Antibiotic Stewardship

"Follow the prescription exactly as instructed"

"We need strong regulations against irrational use"

"We swore to heal" Stewardship keeps that oath alive.

"Here's the culture report doctor."

"Let's review the culture and sensitivity first."

Samarth Educational Trust

ARVIND GAVALI COLLEGE OF PHARMACY & SAWKAR PHARMACY COLLEGE, SATARA

Institution Innovation Council

SCIENTIA 4.0

"CULTIVATING CREATIVITY, NURTURING INNOVATION"

Theme:

Drug Resistance-A Growing Threat to Global Health

Emergence of Drug Resistance

"What do we do now"

Bruised, yet dangerous !!

"Just one dose to be safe"

"We are trapped in a game of our own design."

"When Drugs sell like candy"

Institution's Innovation Council,
Samarth Educational Trust
Arvind Gavali College of Pharmacy &
Sawkar Pharmacy College
Jaitapur, Satara

Organizes

SCIENTIA 4.0

"Cultivating Creativity, Nurturing Innovation"

Theme: "Drug Resistance- A Growing Threat to Global Health"

State Level Technical Poster, Oral & Model Competition

on

Saturday, 14th Feb 2026

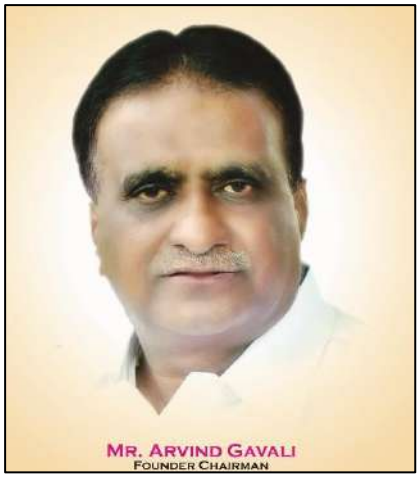
In Association with

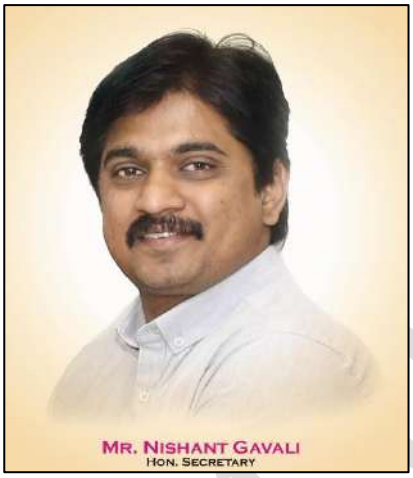
APTI Maharashtra state &

Satara District Chemist and Druggist Association

Prin. Dr. V. Y. Lokhande
President, IIC AGCOP Satara

Mr. V. S. Marulkar
Innovation Activity Coordinator IIC AGCOP Satara





Samarth Educational Trust, Satara

Samarth Educational Trust is Public Charitable trust formed for the purpose of carrying out educational activities. The trust is currently running Homeopathic Medical College, Pharmacy College and Engineering College. It offers degree courses in Homeopathic medicines as BHMS, degree and diploma courses in pharmacy and Degree and Diploma courses in Engineering. The trust is running the Homeopathic Medical College since 1989. The college has established high standards in education and has a tradition of very good results. The college has excellent infrastructural facilities for students.

The Sawkar Pharmacy College run by the trust was offering diploma course D Pharm since year 2003. The college has also good reputation. The trust has started Arvind Gavali College of Pharamcy degree course B Pharm since year 2007. The college has specious building and well equippedlab at Jaitapur near MIDC, Satara.

Engineering College started from year 2010 at a specious campus at Panmalewadi, Satara.After, establishing its name in Homeopathic Medicine, pharmacy and Engineering the trust has decided to provide Ayurvedic Medical Education. The demand for doctors is ever increasing in India. The trust is already established very good standard for its Homeopathic Medical College. It has decided to extend its experience in medical education by starting Ayurvedic Medical Hospital & College.The trust wishes to keep the same high standard of infrastructure and education as maintained inits current activities.

Dr. Lokhande Vasant Yashwant
M.Pharm. Ph.D.
Principal and Campus Director

About Us:

The inception of Arvind Gavali College of Pharmacy in Satara in 2007, under the exceptional leadership and visionary guidance of the Honorable Chairman, Shri. Arvind Gavali, foresaw the necessity for a reputable pharmacy institution in Satara to provide quality pharmacy education to students in the district who are in need. The most spacious college building, well equipped laboratories, resourceful library and all the amenities took shape under the dynamic guidance of Secretory Mr. Nishant Gavali and Principal Dr.V.Y. Lokhande. As quoted by some eminent personalities in the Pharma-profession the pharmacy college building is in the reckoning as one of the best planned pharmacy college buildings in India. With persistent guidance from Honourable Mr. Nishant Gavali, Secretary, Samarth Educational Trust, college has developed into one of the best pharmacy institutes in the western zone. Principal, Dr.V.Y. Lokhande and the faculty members have shaped the college into a student centric environment which conducive for studies.

Arvind Gavali College of Pharmacy, Satara today, is well known with an excellent academic, extracurricular activities and research front. The college has consciously promoted the Pharmacy profession and has developed strong MOUs with Industry and other professional societies. Our college caters Degree in pharmacy (2007), Post-graduate (M. Pharm- Pharmaceutics) (2011) and additional Diploma in pharmacy (2019). The additional two PG (Pharmaceutical Chemistry, Pharmacology) programmes were started from Academic Year 2022-23 with an objective to provide high quality professional education at affordable cost to ordinary elements of the society. The UG and PG courses are affiliated by PCI, AICTE, DTE, Shivaji University, and D. Pharm by MSBTE.

The infrastructure facilities are ably utilized by the students, faculty members and researchers at AGCOP, primarily to focus and foster industry-academia interactions by encouraging research activities through their guidance and supervision and providing an exciting and stimulating environment in various key areas of drug research and drug development research findings are published in a reputed national and

international journal. We warmly nurture future generations with great collaborative assistance of Institute, our teachers and other associated staff members.

About Scientia 4.0:

Scientia 4.0 is designed with the aim of nurturing a culture of research and innovation among undergraduate and diploma pharmacy students, as well as promoting research skills among postgraduate students. The event connects with the desired program outcomes by facilitating teamwork, developing planning abilities, familiarizing learners with modern tools, improving communication skills, and imparting lessons on the environmental and sustainable development of pharmaceutical products.

It is being organized third time with theme **"Drug Resistance-A Growing Threat to Global Health"**

The Scientia 4.0 initiative is centered on a dynamic combination of visually appealing poster displays, models and an oral presentation competition. This comprehensive event not only celebrates creativity but also encourages networking and interaction among participants and attendees.

About the cover page:

The cover page illustrates the theme “Drug Resistance- A Growing Threat to Global Health” emphasizing the alarming rise of resistant microorganisms and the pressing need for immediate action.

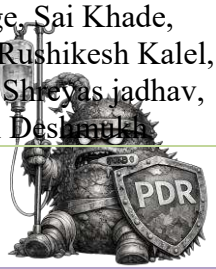
The cover creatively portrays the consequences of irrational drug use through impactful statements such as “When drugs sell like candy,” “Just one dose to be safe,” and “We are trapped in a game of our own design.” These lines metaphorically represent self-medication, over-prescription, misuse, and lack of regulatory control that contribute to antimicrobial resistance.

Contrasting this alarming situation, the concept of Antibiotic Stewardship is prominently featured as a solution-oriented approach. Statements like “Let’s review the culture and sensitivity first,” “Follow the prescription exactly as instructed,” and “We need strong regulations against irrational use” emphasize responsible prescribing practices, patient compliance, and regulatory interventions. The phrase “We swore to heal – Stewardship keeps that oath alive” reinforces the ethical responsibility of healthcare professionals to safeguard the effectiveness of antibiotics for future generations.

The concluding line, “Bruised, yet dangerous!!” symbolically represents resistant microbes though challenged by modern medicine, they remain a significant and evolving threat. Overall, the cover page effectively blends awareness, responsibility, and innovation, conveying a strong message that combating drug resistance requires collective action, scientific vigilance, and ethical healthcare practices.

ORGANIZING COMMITTE

	Committee	Committee Head	Student members
Scientific	Oral Presentation	Dr. K. M. Karande	Suhil Lagali, Yash Deshpande, Mandar Khadake, Rajeshwar Arjune
	Poster Presentation	Ms. A. N. Chitnis	Prathamesh Deshmukh, Snehal Gharge, Onkar Gite, Gaurav Chorage, Shravani Kamble, Shruti Kadam
	Model Presentation	Dr. V. D. Yadav	Raviraj Nimbalkar, Arya Babar, Arpita Mane
Publicity		Mr. V. J. Pise	Suyog Mane
Theme Based Activities		Mrs. Amruta Shelke, Ms. C.P. Phadtare	Aarti Gaikwad, Neha Pawar, Vaishnavi Bhosale, Madhura Deokar, Siddhi Bhintade, Pranali Chavan, Harshada Beske, Shreya Kulkarni, Pragati Bhalerao
Hospitality		All IIC Members	
Registration and Certificates		Mrs. S. P. Borkar, Ms. D.B. Bhagat, Mr. R. M. Darekar, Mr. A. V. Bhosale	Namratha Jaykar, Sanika Kadam, Purva Kadam, Sneha Ekbote, Sonali Bhagyawant, Dhanashri Bhandare
Kit Committee		Ms. P.A. Shelar, Mrs S.V. Shinde	Avishkar Shinde, Shravani Pawar
Sponsorship		Mr. S. V. Abhang, Mr. M. D. Phanse, Mr. S. R. Ghadage	Netra Shitole, Sakshi Vichare, Shravani Munde
Stage		Mrs. S. A. Dombe	Ms. Shinde Harshika, Ms. Nevase Priyanka Ms. Gurav Vedantika, Ms. Ghadge Saloni
Feedback		Mrs. T. N. Shinde	Avishkar Yadav, Gandhar Nalawade, Prathamesh Ghanwat
Catering		Mr. D. B. Jadhav	Shivam Phalle, Rushikesh Khade, Anuradha Jadhav
Transport Committee		Mr. S.N. Kamble	Aditya Pawar, Shubham Walkunje, Aditya Patil
Inauguration Committee		All IIC Members	Ishan Keskar, Tanish Chavan, Siddhi Ghadge, Sai Khade, Shivam Jadhav, Rushikesh Kalel, Omkar dhamal, Shreyas jadhav, Prathamesh Deshmukh



POSTER PRESENTATION

Hurt by antibiotics. Hardened into resistance.

