenous medicinal plants, itself has positive effect of increased interest in cultivation, which seems a perfect option for improving smallholder farmers' livelihoods, as well as sustaining the availability of these resources for future generations. Cultivation of medicinal plants provides feasible solutions to pharmaceutical organization, while effectively conserving threatened indige nous biodiversity. The purpose of this paper is to justify and emphasize the need for the evaluation and cultivation of medicinal plants.

Keywords: Cultivation, Endangered species, Ex-situ, In-situ.

Medicinal plant conservation by tissue culture: Ex-situ & in-situ techniques

Authors

Lokesh Chainani[1], Pranjal Dubey[1], Sagar Sahu[1], Gunjan Kalyani[1*]

[1] Columbia Institute of Pharmacy, Raipur, Chhattisgarh, India

Corresponding Author: gnjnkalyani@gmail.com

Abstract

The use of medicinal plants has surged in recent times, with their roots in traditional medicine practices across various countries. However, the heightened demand for these plants, coupled with increased human activities, has led to the endangerment of species and the destruction of their habitats. This situation necessitates urgent conservation efforts for endangered medicinal plants. Among the various conservation methods, biotechnology stands out as an effective approach that doesn't compromise the plants' primary traits. Tissue culture, a key technique in biotechnology, plays a significant role in this endeavour. Unlike animals, plants have the ability to regenerate from cells and produce a complete organism. Consequently, tissue culture can generate entire plants from small plant parts, such as leaves, buds, or stems, while maintaining their genetic makeup. This method allows for the rapid propagation of a large number of uniform plants, making it a valuable tool for conserving native or endangered species and preserving precious germplasm resources.

Keywords: Biotechnology, Maintaining genotype, Maintaining species.

Germplasm conservation, evaluation, characterization and improvement of genetic resources of fruit crops in India: Preserving of future fruit crops for the future

Authors

Nikhil Sahu[1], Kamlesh Mandal[1], Nobal Sahu[1], Sagar Sahu[1], Gunjan Kalyani[1*]

[1] Columbia Institute of Pharmacy, Raipur, Chhattisgarh, India

Corresponding Author: gnjnkalyani@gmail.com

Abstract

India boasts a diverse and abundant biodiversity legacy that spans a broad range of environments, including alpine vegetation, tropical rain forests, temperate forests, and coastal wetlands. Four of the world's eighteen biodiversity hotspots - the Western Ghats, the Eastern Himalaya, the Western Himalaya, and the Nicobar Islands - are located in India. Four of the world's eighteen biodiversity hotspots - the Western Ghats, the Eastern Himalaya, the Western Himalaya, and the Nicobar Islands— are located in India. Our legacy, biodiversity, which represents variation among genetic resources at the gene, population, species, and ecosystem levels, is essential to both sustainable development and wellbeing. While several institutes also do conservation in field gene banks, NBPGR is the main organization in India responsible for managing germplasm on fruits. In addition to field gene banks, cryobanks and in vitro tissue culture are methods used to preserve temperate fruit germplasm. International breeding efforts to create novel cultivars or rootstocks, mainly for banana, citrus, and mango, have also made use of Indian material. Classical examples of the global usage of Indian fruit germplasm include the creation of Floridian mangoes in the United States, the use of Indian citrus rootstocks globally, and the use of Indian banana genotypes. In the past, NBPGR introduced 5,687 accessions of 104 fruit crop species comprising temperate, tropical and sub-tropical fruit plants during 1976 to 2023. However, In order to support the preservation of cultural traditions and to make it easier to conduct research into the history of food and novel food sources, it is necessary to gather and share this knowledge. The detailed information on Germplasm conservation, genetic improvement and evaluation of genetic resources for development of improved varieties in fruit crops are presented in this chapter.

Keywords: Germplasm, Cryobanks, NBPGR, Ecosystem, Gene bank.

Traditional Methods of Plant Conservation for Sustainable Utilization and Development

Authors

Yashwant Koshle[1], Vikas Banjare[1], Tilak Kumar Kurre[1], Sagar Sahu[1], Gunjan Kalyani[1*]