D. Pharm Category

Code	Poster Title	Authors	Page No.
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PDP- 03	Drug resistance: causes and preventions	Samarth Bhanvase Prasad Khadke	**8**
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PDP-15	Rising Cancer Burden in India: Imperatives for Early Detection	Parth somnath kanade	**13**
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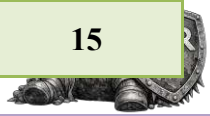

PDP- 01

RAISING CANCER CASES IN INDIA & NEED FOR EARLY DETECTION

Ms. Vaibhavi Vargante
Ms. Dhanashree Naik
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Cancer incidence in India is increasing due to lifestyle changes, ageing, and delayed diagnosis. Most cases are detected at advanced stages, resulting in higher mortality. Early detection through awareness, screening, and timely diagnosis can significantly improve survival rates. Strengthening accessible early detection strategies is critical to reducing the cancer burden in India.

PDP- 02

DRUG RESISTANCE: CAUSES AND PREVENTIONS

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Drug resistance is a growing global health concern that threatens the effective treatment of infectious diseases. It occurs when microorganisms such as bacteria, viruses, fungi, or parasites evolve mechanisms that reduce or eliminate the effectiveness of drugs designed to kill them. The primary causes of drug resistance include overuse and misuse of medications, incomplete treatment courses, self-medication, poor infection control practices, and the widespread use of antibiotics in agriculture and animal husbandry. Genetic mutations and horizontal gene transfer further accelerate the spread of resistant strains. Preventing drug resistance requires a multifaceted approach. Key strategies include the rational use of medications, adherence to prescribed treatment regimens, improved diagnostic practices, and strengthened infection prevention and control measures. Public awareness, healthcare professional education, and antimicrobial stewardship programs play a critical role in reducing unnecessary drug use. In addition, ongoing research, surveillance of resistant strains, and the development of new drugs and vaccines are essential to combat resistance effectively. Addressing drug resistance is a shared responsibility involving healthcare systems, policymakers, researchers, and the public. Coordinated global action is vital to preserve the effectiveness of existing drugs and ensure better health outcomes for future generation

PDP- 03

DRUG RESISTANCE: CAUSES AND PREVENTIONS

Samarth Bhanvase Prasad Khadke
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Drug resistance has emerged as a major global public health concern, reducing the effectiveness of antibiotics and other life-saving medications. It occurs when microorganisms adapt and become less responsive to drugs designed to kill them. The spread of drug resistance makes the infections harder to treat, leading to longer illness, higher heathcare costs, and increased mortality.

PDP- 04

DRUG RESISTANCE: CAUSES AND PREVENTIONS

Manoj Bhuttapalle and Prajwal Kadam
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Drug resistance is a growing health challenge that reduces the effectiveness of medications, including antibiotics, antivirals, antifungals, antimalarials, and cancer drugs. It occurs when microorganisms such as bacteria, viruses, parasites, or cancer cells adapt to drugs designed to eliminate them. The major causes of drug resistance include overuse and misuse of medications, incomplete treatment courses, incorrect dosing, poor-quality drugs, and lack of infection control measures. Genetic mutations and horizontal gene transfer further accelerate the development and spread of resistance. Preventing drug resistance requires a multifaceted approach, including rational prescribing practices, patient adherence to prescribed therapies, improved diagnostic testing, antimicrobial stewardship programs, vaccination, and public education. Strengthening surveillance systems and promoting research into new drugs and alternative therapies are also essential. Addressing drug resistance is critical to ensuring long-term treatment effectiveness and safeguarding global public health.

PDP- 05

Rising Cancer cases in India need for early detection

Prajakta Gadhave and Manali Jadhav
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Cancer is a complicated disease that affects millions of people around the world. It is a serious disease caused by the uncontrolled growth of abnormal cells in the body. It can affect different organs and is one of the major causes of death worldwide. Cancer develops due to factors such as, genetic changes, unhealthy lifestyle, tobacco use, radiation and environmental exposure.

Cancer is classified into different types based on the affected tissue. Early diagnosis using medical tests helps in effective treatment and better survival. Common treatment methods include surgery, chemotherapy, radiation therapy, immunotherapy, and targeted drug therapy. Advances in cancer research have improved patient survival and quality of life.

Keyword: Cancer, abnormal cells, treatment, diagnosis

PDP- 06

AMR: A GLOBAL HEALTHCARE THREAT

Tanman Barde and Siddhi Adsul

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Since the discovery of Penicillin by Alexander Fleming in 1928, antibiotics have revolutionized medicine. However, the widespread irrational use of these drugs has led to the emergence of Antimicrobial Resistance (AMR). AMR occurs when microorganisms evolve to resist the effects of antibiotics, making common infections harder to treat and increasing global morbidity and mortality rates. Antibiotic era started with the discovery of penicilin by Alexander flemings in 1928 to treat the bacterial infections, rational uses of antibiotics is very important in chronic infections but the high use of irrational antibiotics leads to Anti microbial Resistance (AMR) causing a major global public health threat. Active involvement of Pharmacist and rational antibiotics uses or essential to combact antimicrobial resistance and protect future generations.

PDP- 07

Antineoplastic Drug Resistance

Anushka Shinde and Pratiksha Kokare

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The mechanisms of anticancer drug resistance in cancer chemotherapy. It describes two types of resistance: intrinsic (primary) and acquired (secondary). The key mechanisms include reduced drug accumulation (due to efflux pumps), drug inactivation, altered drug targets, enhanced DNA

repair and defective apoptosis. Acquired resistance develops after initial exposure to chemotherapy, leading to treatment failure, cancer recurrence, increased toxicity, poor prognosis, and limited treatment options. Strategies to overcome resistance involve combination chemotherapy, targeted therapy, immunotherapy, MDA inhibitors, and personalized cancer therapy.

PDP- 08

CANCER: KNOW IT. FIGHT IT. DEFEAT IT.

Jiya Choudhari and Nim Choudhary

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India is facing an escalating cancer crisis with over 1.39 million new cases reported annually, driven by tobacco use, lifestyle changes and pollution, with 75–80% of cases diagnosed at advanced stages of mortality. Early detection is critical to improving survival rates by 30–50% and reducing treatment cost, creating an urgent need for widespread screening, highlighting particularly oral, breast and cervical cancer.

PDP- 09

DRUG RESISTANCE: CAUSES AND PREVENTION.

Rutuja Dhumal and Sayali Girigosavi

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Drug resistance occurs when microbes evolve and survive exposure to drugs that once controlled them, making treatments less effective and infections harder to cure. This resistance arises through genetic changes and adaptive mechanisms such as drug inactivation, target alteration, and efflux of drugs from microbial cells. Misuse and overuse of antimicrobials accelerate the development and spread of resistant pathogens, leading to multidrug-resistant strains that limit effective treatment options. Drug resistance threatens global health by increasing disease severity, treatment costs, and mortality. Understanding the mechanisms behind resistance and implementing strategies like rational drug use, antimicrobial stewardship, surveillance, and development of novel therapeutics are essential to mitigate its impact and preserve the effectiveness of existing drugs.

PDP- 10

DRUG RESISTANCE: CAUSES AND PREVENTION.

Supriya Mulik and Jadhav Shurti

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Drug resistance is a growing global health problem that reduces the effectiveness of drug therapy in the management of infectious diseases, cancer, and chronic illnesses. It occurs when microorganisms such as bacteria, viruses, fungi, and parasites, as well as abnormal cells, develop the ability to survive and multiply despite exposure to medicines that were previously effective. As a result, treatment becomes difficult, leading to prolonged illness, increased mortality, and a greater economic burden on healthcare systems. Drug resistance is classified into intrinsic and acquired types. Intrinsic resistance is a natural property of certain microorganisms due to their structural characteristics or absence of specific drug targets. Acquired resistance develops when microorganisms undergo genetic mutations or obtain resistance genes from other organisms through gene transfer mechanisms. These changes enable pathogens to withstand therapeutic drug concentrations. The major causes of drug resistance include irrational prescribing, excessive use of antibiotics, self-medication, incomplete treatment courses, incorrect dosage regimens, and poor patient adherence. In addition, the widespread use of antibiotics in animal husbandry and inadequate infection control practices in healthcare settings promote the spread of resistant strains. Prevention of drug resistance depends on rational use of medicines. Drugs should be prescribed only when necessary and taken in appropriate doses for the recommended duration. Antimicrobial stewardship programs, patient education, vaccination, proper hygiene, and strict regulation of prescription medicines are essential. Pharmacists play a key role in promoting responsible drug use and protecting public health.

Keywords

Drug resistance; Antimicrobial resistance; rational drug use; Antibiotic misuse; Antimicrobial stewardship; Pharmacist role; Public health

PDP- 11

RAISING CANCER CASES IN INDIA NEED FOR EARLY DETECTION

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Cancer has emerged as a major public health challenge in India, with a steady rise in incidence and mortality over the past few decades. Rapid urbanization, population growth, aging, lifestyle

changes such as tobacco use, unhealthy diet, physical inactivity, and increased exposure to environmental pollutants have significantly contributed to the growing cancer burden. Common cancers in India include breast, cervical, oral, lung, and colorectal cancers, many of which are detected at advanced stages. Late diagnosis remains a critical issue due to lack of awareness, inadequate screening programs, socioeconomic barriers, and limited access to healthcare facilities, especially in rural areas. Early detection through timely screening, public awareness, and improved diagnostic infrastructure can significantly reduce cancer-related morbidity and mortality. Strengthening national cancer control programs, promoting preventive strategies, and ensuring early diagnosis and treatment are essential to curb the rising cancer burden in India and improve patient survival and quality of life.

PDP- 12

RAISING CANCER CASES IN INDIA NEED FOR EARLY DETECTION

Siddhi Pravin Adsul

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Cancer incidence in India is increasing rapidly due to lifestyle changes, environmental factors, population aging, and tobacco use. A major challenge in cancer control is the late diagnosis of most cases, resulting in poor survival rates and increased treatment burden. Early detection through awareness of symptoms and regular screening for common cancers such as breast, cervical, oral, and colorectal cancers can significantly improve outcomes. Strengthening screening programs, public awareness, and timely referral is essential to reduce cancer-related mortality in India. Early detection remains a crucial strategy for effective cancer prevention and control.

PDP- 13

DRUG RESISTANCE CAUSES AND PREVENTION

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PDP- 14

RISING CANCER CASES IN INDIA: THE URGENT NEED FOR EARLY DETECTION

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Cancer is rapidly emerging as a major public health challenge in India, with a continuous rise in incidence and mortality rates. This increasing burden is linked to multiple factors such as population growth, ageing, unhealthy lifestyle practices, tobacco consumption, alcohol use, poor dietary habits, obesity, infections (HPV, Hepatitis B and C), environmental pollution, and occupational exposures. A major reason for high cancer-related deaths in India is late-stage diagnosis, where many patients seek medical help only after symptoms become severe. This delay results in reduced treatment success, increased healthcare costs, and poor survival outcomes.

Early detection plays a vital role in reducing cancer mortality and improving quality of life. Screening programs for common cancers such as breast, cervical, oral, and colorectal cancers can help identify disease in early or pre-cancerous stages. However, barriers like lack of awareness, limited access to healthcare facilities in rural areas, social stigma, fear, financial constraints, and shortage of trained healthcare professionals prevent effective screening and timely diagnosis.

Strengthening early detection strategies through community awareness campaigns, regular screening camps, improved primary healthcare services, and affordable diagnostic facilities is essential. Integration of cancer screening into routine health services, training of healthcare workers, and use of digital health technologies can further enhance early identification. Overall, early detection is a cost-effective approach that can significantly reduce cancer burden in India and improve survival rates through timely intervention and treatment.

Keywords: Cancer burden, India, Rising incidence, Early detection, Screening, Late diagnosis, Awareness, Tobacco, Lifestyle factors, Public health strategy, Mortality reduction, Primary healthcare

PDP- 15

RISING CANCER BURDEN IN INDIA: IMPERATIVES FOR EARLY DETECTION

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Cancer Burden and Early Detection in India

India faces a growing cancer burden, with an estimated 15.6–16 lakh new cases and about 8.7 lakh deaths annually. The lifetime risk of developing cancer is approximately 11%, and projections suggest a 67% increase in cases by 2045. Despite this rise, early detection remains poor, with only around 29% of cancers diagnosed at an early stage.

Delayed diagnosis leads to advanced disease, poorer survival outcomes, higher mortality, and increased treatment costs. Common cancers in India—such as breast, cervical, and oral cancers—have well-established screening methods. Evidence shows that regular and timely screening significantly improves survival rates, reduces late-stage diagnoses, and allows more effective and affordable treatment.

Addressing gaps in early detection is essential to curb the rising cancer burden. Strengthening population-based screening programs, increasing public awareness, improving access to diagnostic services, and integrating cancer screening into primary healthcare can play a vital role in improving outcomes and reducing cancer-related deaths in India.

Key words -Cancer burden in India, Early detection,Cancer screening,Delayed diagnosis, Public health intervention

PDP- 16

RISING CANCER CASES IN INDIA - NEED FOR EARLY DETECTION

Mane Asmita Laxman, Jadhav krutika Vitthal

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Cancer represents a major public health challenge in India, with an increasing incidence attributable to demographic transition, lifestyle modifications, environmental carcinogens, and genetic susceptibility. Epidemiological data indicate a rising trend in both incidence and mortality, with breast, cervical, oral, lung, and colorectal cancers accounting for a significant proportion of the national cancer burden. Delayed diagnosis remains a critical barrier to effective management, as a majority of patients present at advanced stages when curative treatment options are limited and survival rates are poor. Strengthening primary healthcare integration, enhancing cancer surveillance systems, and expanding population-based screening initiatives are

essential to bridge existing gaps. Additionally, leveraging digital health platforms, artificial intelligence–assisted diagnostics, and telemedicine can facilitate early risk assessment and referral. Community engagement, policy-driven interventions, and multidisciplinary collaboration are imperative for improving early detection rates.This poster underscores the necessity of a systematic, evidence-driven approach to early cancer detection to mitigate the growing cancer burden in India and improve survival outcomes

Keywords: Cancer burden in India, Early detection, Cancer screening, Population-based screening, Cancer control strategies.

PDP- 17

DRUG RESISTANCE CAUSES AND PREVENTION

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Late Adv Dadasaheb Chavan memorial institute of pharmacy malwadi masur

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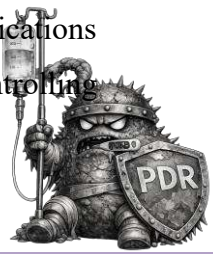
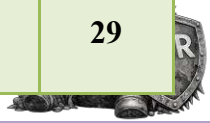
One of the biggest threats to public health worldwide is drug resistance. It happens when bacteria, viruses, fungi, and parasites develop defense mechanisms that lessen or completely eradicate the efficacy of medications intended to treat or prevent infections. Common treatments lose their effectiveness as a result, infections persist longer, and there is a higher chance of complications and disease transmission.

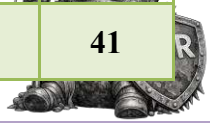
The misuse and overuse of antimicrobial medications is the primary cause of drug resistance. Self-medication, unfinished treatment programs, excessive antibiotic prescriptions, the use of antibiotics in livestock and agriculture, inadequate sanitation, and ignorance of responsible drug use are some of the main contributing factors. Genetic mutations, enzymatic drug inactivation, decreased drug permeability, and active drug efflux are all ways that microorganisms can become resistant.

Responsible medication use, adherence to recommended treatments, enhanced infection control procedures, immunization, public health education, and more robust healthcare regulations are all necessary to prevent drug resistance. Healthcare providers must also diagnose patients early and prescribe medication sensibly. Maintaining the efficacy of currently available medications and guaranteeing improved health outcomes for future generations depend heavily on controlling drug resistance.



B. Pharm Category





PBP-01

GREEN PHARMACY PRESCRIBING A SUSTAINABLE FUTURE

Tejaswini Deokar

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Pharmaceutical products have become emerging environmental contaminants due to their extensive use in human and veterinary medicine. Active pharmaceutical ingredients enter the environment mainly through excretion and improper disposal of unused or expired medicines, leading to their presence in water, soil, and aquatic ecosystems. These substances may cause serious ecological effects such as antibiotic resistance, endocrine disruption in wildlife, and long-term toxicity. The concept of Green Pharmacy focuses on minimizing the environmental impact of medicines throughout their life cycle, including drug design, manufacturing, prescribing, dispensing, and disposal. This approach emphasizes the use of green chemistry, biodegradable drug development, rational prescribing practices, effective pharmaceutical waste management, and active involvement of pharmacists in patient education and medicine take-back programs. Community pharmacies play a crucial role in promoting safe disposal and environmental awareness. Adoption of green pharmacy principles can significantly reduce pharmaceutical pollution and contribute to a sustainable healthcare system. Collaborative efforts from pharmaceutical industries, healthcare professionals, policymakers, and patients are essential to ensure environmental protection while maintaining therapeutic effectiveness.

PBP-02

PHARMACOVIGILANCE AND REGULATORY AFFAIRS

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Pharmacovigilance and Regulatory Affairs are critical components of pharmaceutical science, working together to ensure drug safety, quality, and compliance. Pharmacovigilance involves the detection, assessment, and prevention of adverse drug reactions (ADRs), protecting public health throughout a drug's lifecycle. Regulatory Affairs ensures that pharmaceutical products meet national and international standards, overseeing approval processes, documentation, and post-marketing surveillance. As drug development becomes more complex and globalized, these disciplines have evolved to include advanced risk management strategies, harmonized

international regulations, and digital tools for safety monitoring. Their integration supports informed decision-making, ethical responsibility, and continuous improvement in therapeutic outcomes. This poster explores the synergy between pharmacovigilance and regulatory affairs, highlighting their role in shaping a robust framework for pharmaceutical quality assurance and patient safety.

PBP-03

GREEN PHARMACY: UNLOCKING THE FUTURE OF SUSTAINABILITY

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Green pharmacy is gaining global attention as a sustainable approach to address the environmental challenges associated with conventional pharmaceutical practices. It focuses on integrating principles of green chemistry, eco-design, and life-cycle assessment into drug development, manufacturing, and disposal processes. The future of green pharmacy lies in the development of environmentally benign pharmaceuticals through the use of renewable resources, biodegradable excipients, safer solvents, and energy-efficient production technologies. Innovations in process intensification, nanotechnology, and sustainable formulation strategies have further enhanced resource efficiency while maintaining product quality and therapeutic performance. In addition, regulatory initiatives and growing awareness of pharmaceutical pollution are accelerating the transition toward greener practices within the industry. By reducing waste generation, minimizing carbon emissions, and preventing environmental contamination, green pharmacy supports both public health and ecological preservation. The adoption of green pharmacy principles is therefore essential for achieving long-term sustainability and resilience in the pharmaceutical sector.

Keywords: Green pharmacy; Sustainable pharmaceuticals; Green chemistry; Environmental impact; Eco-design.

PBP-04

GREEN PHARMACY: UNLOCKING THE FUTURE OF SUSTAINABILITY

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Green pharmacy is an emerging concept that integrates environmental sustainability into pharmaceutical research, manufacturing, distribution, and disposal. It focuses on minimizing the ecological footprint of pharmaceutical products throughout their life cycle while maintaining therapeutic efficacy and patient safety. Key principles of green pharmacy include the use of renewable raw materials, environmentally benign solvents, energy-efficient synthesis processes, reduction of hazardous waste, and the design of biodegradable or less persistent active pharmaceutical ingredients. The adoption of green pharmacy practices represents a critical step toward a more sustainable healthcare system in the face of increasing global environmental changes

Keywords: Green pharmacy, sustainable pharmaceuticals, green chemistry, eco-friendly drug design, pharmaceutical waste management, environmental sustainability, biodegradable drugs, life cycle assessment.

PBP-05

HOLISTIC HEALTH: INTEGRATION AYURVEDIC MODERN MEDICINE

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Holistic health focuses on the overall well-being of an individual by addressing physical, mental, and emotional health together. Integrating Ayurveda with modern medicine provides a balanced approach to healthcare by combining traditional knowledge with scientific medical practices. Ayurveda emphasizes prevention, lifestyle modification, and individualized treatment, while modern medicine offers accurate diagnosis, effective drugs, and advanced medical technology. This integrated approach helps in improving treatment outcomes, reducing side effects, and promoting long-term health. The combination of herbal therapies, dietary guidance, yoga, and modern therapeutic interventions supports both disease management and wellness promotion. Holistic healthcare through Ayurveda and modern medicine encourages a patient-oriented and sustainable healthcare system. Such integration can play an important role in improving quality of life and supporting preventive healthcare in the future.

Keywords: Holistic health; Ayurveda; Modern medicine; Integrative healthcare; Preventive health.

PBP-06

ARTIFICIAL INTELLIGENCE IN PHARMA

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A branch of computer science called artificial intelligence makes it possible for machines to run efficiently. Its use in pharmaceutical technology has grown, improving workflow efficiency, reducing operating costs, and promoting productivity, accuracy, and safety by handling complex data processing tasks. It may save time and money in addition to improving our comprehension of the connections between various formulations and process parameters. The quantity of study on artificial intelligence (AI) has increased dramatically, and it has been discovered that AI technology can analyze and interpret various important pharmacy fields, including drug development, hospital pharmacy, and dosage form design. Artificial intelligence has significantly improved the organization and storage of data and information in the healthcare industry.