[1] Columbia Institute of Pharmacy, Raipur, Chhattisgarh, India

Corresponding Author: gnjnkalyani@gmail.com

Abstract

Cultural or indigenous practices refer to long-standing traditions and ways of life of specific communities or locales. These practices are place-based and often location- and culture-specific. Plants are integral to livelihood especially in indigenous communities within the Global South. Ethnologists including ethnobotanists continue to enumerate the interface between nature and culture, which addresses the need to provide quality information for plant conservation and their sustainable utilization. Plant conservation is the wise use of plant resources by the present generation so that future generations can benefit. Traditional conservation ethics protect plant diversity and natural resources because local communities consider themselves as the major stakeholders. Globally, support for contemporary plant conservation approaches exists whereas none exists for traditional methods. Some traditional systems used for plant conservation through their utilization include taboos, totemism, rituals, domestication, reserves, secrecy, selective harvesting, sacred groves, etc. Totemism is the practice-based consciousness of the supernatural link that exists between people and specific objects including plant species, natural resources and or objects made from these items whereas taboo is the forbidden practice of using or consuming some plant species, natural resources and objects or their parts (totems). Sacred groves are described as patches of land considered sacred and conserved by indigenes through sociocultural, economic and religious observances and include traditional sacred groves, temple groves, burial and cremation grounds, etc. However, growing pressures from human population boom, reduced environmental quality, and neglect of sociocultural norms and traditional belief systems are undermining the relevance of these practices. Therefore, it is essential to document these practices, enlighten future generations of their importance and institute legal instruments to promote the sustainable management and application of these cultural heritage and natural resources for societal development.

Keywords: Cultural or indigenous practices, Ethnologists, Traditional methods

NS/CIP/MPB/2025/74

Biodiversity and Conservation of Medicinal Plants

Authors

Vineet Kumar Kashyap[1], Vibha Sen[1], Radhika Banjare[1], Priya Verma[1], Yogita Chandravanshi[1], Sushmita Sahu[1], Sahil Verma[1], Sagar Sahu[1], Gunjan Kalyani[1*]

[1] Columbia Institute of Pharmacy, Raipur, Chhattisgarh, India

Corresponding Author: gnjnkalyani@gmail.com

Abstract

India is a vast repository of medicinal plants, accounting for more than 8,000 species in its natural habitat. Indian system of medicines (ISM) such as Siddha, Ayurveda, Unani and the Homeopathy use around 2,000 species of herbal plants for their therapeutic uses. There are around 50 species, widely used under cultivation. About 90% demand of the herbal industry is met from the destructive forest collection. Though India has a rich biodiversity, the growing demand is putting a heavy strain on the existing resources. While the demand for medicinal plants is growing, some of them are increasingly being threatened in their natural habitat. This situation warrants for short listing conservation of these valuable resources for our own needs and for posterity.

Keywords: Medicinal Plants, Indian System of Medicines, Biodiversity, Natural Habitat, Conservation.

Biodiversity: Concept, threats and conservation

Authors

Neha Verma, Payal Verma, Sarah Haque[1], Shantanu Sahu[1], Anishka Yadav[1], Saurabh Sahu[1], Reshma Nishad[1], Yukti[1], Sagar Sahu[1], Gunjan Kalyani[1*]

[1] Columbia Institute of Pharmacy, Raipur, Chhattisgarh, India

Corresponding Author: gnjnkalyani@gmail.com

Abstract

Biodiversity is the variety of different forms of life on earth, including the different plants, animals, micro-organisms, the genes they contain and the ecosystem they form. It refers to genetic variation, ecosystem variation, species variation (number of species) within an area, biome or planet. Relative to the range of habitats, biotic communities and ecological processes in the biosphere, biodiversity is vital in a number of ways including promoting the aesthetic value of the natural environment, contribution to our material well-being through utilitarian values by providing food, fodder, fuel, timber and medicine. Biodiversity is the life support system. Organisms depend on it for the air to breathe, the food to eat, and the water to drink. Wetlands filter pollutants from water, trees and plants reduce global warming by absorbing carbon, and bacteria and fungi break down organic material and fertilize the soil. It has been empirically shown that native species richness is linked to the health of ecosystems, as is the quality of life for humans. The ecosystem services of biodiversity is maintained through formation and protection of soil, conservation and purification of water, maintaining hydrological cycles, regulation of biochemical cycles, absorption and breakdown of pollutants and waste materials through decomposition, determination and regulation of the natural world climate. Despite the benefits from biodiversity, today's threats to species and ecosystems are increasing day by day with alarming rate and virtually all of them are caused by human mismanagement of biological resources often stimulated by imprudent economic policies, pollution and faulty institutions in-addition to climate change. To ensure intra and intergenerational equity, it is important to conserve biodiversity. Some of the existing measures of biodiversity conservation include; reforestation, zoological gardens, botanical gardens, national parks, biosphere reserves, germplasm banks and adoption of breeding techniques, tissue culture techniques, social forestry to minimize stress on the exploitation of forest resources.