Key words: AI, Telepsychology, MEDi Robot, Innovative peptides & Drug screening.

PBP-07

ARTIFICIAL INTELLIGENCE IN PHARMA

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Artificial Intelligence (AI) is playing an important role in transforming the pharmaceutical industry. AI helps in drug discovery by analyzing large amounts of data quickly and accurately. It reduces the time and cost required to develop new medicines. AI algorithms are used to identify potential drug molecules, predict their effectiveness, and detect possible side effects at an early stage. In clinical trials, AI improves patient selection, data analysis, and trial monitoring, making the process faster and more reliable. AI is also useful in personalized medicine, where treatment is tailored according to individual patient data such as genetics and lifestyle. In manufacturing, AI ensures quality control and optimizes production processes. Overall, AI increases efficiency, accuracy, and innovation in the pharmaceutical sector. With continuous advancements, AI has

the potential to improve healthcare outcomes and make medicines safer, faster, and more affordable for patients.

Key words: Artificial Intelligence (AI), Pharmaceutical Industry, Drug Discovery, Clinical Trials, Personalized Medicine, Data Analysis, Healthcare Innovation, Quality Control, Manufacturing, Patient Outcomes.

PBP-08

DEVELOPMENT AND EVALUATION OF A MICRONUTRIENT TRANSDERMAL PATCH

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Micronutrient deficiencies, particularly iron and folic acid deficiency, represent a major global health concern, especially among women, children, and individuals with chronic disorders. Oral micronutrient supplementation is widely used; however, it is often associated with gastrointestinal side effects, poor patient compliance, variable absorption, and first-pass hepatic metabolism. These limitations necessitate the development of alternative delivery approaches. The present study focuses on the formulation and evaluation of a micronutrient transdermal patch as a potential nutrient supplementation system using transdermal drug delivery technology. Ferrous ascorbate and folic acid were selected as model micronutrients due to their essential role in the prevention and treatment of anemia. Transdermal patches were prepared by the solvent evaporation technique using hydroxypropyl methylcellulose (HPMC) and polyvinyl pyrrolidone (PVP) as film-forming and rate-controlling polymers. Polyethylene glycol 400 was used as a plasticizer, while dimethyl sulfoxide (DMSO) served as a penetration enhancer. Preformulation studies including solubility, melting point, partition coefficient, calibration curve development, and drug–excipient compatibility studies were performed. The prepared patches were evaluated for physicochemical properties such as thickness, weight uniformity, folding endurance, moisture content, and drug content uniformity. In-vitro drug release and ex-vivo permeation studies demonstrated controlled and sustained release of both micronutrients, with improved permeation attributed to the presence of penetration enhancers. Stability studies indicated that the optimized formulation remained stable under accelerated storage conditions. Overall, the results suggest that the developed micronutrient transdermal patch is a promising, non-invasive alternative to oral supplementation, offering improved patient compliance, reduced dosing frequency, and minimized gastrointestinal adverse effects.

PBP-09

DEVELOPMENT AND EVALUATION OF NOVEL FILM FORMING SPRAY FORMULATION FOR THE TREATMENT OF ALOPECIA

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Rosmarinus officinalis L. (rosemary) is a well-known medicinal herb traditionally valued for its antioxidant, anti-inflammatory, and antimicrobial properties. In recent years, rosemary has gained significant attention in the field of hair care due to its potential role in promoting hair growth and preventing hair loss. Scientific evidence suggests that rosemary exerts its hair growth–promoting effects through multiple mechanisms, including inhibition of 5α reductase activity, enhancement of scalp microcirculation, and stimulation of dermal papilla cell proliferation. The presence of bioactive phytoconstituents such as carnosic acid, rosmarinic acid, and ursolic acid contributes to these effects by reducing oxidative stress, inflammation, and androgen-mediated follicular damage. Preclinical and clinical studies have demonstrated the efficacy of rosemary extracts and essential oil in improving hair density and thickness, with some trials reporting comparable outcomes to conventional treatments such as minoxidil, but with fewer adverse effects. Rosemary has been successfully incorporated into various hair care formulations, including oils, shampoos, conditioners, and topical preparations. This review highlights the pharmacological properties, mechanisms of action, and formulation approaches of Rosmarinus officinalis in hair care applications, emphasizing its potential as a natural, safe, and effective alternative for the management of hair disorders.

PBP-10

ADVANCES IN DRUG DISCOVERY AND DRUG DELIVERY

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Advances in drug discovery and delivery are transforming modern therapeutics through precision medicine and innovative technologies. Artificial intelligence accelerates candidate identification and molecular optimization, while CRISPR and biomarker-driven approaches enable targeted therapies for cancer, genetic, and neurodegenerative diseases. On the delivery side, nanotechnology, lipid nanoparticles, hydrogels, microneedles, and biodegradable polymers enhance bioavailability, reduce side effects, and allow controlled release. RNA-based platforms,

exemplified by mRNA vaccines, are expanding into cardiovascular and autoimmune treatments. Together, these breakthroughs promise more effective, personalized, and patient-friendly solutions, though challenges in regulation, safety, and manufacturing remain.

Key words: Drug discovery, Artificial intelligence, CRISPR, Precision medicine, Nanotechnology.

PBP-11

ARTIFICIAL INTELLIGENCE IN PHARMACEUTICAL SCIENCES: REVOLUTIONIZING DRUG DISCOVERY, DRUG DELIVERY AND SUSTAINABLE HEALTHCARE

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Artificial Intelligence (AI) is emerging as a transformative technology in pharmaceutical sciences, reshaping the entire drug development pipeline from early discovery to post-marketing surveillance. Conventional drug development is time consuming, costly, and associated with high failure rates. AI driven approaches significantly accelerate drug discovery by enabling rapid target identification, virtual screening of large chemical libraries, de novo drug design, lead optimization, and early prediction of pharmacokinetic and toxicity profiles. In drug delivery, AI supports the rational design of smart and targeted delivery systems, formulation optimization, controlled drug release modeling, and personalized dosing strategies, thereby enhancing therapeutic efficacy while minimizing adverse effects. Furthermore, AI acts as a bridge between Ayurveda and modern medicine by digitizing traditional knowledge, identifying bioactive phytochemicals, supporting standardization of herbal formulations, and enabling evidence based holistic healthcare.AI is also revolutionizing pharmacovigilance and regulatory affairs by automating adverse drug reaction reporting, detecting safety signals from real world data, and improving risk based regulatory decision making. In the context of green pharmacy, AI contributes to sustainable healthcare by optimizing eco friendly drug design, green synthesis routes, energy efficient manufacturing, and waste reduction strategies. Overall, the integration of artificial intelligence into pharmaceutical sciences promotes faster, safer, smarter, and more sustainable drug development, supporting the global vision of precision medicine and environmentally responsible healthcare.

Keywords: Artificial intelligence, drug discovery, drug delivery, pharmacovigilance, green pharmacy, sustainability.

PBP-12

GREEN PHARMACY

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Green Pharmacy is a sustainable approach to healthcare that minimize the environmanetal impact of pharmaceuticals across their entire lifestyle from design and manufacturing to patient use and disposal. It focuses on creating eco friendly bio-degradable drugs, reducing hazardous waste, using green manufacturing process and encouraging proper disposal to protect ecosystem.

PBP-13

ARTIFICIAL INTELLIGENCE IN PHARMACEUTICALS AI BASED RISK ASSESSMENT OF DRUG -INDUCED HEPATOTOXICITY (DILI)

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Drug-Induced Liver Injury (DILI) is a leading cause of acute liver failure and drug withdrawal worldwide. The liver, as the primary organ responsible for drug metabolism, is particularly susceptible to toxicity due to first-pass metabolism and the formation of reactive metabolites. This study integrates pharmacological knowledge, liver anatomy, and artificial intelligence to develop an AI-based clinical decision-support application. The system evaluates biochemical markers and patient-specific risk factors to generate a DILI risk score, enabling early detection, improved drug safety, and strengthened pharmacovigilance. In addition to its clinical utility, the application also serves as an interactive teaching kit for medical, pharmacy, and allied health students, facilitating a better understanding of DILI mechanisms, risk assessment, and clinical decision-making through real-time data interpretation and case-based learning.

PBP-14

ARTIFICIAL INTELLIGENCE IN PHARMACEUTICAL SCIENCE

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Artificial Intelligence (AI) has emerged as a powerful tool in pharmaceutical sciences, offering innovative solutions to complex challenges in drug discovery, development, and healthcare delivery. AI-based technologies, including machine learning and deep learning algorithms, enable rapid analysis of large datasets, leading to improved decision-making and reduced time and cost in drug development processes. AI assists in identifying potential drug candidates, predicting drug–target interactions, and optimizing formulation strategies with higher accuracy than traditional methods. In clinical research, AI enhances trial efficiency by improving patient selection, monitoring treatment outcomes, and detecting adverse drug reactions. AI-driven systems are also increasingly used in pharmacovigilance to ensure drug safety through continuous data monitoring. Furthermore, AI contributes to pharmaceutical manufacturing by enabling process automation, quality assurance, and supply chain optimization. The integration of AI in personalized medicine allows the development of tailored therapies based on individual patient data, improving therapeutic effectiveness and safety. Although challenges such as regulatory compliance, data security, and ethical considerations remain, the adoption of AI in pharmacy holds great promise. Overall, AI is revolutionizing pharmaceutical sciences by accelerating innovation, enhancing precision, and improving patient care, making it an essential component of the future pharmaceutical industry.

Keywords: Artificial Intelligence, Pharmaceutical Sciences, Drug Discovery, Machine Learning, Personalized Medicine, Pharmacovigilance.

PBP-15

GREEN PHARMACY: BRIDGING HEALTHCARE AND ENVIRONMENTAL SAFETY

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Green Pharmacy is an emerging concept that focuses on delivering effective healthcare while minimizing environmental harm caused by pharmaceutical activities. It emphasizes eco-friendly drug manufacturing, safer solvents, waste reduction, biodegradable formulations, and proper disposal of medicines. Pharmaceutical pollution from chemical waste and improper drug disposal poses risks to ecosystems and human health. Green Pharmacy promotes sustainable practices and highlights the vital role of pharmacists in ensuring both patient safety and

environmental protection. Integrating Green Pharmacy principles is essential for achieving sustainable healthcare and long-term environmental safety.

PBP-16

ARTIFICIAL INTELLIGENCE DRIVEN CATTLE DISEASE DETECTION FOR VETERINARY PHARMACEUTICAL

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Livestock diseases represent a major challenge to veterinary healthcare and the pharmaceutical sector, leading to economic losses, reduced productivity, and compromised animal welfare. Early and accurate diagnosis of cattle diseases is crucial for timely pharmacological intervention; however, limited access to veterinary experts and delayed disease identification often hinders effective treatment. The present project focuses on the development of an Artificial Intelligence (AI)–based mobile application for cattle disease detection, aimed at supporting decision-making in veterinary pharmaceutical care.