Key words: Biodiversity, conservation, ecosystem services.

A Review Study on Alternative Conservation and Management Methods to Sustain Medicinal Plants

Authors

Dhanendra Vishwakarma[1], Rameshwari Sahu[1], Akram Khan[1], Shashi Sen[1], Upasana Sahu[1], Riya Sahu[1], Sakshi Sahu[1], Ruchi Dewangan[1], Yogita Sahu[1], Sagar Sahu[1], Gunjan Kalyani[1*]

[1] Columbia Institute of Pharmacy, Raipur, Chhattisgarh, India

Corresponding Author: gnjnkalyani@gmail.com

Abstract

The use of indigenous medicinal plants is still prevalent as the most trusted form of health care, predominantly in developing countries. Overuse of medicinal plant resources, coupled with the negative impacts of unpredictable rainfall and rising temperatures, necessitated the development of local methods to conserve medicinal plants. These indigenous conservation methods have proved to be failing and aggravating threats to medicinal plants. This study aimed to review the alternative conservation and management methods to protect medicinal plants. A review of the literature presents in situ, ex situ, natural reserves, wild nurseries, botanical gardens, and seed banks as alternative conservation methods proposed and used by scientists to conserve and manage medicinal plant species. These methods are Western practices introduced to the local communities in an effort to conserve and protect the indigenous medicinal plant species for future use and as a cultural heritage. It is concluded and recommended that the demand for medicinal plants imposes huge threats to their anticipated availabilities, therefore, the relevant stakeholders need to take urgent corrective measures concerned parties should be consistently exposed to improved resources, advanced training and better education about the benefits and importance of these plants.

Keywords: Medicinal plants, conservation method, In situ, natural resource

NS/CIP/MPB/2025/77

AI in Conservation and Management Methods to Sustain Medicinal Plants

Authors

Vishwanath Sahu, Sagar Sahu[1], Gunjan Kalyani[1*]

[1] Columbia Institute of Pharmacy, Raipur, Chhattisgarh, India

Corresponding Author: gnjnkalyani@gmail.com

Abstract

Chhattisgarh designated a "Herbal State," is a critical repository of biodiversity, housing numerous endangered medicinal and aromatic plant (MAP) species. The sustained conservation of these vital resources is severely threatened by over-exploitation, destructive harvesting, and rapid habitat loss. Addressing this, this paper proposes a comprehensive and integrated conservation framework that leverages the power of Artificial Intelligence (AI**)** to achieve a "Sustaining Comprehensive Feat" of preservation. The approach blends established conservation methods—specifically in-situ protection (like Medicinal Plant Conservation Areas) and ex-situ strategies (tissue culture, seed banking)—with cutting-edge AI technologies. AI applications include the deployment of Convolution Neural Networks (CNNs) for real-time, accurate, and scalable species identification and inventory, significantly empowering field researchers and citizen science initiatives. Furthermore, Machine Learning (ML) models will be used to analyze large-scale geospatial and ecological data (climate, soil, and deforestation patterns) to predict vulnerability hotspots and determine optimal management zones for species reintroduction and sustainable harvesting. This integrated strategy offers a data-driven pathway to move beyond manual and reactive conservation efforts. By automating monitoring, enhancing predictive capabilities, and providing robust analytical support, AI acts as a transformative tool. The resulting framework will ensure the long-term ecological balance of Chhattisgarh's rich medicinal flora, safeguard crucial traditional knowledge, and support the sustainable livelihoods of its tribal communities. The ultimate goal is to establish a replicable, high-impact model for bio data conservation in other mega-biodiversity centers.

Keyword: Artificial Intelligence (AI), Medicinal Plants, Chhattisgarh, Biodiversity Conservation, Endangered Species

Conservation of endangered medicinal plant species in Chhattisgarh

Authors

Kamlesh Sahu[1]

[1] Columbia Institute of Pharmacy, Raipur, Chhattisgarh, India

Presenting author: kamleshsahumr2002@gmail.com

Abstract

The conservation of endangered medicinal plant species in Chhattisgarh faces critical challenges due to habitat degradation, overexploitation, and climate change. To ensure sustainable preservation, the integration of artificial intelligence (AI) offers a transformative solution by enhancing monitoring, prediction, and decision-making processes. This study proposes a comprehensive AI-based conservation framework that combines remote sensing, machine learning, and community-driven knowledge systems to identify vulnerable species, predict ecological risks, and optimize restoration strategies. Advanced predictive models analyze climatic and environmental data to map potential habitats and forecast species distribution under future scenarios. Image recognition and drone-based surveillance enable real-time monitoring of plant populations and habitat health. Furthermore, AI-assisted genomic analysis improves taxonomic resolution, aiding in both in situ and ex situ conservation planning. By incorporating indigenous ecological knowledge, this approach ensures culturally inclusive and ecologically effective strategies. The proposed framework emphasizes adaptive management, local stakeholder participation, and evidence-based policymaking to achieve long-term conservation goals. This AI-driven strategy can serve as a replicable model for biodiversity protection in other regions facing similar ecological pressures.