The proposed application utilizes AI algorithms to analyze observable clinical symptoms such as behavioral changes, feeding patterns, visible lesions, and physiological indicators reported by farmers. Based on symptom-based data input, the system predicts probable cattle diseases and provides preliminary pharmaceutical guidance, including drug categories, dosage considerations, and the need for veterinary consultation. The AI model is trained using curated datasets of common cattle diseases and validated symptom profiles to enhance diagnostic accuracy.

This AI-driven approach assists in minimizing diagnostic delays, reducing misuse of veterinary drugs, and improving treatment compliance. By integrating artificial intelligence with pharmaceutical knowledge, the application serves as a digital support tool for farmers, veterinarians, and pharmacy professionals. The study highlights the growing role of AI in Pharma, particularly in veterinary medicine, by improving disease management, optimizing therapeutic outcomes, and promoting rational drug use.

Overall, the developed system demonstrates the potential of artificial intelligence to revolutionize veterinary pharmaceutical practices and contributes toward sustainable livestock healthcare management.

Keywords: Artificial intelligence, cattle disease, veterinary pharmacy, AI in pharma, livestock healthcare

PBP-17

GREEN PHARMACY: PIONEERING SUSTAINABILITY IN PHARMACEUTICAL PRACTICES

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The concept of "Green Pharmacy" is revolutionizing the pharmaceutical industry by integrating eco-friendly practices into every stage of drug development, production, and disposal. This approach focuses on minimizing environmental impact through green chemistry, sustainable materials, energy-efficient manufacturing, and comprehensive lifecycle assessments. As the industry shifts towards sustainability, Green Pharmacy is poised to shape a more environmentally conscious future, balancing healthcare needs with ecological responsibility.

Objectives are, Reduce Environmental Impact: Minimize the use of toxic reagents, solvents, and energy-intensive procedures to protect the environment and human health, Promote Sustainability: Develop analytical methods that are efficient, cost-effective, and resource-conserving, Improve Safety: Eliminate or reduce exposure to hazardous chemicals for analysts and reduce the risks associated with chemical analysis, Enhance Efficiency: Simplify analytical methods to reduce time, energy, and resource requirements.

Green Analytical Chemistry (GAC) is a vital component of the global push for sustainability in science and industry. GAC not only reduces the impact of chemistry on the environment but also fosters innovation, safety, and cost-effectiveness. It is an essential step toward a greener and more sustainable future in the chemical sciences.

Keywords: Green Pharmacy, Sustainability, safety, Efficacy, GAC.

PBP-18

ADVANCES IN DRUG DISCOVERY AND DRUG DELIVERY

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Drug discovery is the process through which potential new medicines are identified. It involves the identification of candidates, synthesis, characterization, screening and assay for therapeutic efficacy."Modern drug discovery involves the identification of screening hits, medicinal chemistry and optimization of those hits to increase the affinity, selectivity, potency, metabolic stability, and oral bioavailability." Nowadays, the most advanced method for drug discovery is the rational drug design. Drug delivery is the method or process of administering a pharmaceutical compound to achieve a therapeutic effect in humans or animals. Advances in New drug delivery systems include lipidic, proteic and polymeric technologies to provide new sustained drug delivery with better body distribution, drug protection from the harsh external

environment and avoidance of drug clearance. Thare is a various advanced technologies are used in drug discovery such like startups are leveraging big data, A.I. and machine learning together to automate data processing and solve complex problems much more quickly than traditional data analysis methods. Discovering drugs, Currently, there are several formulation approaches that can be used to ensure that the drug delivery system is fit for its intended use.

PBP-19

A NOVEL DRUG REPURPOSING STRATEGY: ATORVASTATIN HYDROGEL SYSTEM FOR ENHANCED ANTIFUNGAL ACTIVITY.

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Fungal infections are common and often difficult to treat due to resistance and side effects of existing drugs. To address this problem, we repurposed atorvastatin, a drug normally used to lower cholesterol, for antifungal application. A topical hydrogel of atorvastatin was developed to improve drug action at the site of infection.

The prepared hydrogel showed good stability, smooth application, and sustained drug release. It demonstrated enhanced antifungal activity by interfering with fungal cell membrane formation through ergosterol inhibition. The topical system helps reduce systemic exposure and improves patient compliance.This study proves that atorvastatin can be successfully repurposed as an antifungal agent and highlights the potential of drug repurposing combined with novel drug delivery systems for effective management of fungal infections.

Keywords:
Drug repurposing; Atorvastatin; Antifungal activity; Hydrogel; Topical delivery; Ergosterol inhibition.

PBP-20

ARTIFICIAL INTELLIGENCE IN PHARMACY: A BOON FOR DRUG DELIVERY

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Artificial Intelligence (AI) has emerged as a transformative technology in the healthcare sector, offering innovative solutions to complex medical and pharmaceutical challenges. In recent years, the

integration of AI into healthcare systems has significantly enhanced the quality, accuracy, and efficiency of healthcare delivery. AI is widely applied in hospitals, clinical laboratories, and research institutions for disease prevention, early detection, accurate diagnosis, and personalized treatment planning. Advanced AI algorithms enable the analysis of large volumes of medical and clinical trial data, reducing manual errors and improving decision-making processes in drug development and clinical research.

In pharmaceutical sciences, AI plays a crucial role in accelerating drug discovery, optimizing clinical trial design, and ensuring patient safety by identifying potential risks at an early stage. Machine learning and data-driven models assist healthcare professionals by providing evidence-based insights, thereby supporting precise and timely clinical decisions. Furthermore, AI contributes to improved patient outcomes by enhancing treatment effectiveness and reducing healthcare costs. Overall, Artificial Intelligence serves as a powerful tool that enhances the capabilities of healthcare systems and professionals. Its continued advancement and adoption hold significant potential for revolution.

PBP-21

AN OVERVIEW OF ARTIFICIAL INTELLIGENCE'S (AI) ROLE IN THE PHARMACEUTICAL SECTOR

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Artificial Intelligence (AI) is revolutionizing the pharmaceutical sector by enhancing efficiency, accuracy, and patient outcomes. This paper provides a comprehensive overview of Al's applications in the industry, ranging from drug discovery and development to personalized medicine. Al accelerates drug research through molecular modelling, identifies potential candidates, and optimizes clinical trial processes. Diagnostic support tools improve healthcare professionals accuracy, while Al-based systems enhance patient adherence by providing timely medication reminders and educational resources. Robotics and automation streamline dispensing and supply chain management, reducing costs and errors. Wearable Al devices enable real-time health monitoring, promoting early intervention. Despite its transformative potential, the integration of Al raises ethical concerns, including data privacy, transparency, and algorithmic bias, necessitating strong regulatory oversight. By responsibly leveraging tools like IBM Watson Health and Medisafe, the pharmaceutical sector can achieve groundbreaking advancements, improving global healthcare outcomes.

PBP-22

EXPLORING METFORMIN VIA MOLECULAR DOCKING FOR ADVANCING WOMEN'S HEALTH IN POLYCYSTIC OVARY SYNDROME

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Polycystic ovarian syndrome (PCOS) is a prevalent disorder that affects approximately 10% of the female population worldwide. Due to its high prevalence, PCOS represents a major concern in women's reproductive health. Metformin has been identified as an efficient ovulation induction drug for women suffering from PCOS and has shown certain advantages when compared to other first-line therapies used in the management of anovulatory infertility. Its therapeutic usefulness has made it an important drug in the treatment of reproductive complications associated with PCOS.

Molecular docking is a well-established structure-based in silico approach that is widely utilized in the field of drug discovery. This computational technique helps in understanding the interaction between drugs and their molecular targets, thereby supporting the evaluation of drug efficacy and mechanism of action. In the context of PCOS, molecular docking can be employed to study the molecular interactions of metformin and its potential role in improving reproductive outcomes.

The beneficial effects of metformin on menstrual function and infertility in women with PCOS may be attributed to its ability to decrease insulin resistance and reduce testosterone levels. These actions contribute to improved ovulatory function and menstrual regulation, thereby enhancing fertility outcomes in affected women.

PBP-23

THE STRATEGIC INTEGRATION OF PHARMACOVIGILANCE AND REGULATORY AFFAIRS: ENSURING PATIENT SAFETY AND LEGAL COMPLIANCE IN THE POST-MARKET ERA

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Pharmacovigilance and Regulatory Affairs are essential pillars of the healthcare and pharmaceutical regulatory framework, working together to ensure that medicinal products remain safe, effective, and of high quality throughout their entire lifecycle. Pharmacovigilance is primarily concerned with the continuous monitoring of medicines after they enter the market. While clinical trials provide important data on safety and efficacy, they involve limited patient populations and shorter durations of exposure. Therefore, real-world use can reveal rare, serious, or delayed adverse drug reactions that were not detected during pre-marketing studies. Pharmacovigilance activities such as spontaneous adverse event reporting, periodic safety update reports (PSURs), risk management plans (RMPs), and signal detection help in identifying, evaluating, and minimizing these risks, ultimately improving patient safety.

Regulatory Affairs function as the critical link between pharmaceutical companies and regulatory authorities, ensuring that all legal, scientific, and ethical requirements are met. Regulatory professionals manage drug approval submissions, ensure accurate and up-to-date labeling, oversee safety reporting Oobligations, and support lifecycle management of medicinal products. In real-world practice, regulatory decisions are strongly influenced by pharmacovigilance findings. Safety data may lead to regulatory actions such as updating product labels, issuing safety alerts, restricting indications, or withdrawing a drug from the market when the benefit-risk balance becomes unfavorable. The close integration of pharmacovigilance and regulatory affairs enables evidence-based decision-making, strengthens public confidence in medicines, and supports rational drug use. Together, these disciplines play a vital role in protecting public health by ensuring continuous safety monitoring and regulatory oversight in everyday clinical practice.

Keywords-Pharmacovigilance and Regulatory

PBP-24

HOLISTIC HEALTH: INTEGRATING AYURVEDA & MODERN MEDICINE

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Holistic health emphasizes the integration of physical, mental, emotional, and spiritual well-being for overall wellness. Ayurveda, the ancient system of medicine, focuses on maintaining balance through individualized treatment approaches involving diet, lifestyle modifications,

herbal medicines, and detoxification therapies. Modern medicine, on the other hand, relies on evidence-based practices, advanced diagnostics, and targeted pharmacological interventions for disease management. Integrating Ayurveda with modern medicine offers a comprehensive healthcare approach that combines traditional wisdom with scientific innovation. This integrative model aims to enhance preventive care, improve therapeutic outcomes, and reduce adverse effects associated with long-term drug use. Ayurvedic principles such as *Dosha* balance, *Rasayana* therapy, and personalized treatment complement modern medical practices in managing chronic diseases, lifestyle disorders, and stress-related conditions. The integration promotes patient-centered care by addressing root causes rather than only symptoms. Scientific validation, standardization, and clinical research are essential for the successful incorporation of Ayurveda into modern healthcare systems. Thus, holistic health through the integration of Ayurveda and modern medicine represents a promising pathway toward sustainable, safe, and effective healthcare in the contemporary world.

Keywords: holistic health, Ayurveda, modern medicine, integrative therapy, teaching aid.

PBP-25

GREEN PHARMACY: SUSTAINABLE SYNTHESIS & WASTE SOLUTIONS

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Rising environmental pollution from pharmaceuticals has spurred green and sustainable pharmacy, emphasizing eco-friendly practices across drug production, use, and disposal. Active pharmaceutical ingredients enter ecosystems via manufacturing, consumption, and waste, threatening water and soil quality. This review explores green synthesis methods—rooted in green chemistry principles like safer solvents, renewable feedstocks, energy-efficient processes, and biodegradable materials—and innovative techniques such as catalysis, biotransformation, enzymatic reactions, and nanotechnology to minimize waste and energy use. Effective end-of-life management, including take-back programs, controlled incineration, and advanced wastewater treatments (e.g., oxidation processes, activated carbon, and membranes), prevents contamination more efficiently than conventional methods. A collaborative effort among industry, regulators, healthcare providers, pharmacists, and consumers is essential to advance sustainable pharmacy, reducing pharmaceutical pollution while ensuring drug efficacy and availability.

Keywords: Green Pharmacy, sustainable pharmacy, drug disposal.

PBP-26

GREEN PHARMACY: UNLOCKING THE FUTURE OF SUSTAINABILITY

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Green pharmacy is an emerging and innovative concept in pharmaceutical sciences that focuses on integrating environmental sustainability with drug development and healthcare systems. The increasing use of pharmaceuticals has led to environmental concerns such as drug residues in water bodies, soil contamination, and ecological toxicity. Green pharmacy addresses these challenges by applying the principles of green chemistry to minimize the environmental impact of pharmaceuticals throughout their life cycle, from raw material selection to manufacturing, formulation, use, and disposal. This approach promotes the use of renewable raw materials, eco-friendly and non-toxic solvents, energy-efficient manufacturing processes, and waste minimization techniques. Green pharmacy also emphasizes the design of safer drugs that are effective at lower doses and degrade into harmless products after excretion, thereby reducing pharmaceutical pollution. Sustainable packaging, solvent recycling, and proper management of pharmaceutical waste further contribute to environmental protection. In addition, green pharmacy supports regulatory compliance and aligns with global sustainable development goBy adopting green pharmacy practices, the pharmaceutical industry can achieve a balance between delivering effective healthcare and protecting the environment. Green pharmacy not only ensures patient safety and drug efficacy but also promotes long-term ecological sustainability. Thus, green pharmacy plays a vital role in unlocking a sustainable future for the pharmaceutical industry, healthcare systems, and the environment.als by reducing carbon footprint and conserving natural resources.

PBP-27

ADAPTATION OF HIGH THROUGHPUT SCREENING OF DRUG DISCOVERY

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High-throughput screening (HTS) has emerged as a powerful and efficient technology in modern drug discovery, particularly in the development of anti-infective agents. The rising prevalence

of antibiotic-resistant microbial strains has intensified the need for rapid identification of novel and effective therapeutic compounds. HTS enables large-scale screening of chemical libraries to identify potential lead molecules through automated and high-speed analytical techniques. The approach integrates structure-based and ligand-based drug design along with in vitro cell-based and biochemical assay methods for target identification and lead optimization. Virtual high-throughput screening (vHTS) further enhances the drug discovery process by employing computational tools to predict biological activity and minimize experimental workload. Various detection technologies, including fluorescence, luminescence, and atomic absorbance, play significant roles in measuring biological responses in HTS bioassays. The application of HTS accelerates drug discovery, improves hit identification rates, increases efficiency, and reduces overall development costs. Despite its advantages, challenges such as limited chemical diversity and complexities in biological response interpretation still exist. Emerging strategies such as reverse pharmacology, phytochemical hybridization, and integration of nanotechnology with HTS are being explored to expand chemical space and improve screening sensitivity. Overall, HTS continues to be a critical platform in pharmaceutical and biotechnology industries, supporting the discovery and development of next-generation anti-infective drugs and advancing global healthcare solutions.

PBP-28

ENHANCED DRUG DELIVERY SYSTEM OF ATORVASTATIN THROUGH SMEDDS APPROACH

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Atorvastatin calcium is a BCS Class II drug characterized by poor aqueous solubility and low oral bioavailability, primarily due to slow dissolution and extensive first-pass hepatic metabolism. These limitations result in reduced and variable therapeutic efficacy following conventional oral administration. Self-Microemulsifying Drug Delivery Systems (SMEDDs) are isotropic mixtures of oils, surfactants, and co-surfactants that spontaneously form fine microemulsions upon dilution in gastrointestinal fluids, leading to a significant increase in drug solubility and surface area for absorption. In addition, SMEDDs may facilitate lymphatic transport and partially bypass first-pass metabolism, thereby enhancing systemic drug availability. Therefore, the development of a SMEDDs formulation of atorvastatin represents a promising strategy to improve its solubility, dissolution rate, and oral bioavailability.

PBP-29

NANOTECHNOLOGY IN PULMONARY DRUG DELIVERY SYSTEMS

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Pulmonary drug delivery has emerged as an effective route for both local and systemic therapy due to the large surface area of the lungs, thin alveolar epithelium, and rich blood supply. However, conventional inhalation therapies face limitations such as poor drug stability, low bioavailability, rapid clearance, and inadequate targeting. Nanotechnology offers innovative solutions to overcome these challenges by enabling the design of nanoscale drug carriers that enhance drug deposition, retention, and controlled release within the pulmonary system. Nanocarriers such as nanoparticles, liposomes, solid lipid nanoparticles, polymeric micelles, and nanoemulsions improve solubility, protect drugs from enzymatic degradation, and allow site-specific targeting in the lungs. These systems also facilitate sustained drug release and reduce systemic side effects. Nanotechnology-based pulmonary drug delivery has shown significant potential in the treatment of respiratory diseases such as asthma, chronic obstructive pulmonary disease (COPD), lung infections, and lung cancer. Overall, nanotechnology represents a promising approach for improving the therapeutic efficacy, safety, and patient compliance in pulmonary drug delivery systems.

Keywords : Pulmonary drug delivery , Nanotechnology

PBP-30

DRUG REPURPOSING TO OVERCOME TYROSINE KINASE INHIBITOR RESISTANCE IN CHRONIC MYELOID LEUKEMIA: A STRUCTURE-BASED VIRTUAL SCREENING AND MOLECULAR DYNAMICS APPROACH

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Drug resistance remains a major challenge in cancer therapy and significantly limits the long-term effectiveness of existing treatments. Chronic Myeloid Leukemia (CML), driven by the BCR-ABL fusion oncogene, is commonly treated with tyrosine kinase inhibitors (TKIs) such as Imatinib; however, the emergence of resistance-conferring mutations, particularly T315I, reduces therapeutic success and increases treatment costs. The present study aims to explore drug repurposing as a cost-effective and time-efficient strategy to overcome TKI resistance in CML using computational approaches. The mutant ABL kinase structure (PDB ID: 2GQG) was

refined using the PDB-REDO server to enhance structural accuracy, followed by structure-based virtual screening of FDA-approved drugs through molecular docking. The top-scoring compounds were further evaluated using molecular dynamics simulations to assess the stability and flexibility of protein–ligand complexes. Virtual screening identified Ponatinib, Conivaptan, and Nilotinib as promising candidates exhibiting strong binding affinity toward the resistant mutant ABL kinase, while molecular dynamics analysis confirmed the stability of these interactions under simulated physiological conditions. These findings demonstrate that computational drug repurposing is an effective approach for identifying potential therapeutic agents against drug-resistant CML. Overall, the study highlights the importance of integrating structure refinement, molecular docking, and molecular dynamics simulations to address drug resistance and supports further experimental validation through in vitro and in vivo studies.

KEYWORDS :-

Chronic Myeloid Leukemia; Drug Repurposing; Tyrosine Kinase Inhibitor Resistance; Mutant ABL Kinase; Molecular Docking; Molecular Dynamics Simulation

PBP-31

AI: TRANSFORMING THE FUTURE OF PHARMACEUTICALS

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Al is a powerful and disruptive area of computer science, with the potential to fundamentally transform the practice of medicine and the delivery of healthcare. Healthcare has been transformed by Al to become more effective and efficient. The application of Al technology for interpreting and analysing some significant areas of pharmacy, including drug discovery, dosage form design, polypharmacology, robotic surgery, IOT devices and hospital pharmacy, has seen a significant amount of growth over the past few years. A vision for a more data-driven, digitally enab ed era of pharmacy practice is presented as a summary of the revolutionary influence of pharmacy informatics and big data on improved patient outcomes, decreased costs, and increased efficiency.

Key words :- Artificial Intelligence, Polypharmacology, Target drug discovery, Robotic Surgery, IOT Devices , Dosage form design

PBP-32

CUBOSOMES BASED TOPICAL GEL FOR COMBATING BREAST CANCER

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Breast cancer is one of the most prevalent malignancies affecting women globally, highlighting the need for safer and more targeted therapeutic strategies. Conventional chemotherapy often leads to severe systemic side effects and reduced patient compliance. The present study aims to develop a cubosomes-based topical gel as a novel localized drug delivery system for combating breast cancer. Cubosomes are lipid-based nanocarriers characterized by a unique bicontinuous cubic structure, which enables high drug loading, improved stability, and sustained drug release. In this study, cubosomes were prepared using appropriate lipids and stabilizers and subsequently incorporated into a topical gel base to facilitate localized application. The formulated cubosomal gel was evaluated for physicochemical characteristics such as particle size, zeta potential, pH, drug content, and in vitro drug release behavior. The results indicated that the cubosomes possessed nanoscale particle size with adequate stability and exhibited controlled and prolonged drug release compared to conventional formulations. The topical delivery approach is expected to provide localized drug action at the site of application, thereby minimizing systemic exposure and associated adverse effects. This formulation strategy offers a non-invasive and patient-friendly alternative for breast cancer management. Overall, the cubosomes-based topical gel demonstrates significant potential as an innovative nanocarrier system for localized and controlled delivery of anticancer agents.