Keywords: Artificial Intelligence, Conservation, Chhattisgarh, Endangered Medicinal Plants, Sustainable Biodiversity.

Therapeutic Potential of Antioxidant and Anti-inflammatory Activity of Genistein

Authors

Jhakeshwar Prasad*, Rajesh Choudhary

Shri Shankaracharya College of Pharmaceutical Sciences, Junwani – 490020, Bhilai, Chhattisgarh, India

Presenting author – jhakeshwarprasad03@gmail.com

Abstract

RA is a systemic chronic immunomediated inflammatory disease characterized by synovium inflammation, damage of joint and extra-articular manifestations. However, therapeutic options remain limited even with the DMARDs/face biologics and other agents have been investigated. Genistein, derived from soybean by isoflavonoid of estrogenic and anti-inflammatory activities, recently attracted attention as an attractive drug candidates for treatment or prevention of RA. The present investigation was carried out to explore the pharmacological role of genistein treatment in experimentally induced RA model with particular reference to its antioxidant and anti-inflammatory activity. Characterization of the genistein was performed by UV-visible, FTIR spectroscopy. The antioxidant capacity was evaluated utilizing antiradical DPPH method. Acute toxicity was determined according to the OECD Guideline 423. The anti-inflammatory activity was also compared with carrageenan-induced paw oedema model in Wistar rats and result showed that (comparison of normal control (no drug) to standard (celecoxib) group vs the testy groups genistein 10 mg/kg and 20 mg/kg. Paw oedema was observed at different times after induction. Statistical analysis the data were analysed using two way ANOVA followed by the Bonferroni post hoc test. UV and IR spectra of genistein showed characteristic absorption bands for its structure. The extract also showed dose-dependent antioxidant activity in DPPH assay (inhibition 82.3% at 100 µg/mL). In vivo, paw oedema was inhibited by genistein to an extent comparable with 20 mg/kg celecoxib. Neither the death nor toxic effects were observed in any animal treated with 2000 mg/kg. Genistein exerted potent anti-inflammatory and antioxidative activities in RA models, which underlined the safety of its use as a nutraceutical for the adjuvant therapy of autoimmune diseases.

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

A CRITICAL BIBLIOMETRIC BASED RESEARCH DATA ANALYSIS ON ANTI-INFLAMMATORY INVESTIGATIONS CARRIED OUT ON MEDICINAL PLANTS-(2018-2022)

Author

Sonali Soni*

Chouksey engineering college, School of pharmacy, Bilaspur- 495009, Chhattisgarh

Presenting author: juniorsoniji10100@gmail.com

ABSTRACT

Plants have long served as a rich source of bioactive compounds for drug discovery, particularly in the development of new anti-inflammatory agents. With the majority of plant species still unexplored for their chemical and biological properties, there remains significant potential for identifying novel molecules with therapeutic value. This study aims to present a comprehensive bibliometric analysis of global research trends on plant-derived anti-inflammatory agents. Data were retrieved from the Dimensions AI database for the years 2018–2022, focusing on publications related to anti-inflammatory properties of plant extracts. A total of 495 documents were initially identified, out of which 420 were selected for detailed evaluation. Using the VOS viewer software, data were analysed to generate visual knowledge maps that illustrate the relationships among keywords, authors, institutions, and countries. This approach enabled the identification of major research hotspots, influential contributors, and emerging trends in the field. The analysis revealed increasing international collaboration and growing scientific interest in exploring herbal and phytochemical approaches for inflammation management. The study underscores the importance of multidisciplinary research—integrating pharmacology, phytochemistry, and data science—in advancing the discovery and development of safe, effective, and sustainable anti-inflammatory drugs from natural sources. These findings provide valuable insights for researchers, policymakers, and pharmaceutical industries aiming to explore new frontiers in plant-based therapeutics.

Keywords: Anti-inflammatory agents, Plant extracts, Bibliometric analysis, VOS viewer, Natural drug discovery