Keywords: Breast cancer; Cubosomes; Topical gel; Nanotechnology; Controlled drug release; Localized drug delivery

PBP-33

NOVEL ANTHELMINTHIC DRUG CANDIDATE SYNTHESIS OF BENZIMIDAZOLE-URACIL HYBRID FOR VETERINARY APPLICATION

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Helminthic infections continue to pose a significant challenge to animal health and productivity in the veterinary sector, leading to substantial economic losses worldwide. The increasing prevalence of drug resistance against conventional anthelminthic agents necessitates the development of novel and more effective therapeutic candidates. Benzimidazole derivatives are

well-established anthelminthic agents, while uracil moieties are known for their diverse biological activities, including antimicrobial and antiparasitic effects. In the present study, a novel benzimidazole–uracil hybrid compound was designed and synthesized with the aim of enhancing anthelminthic efficacy for veterinary application. The synthesis involved a stepwise condensation and cyclization strategy to obtain the target hybrid molecule, which was subsequently characterized using spectroscopic techniques such as FT-IR, ^1H-NMR, and mass spectrometry to confirm its structural integrity. The rational hybridization of benzimidazole and uracil pharmacophores is expected to exhibit improved biological activity through synergistic mechanisms of action. This novel hybrid compound represents a promising anthelminthic drug candidate and provides a potential platform for further in-vitro and in-vivo evaluation against veterinary helminth parasites. The study highlights the importance of molecular hybridization in the development of next-generation anthelminthic agents for veterinary therapeutics.

PBP-34

REDEFINING ALZHEIMER'S MANAGEMENT: CLINICAL IMPACT OF TRANSDERMAL RIVASTIGMINE DELIVERY.

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Alzheimer's disease is a progressive neurodegenerative disorder and a leading cause of cognitive impairment among the elderly population worldwide, posing significant clinical and socioeconomic challenges. Rivastigmine, a cholinesterase inhibitor, is widely used in the management of Alzheimer's disease; however, oral administration is frequently associated with gastrointestinal adverse effects, fluctuating plasma drug concentrations, and reduced patient compliance. These limitations highlight the need for improved drug delivery strategies tailored to the special requirements of geriatric patients.

Advances in pharmaceutical drug delivery systems have resulted in the development of a transdermal rivastigmine delivery system designed to provide controlled and continuous drug release while bypassing hepatic first-pass metabolism. The transdermal patch enables steady diffusion of rivastigmine through the skin into systemic circulation over a 24-hour period, thereby maintaining stable plasma drug levels and minimizing peak-related adverse effects. Clinical studies have demonstrated that transdermal rivastigmine exhibits comparable therapeutic efficacy to oral formulations with a significant reduction in gastrointestinal side effects such as nausea and vomiting. Additionally, once-daily patch application improves

treatment adherence, simplifies dosing regimens, and reduces caregiver burden, which is particularly important in Alzheimer's disease management. This poster emphasizes the clinical relevance of transdermal rivastigmine delivery as a patient-centric advancement in Alzheimer's therapy and highlights how optimized drug delivery systems can enhance therapeutic outcomes and quality of life in chronic neurodegenerative disorders.

Keywords:Alzheimer's disease, Rivastigmine, Transdermal drug delivery system, Patient compliance, Controlled drug release

PBP-35

MICRONEEDLE PATCH -BASED TRANSDERMAL DELIVERY OF STATINS AND PEPTIDE DRUGS FOR IMPROVED CARDIOVASCULAR THERAPY

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Cardiovascular diseases (CVDs) are the leading cause of global mortality, with hyperlipidemia and atherosclerosis as major contributing factors. Although drugs such as atorvastatin, rosuvastatin, and peptide-based agents like angiotensin-converting enzyme (ACE) inhibitory peptides are widely used in cardiovascular therapy, their conventional oral and injectable delivery routes are often associated with poor patient compliance, first-pass metabolism, and systemic side effects. Microneedle patch–based transdermal drug delivery systems have emerged as an innovative and patient-friendly approach to overcome these limitations.

Microneedle patches consist of arrays of microscopic needles that painlessly penetrate the stratum corneum, enabling direct delivery of therapeutic agents into the dermal circulation. Transdermal delivery of statins such as atorvastatin can improve bioavailability while reducing gastrointestinal adverse effects. Similarly, peptide drugs, which are prone to enzymatic degradation and poor oral absorption, benefit significantly from microneedle-mediated administration. These systems allow controlled and sustained drug release, reduced dosing frequency, and improved therapeutic outcomes.

Advanced microneedle formulations using biodegradable polymers further enhance safety and precision in drug delivery. Overall, microneedle patch technology offers a promising platform for long-term cardiovascular disease management by enhancing drug efficacy, patient adherence, and quality of life. Continued development of this technology may redefine future cardiovascular pharmacotherapy.

PBP-36

ARTIFICIAL INTELLIGENCE IN PHARMA

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Artificial intelligence plays a crucial role in pharma healthcare. Artificial intelligence (AI) refers to the stimulation of human intelligence processes by machines, especially computer systems, providing assistance in a variety of patient care & health system. AI plays an important role in various fields of pharmacy like drug discovery,drug delivery, hospital pharmacy etc. AI is being used extensively to improve the design techniques and required time of drugs. The usual methods of drug design have been replaced by computer-assist design of drugs in the recent times. AI help in predicting drug efficacy as well as side effects to manage the vast amounts of documents & data that support any pharmaceutical product. AI can enhance preventive care & quality of life, produce more accurate diagnosis and treatment plans as well as lead to better patient outcomes overall. It has the potential to revolutionize the drug discovery process offering improved efficiency, accuracy and speed. AI can accelerate the diagnostic process, brighten diagnostic accuracy & enhance overall operational efficiency, concurrently relieving the burdens faced by healthcare practitioners.

PBP-37

HOLISTIC HEALTH: INTEGRATING AYURVEDIC AND MODERN HEALTH

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There has been increased global interest in traditional medicine. Efforts to monitor and regulate traditional herbal medicine are underway. Ayurveda, the traditional Indian medicine, remains the most ancient yet living traditions. Although India has been successful in promoting its therapies with more research and science-based approach, it still needs more extensive research and evidence base.

In the contemporary healthcare landscape, the integration of Ayurvedic and modern medicine represents a promising approach to enhance patient outcomes and address complex medical challenges. Ayurvedic medicine, with its holistic perspective and natural remedies, offers preventive and personalized care rooted in centuries of empirical practice. Modern medicine

characterized by advanced technology and evidence-based interventions, provides critical diagnostic and therapeutic capabilities.

PBP-38

NOVEL THIADIAZOLE -PHENOLIC ACID DERIVATIVES: POTENT INHIBITORS OF SARS COV-2 REPLICATION

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Viral infections continue to pose a significant global health burden, with SARS-CoV-2 highlighting the urgent need for novel antiviral agents due to the continuous emergence of new variants. Thiadiazole derivatives, particularly 1,3,4-thiadiazoles, are known for their broad spectrum of biological activities and favorable pharmacokinetic properties. In the present study, novel thiadiazole–phenolic acid hybrids were designed, synthesized, and evaluated for their anti-SARS-CoV-2 potential. In silico molecular docking studies were carried out against key SARS-CoV-2 targets, namely the main protease (PDB ID: 6LU7) and spike protein (PDB ID: 6LZG). Among the synthesized compounds, A3 exhibited the highest binding affinity with binding energies of −7.81 kcal/mol (6LU7) and −6.88 kcal/mol (6LZG). Molecular dynamics simulation further confirmed the stability of the ligand–protein complex through consistent RMSD, RMSF, radius of gyration, and bond energy profiles. The synthesized compound A3 was structurally characterized using FTIR, Mass spectrometry, ^{1}H NMR, and ^{13}C NMR techniques. In vitro cytotoxicity evaluation using the MTT assay on Vero E6 cells demonstrated acceptable cell viability. Antiviral activity assessment revealed that compound A3 inhibited SARS-CoV-2 replication indicating promising antiviral efficacy. Overall, thiadiazole–phenolic hybrids, particularly compound A3, show strong potential as lead antiviral candidates for further development against SARS-CoV-2.

Keywords

SARS-CoV-2,Molecular docking, Molecular dynamics simulation, MTT assay, Vero E6 cells

PBP-39

FROM VEDA'S TO VENTILATORS: A UNIFIED APPROACH TO HEALTH

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Integrative healthcare combines the holistic principles of Ayurveda with the scientific

advancements of modern medicine to provide more effective, personalized, and preventive treatment.

Keywords: Ayurveda, Modern medicine, Integration goal.

PBP-40

ETHOSOMAL DELIVERY OF CALENDULA OFFICINALIS L.: A COMBINED IN-SILICO DESIGN AND PHARMACOLOGICAL SCREENING APPROACH

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This study focuses on the in-silico design and development of ethosomal formulations containing Calendula officinalis L. and the evaluation of its anticancer and anti-inflammatory activities. The increasing role of artificial intelligence and computational tools inpharmaceutical research has enabled efficient drug discovery and formulation optimization. Molecular docking and Swiss-ADME tools were utilized to predict pharmacokinetic and pharmacological properties of bioactive constituents of Calendula officinalis. Docking studies were performed using Bio-Predict (Vlife MDS Version 4.1) software with X-ray diffraction receptor structures. The selected receptors included 5NFR for antimalarial and 5NQR for anticancer activity, demonstrating significant docking scores indicating strong ligand-receptor interactions. The results highlight the effectiveness of ethosomes as novel vesicular drug delivery systems and demonstrate the therapeutic potential of Calendula officinalis. The formulation showed low toxicity, improved entrapment efficiency, and promising pharmacological effects. This research supports further investigation and development of herbal ethosomal formulations for targeted topical therapeutic applications in healthcare and pharmaceutical sciences.

Keywords: In-silico Drug Design, Calendula officinalis L., Ethosomal Drug Delivery, Molecular Docking, Anticancer Activity, Anti-inflammatory Activity.

PBP-41

SMART HEALTHCARE USING ARTIFICIAL INTELLIGENCE

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Artificial Intelligence (AI) is transforming the healthcare sector by enabling smarter, faster, and more efficient medical services. Smart healthcare systems integrate AI technologies such as machine learning, deep learning, natural language processing, and data analytics to improve

diagnosis, treatment planning, patient monitoring, and administrative management. By analyzing large volumes of clinical data, AI-driven tools assist healthcare professionals in early disease detection, personalized treatment recommendations, predictive analytics, and risk assessment.

AI-powered applications such as virtual health assistants, wearable health monitoring devices, robotic surgery, and intelligent imaging systems enhance accuracy while reducing human error. In addition, smart healthcare systems facilitate remote patient monitoring and telemedicine, increasing accessibility and affordability of medical services, especially in underserved regions. AI also contributes to drug discovery, hospital workflow optimization, and epidemic prediction.

PBP-42

ADVANCES IN DRUG DISCOVERY AND DRUG DELIVERY

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Drug discovery is a process which aims at identifying a compound therapeutically useful in curing and treating disease. This process involves the identification of candidates, synthesis, characterization, validation, optimization, screening and assay for therapeutic efficacy. New drug development process must continue through several stages in order to make a medicine that is safe, effective and has approved all regulatory requirements. Drug targeting to a specific organs and tissues has become critical endeavors of the century since the use of free drug.

In convectional dosage forms generally involves difficulties in achieving the target site at an appropriate dose after or during a proper time period. New drug delivery system provide sustained drug delivery with better body distribution, drug protection from the harsh external environment and avoidance of drug clearance.

(Key words: drug discovery, drug development, characterization, advances, target site, drug research and drug delivery)

PBP-43

ADVANCES IN DRUG DISCOVERY AND DRUG DELIVERY

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Advances in drug discovery and drug delivery have significantly transformed modern pharmaceutical research, leading to the development of safer, more effective, and patient-specific therapies. Traditional drug discovery processes were time-consuming, costly, and largely based on trial-and-error methods. Recent technological innovations such as computer-aided drug design (CADD), high-throughput screening, genomics, proteomics, and artificial intelligence have streamlined the identification and optimization of lead compounds. These approaches enable precise target identification, prediction of drug–receptor interactions, and early assessment of efficacy and toxicity, thereby accelerating the drug development pipeline and reducing failure rates. Parallel progress in drug delivery systems has addressed major limitations associated with conventional dosage forms, including poor bioavailability, frequent dosing, and systemic side effects. Novel drug delivery systems (NDDS) such as nanoparticles, liposomes, solid lipid nanoparticles, and polymeric carriers have improved drug stability, controlled release, and targeted delivery to specific tissues or cells. Targeted and smart drug delivery systems furtherenhance therapeutic outcomes by releasing drugs in response to physiological stimuli such as pH, temperature, or enzymatic activity. Additionally, advancements in gene and RNA delivery technologies have opened new avenues for the treatment of genetic disorders, cancer, and infectious diseases, as demonstrated by the successful application of mRNA vaccines. Overall, the integration of advanced drug discovery techniques with innovative drug delivery systems represents a paradigm shift in pharmaceutical science. These developments not only improve therapeutic efficacy and patient compliance but also support the emergence of personalized medicine, shaping the future of healthcare.

Keywords: CADD, NDDS, Gene technology, Drug discovery, Targeted drug delivery, Artificial intelligence, Personalized medicine.

PBP-44

DESIGN AND DEVELOPMENT OF AN ANTI-ULCERATIVE ORAL GEL OF BRYOPHYLLUM PINNTA EXTRACT FOR MOUTH ULCER

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Oral ulcers are common, painful lesions of the oral mucosa that significantly affect dailactivities such as eating, speaking, and swallowing. Although synthetic agents like chlorhexidine are widely used for their antimicrobial action, their long-term use is associated with adverse effects including tooth staining, taste alteration, and mucosal irritation. To overcome these limitations, the present study focuses on the design and development of a herbal antiulcerative oral gel using Bryophyllum pinnatum leaf extract as a natural therapeutic agent. Bryophyllum pinnatum, commonly known as the Miracle Leaf, is rich in bioactive constituents such as flavonoids, alkaloids, saponins, and triterpenoids, which possess anti-inflammatory, antimicrobial, antioxidant, and wound-healing properties. The extract was prepared using 70% ethanol and incorporated into a mucoadhesive gel base formulated with Carbopol 934, glycerin, propylene glycol, and triethanolamine. Multiple gel formulations were prepared and evaluated for physicochemical parameters including pH, viscosity, spreadability, homogeneity, extrudability, gel strength, and in-vitro drug release. The in-vitro release studies demonstrated a controlled and sustained drug release pattern, with selected formulations showing superior cumulative drug release compared to the reference formulation. Among all batches, optimized formulations exhibited ideal pH compatibility with the oral cavity, good mucoadhesive properties, smooth texture, and high patient acceptability. The results of this study confirm that Bryophyllum pinnatum-based oral gel is a safe, effective, and promising herbal alternative to conventional synthetic treatments for oral ulcers, with potential for further clinical evaluation and commercial development.

Keywords: Bryophyllum pinnatum , Oral ulcer , Herbal oral gel , Mucoadhesive drug delivery system , Anti-inflammatory activity , Wound healing etc.

PBP-45

NOVEL SOLID DISPERSION FORMULATION OF GLIPIZIDE FOR ORAL DELIVERY: A PROMISING STRATEGY FOR ANTIDIABETIC TREATMENT

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Type 2 diabetes remains a global health challenge, often complicated by the poor aqueous solubility of potent therapeutic agents like Glipizide. To overcome these biopharmaceutical

limitations and improve patient adherence, this study explores the development of Orally Disintegrating Tablets (ODTs) using a novel solid dispersion strategy. Solid dispersions of Glipizide were formulated using a hydrophilic carrier system comprising Chitosan and PVP K30. The solvent evaporation method was employed, involving the dissolution of polymers in acidified ethanol followed by the incorporation of the drug. The resulting formulations were characterized using FTIR, XRD, and DSC to evaluate drug-polymer interactions and crystallinity. Solubility and dissolution profiles were assessed across various media, including PBS, distilled water, and DMSO. As a result, Analytical characterization confirmed the successful transformation of Glipizide from a crystalline state to a more soluble amorphous form. XRD and DSC data indicated a significant reduction in drug crystallinity, which correlated with enhanced wettability and surface area. Solubility studies demonstrated a marked increase in the dissolution rate compared to pure Glipizide. In conclusion, the Chitosan-PVP K30 solid dispersion platform significantly improves the solubility and therapeutic potential of Glipizide. This approach offers a promising strategy for developing fast-acting, patient-centric antidiabetic treatments that may also mitigate oxidative stress through the inclusion of natural antioxidants.

Keywords: Glipizide, Amorphous transformation, Polymeric carriers.

PBP-46

INTEGRATING PHARMACOVIGILANCE AND REGULATORY AFFAIRS FOR ENHANCED DRUG SAFETY IN THE POST-MARKETING PHASE

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Pharmacovigilance (PV) and regulatory affairs (RA) are pivotal in safeguarding drug safety during post-marketing surveillance, with PV encompassing the detection, assessment, and prevention of adverse drug reactions (ADRs) as per WHO definitions, while RA ensures compliance with FDA, EMA, and CDSCO standards. Amid challenges like ADR under-reporting and signal detection delays—evidenced by a 25% rise in VigiBase reports for biologics (2020-2025)—this poster proposes an integrated framework: AI-powered signal detection, blockchain for regulatory data sharing, and ICH E2E-aligned risk management plans (RMPs). India's PvPI program exemplifies success, achieving 40% better causality assessments via RA tools, aligning with EU PV Directive 2010/84. This synergy accelerates approvals, mitigates

risks, and advances personalized medicine through global harmonization under WHO's International Drug Monitoring Programme.

Keywords: Pharmacovigilance, Regulatory Affairs, Adverse Drug Reactions, Post-Marketing Surveillance, Risk Management Plans, ICH Guidelines, Signal Detection, Drug Safety.

PBP-52

HOLISTIC HEALTH

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Holistic health focuses on achieving complete well-being by maintaining harmony between the body, mind, and spirit rather than simply treating diseases. In today's fast-paced world, the increasing prevalence of lifestyle disorders, stress-related illnesses, and chronic conditions highlights the need for a more comprehensive and preventive healthcare approach. Integrating Ayurveda, the traditional Indian system of medicine, with modern healthcare offers a balanced and effective solution to this challenge.

Ayurveda emphasizes individualized care through proper diet, daily routine, herbal remedies, detoxification therapies, and lifestyle modifications to maintain the balance of the three doshas—Vata, Pitta, and Kapha. It primarily focuses on disease prevention and strengthening the body's natural healing mechanisms. In contrast, modern medicine provides advanced diagnostic techniques, scientific research, pharmacological treatments, and emergency interventions that are essential for managing acute and complex medical conditions. While both systems have unique strengths, their integration can provide more comprehensive and patient-centered care.

Combining Ayurvedic principles with modern medical practices addresses both the root causes and symptoms of diseases, promotes early prevention, reduces treatment side effects, and improves overall quality of life. This integrative model encourages sustainable health practices and supports physical, mental, and emotional wellness. The present poster highlights the concepts, benefits, and practical applications of integrating Ayurveda with modern medicine to create an effective, accessible, and holistic healthcare system for the future.

PBP-53

ARTIFICIAL INTELLIGENCE IN PHARMA

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Artificial Intelligence (AI) has emerged as a revolutionary technology in the pharmaceutical sector, offering innovative solutions to overcome the limitations of traditional drug development and healthcare practices. The conventional process of drug discovery and development is often expensive, labor-intensive, and time-consuming, sometimes taking more than a decade to introduce a single drug to the market. AI, through advanced techniques such as machine learning, deep learning, big data analytics, and predictive modeling, significantly accelerates this process by enabling rapid identification of drug targets, virtual screening of compounds, lead optimization, and prediction of pharmacokinetic and toxicological profiles.

AI also plays a crucial role in clinical trials by improving patient recruitment, monitoring real-time data, predicting treatment outcomes, and reducing trial failures. In pharmaceutical manufacturing, AI ensures quality assurance, process optimization, and error reduction through automation and intelligent monitoring systems. Additionally, AI supports pharmacovigilance by detecting adverse drug reactions early and enhances medication safety through better risk assessment.

Furthermore, AI contributes to personalized medicine by analyzing patient-specific genetic and clinical data to design customized treatment strategies, thereby improving therapeutic efficacy and minimizing side effects. Applications of AI in hospital and community pharmacy settings, including prescription review, dosage calculation, and drug interaction checking, further demonstrate its growing importance in pharmacy practice.

Overall, Artificial Intelligence is transforming the pharmaceutical industry by increasing efficiency, reducing costs, and improving patient outcomes. The integration of AI technologies represents the future of pharma, paving the way for smarter drug development and more precise healthcare delivery.

PBP-54

DRUG RESISTANCE CAUSES AND PREVENTIONS

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Drug resistance is a major global health problem in which microorganisms such as bacteria, viruses, parasites, or cancer cells no longer respond to drugs that were previously effective. As a result, standard treatments become ineffective, infections persist longer, and the risk of spread, complications, and death increases. Drug resistance commonly develops due to genetic mutations in organisms or the acquisition of resistance genes through horizontal gene transfer.

The main causes of drug resistance include irrational and excessive use of drugs, incomplete treatment courses, incorrect dosing, self-medication, poor-quality drugs, and lack of proper infection control. In healthcare settings, overuse of antibiotics, unnecessary prescriptions, and poor hygiene practices further accelerate resistance. In agriculture and animal husbandry, misuse of antibiotics for growth promotion also contributes significantly.

Prevention of drug resistance requires a multi-disciplinary approach. Rational prescribing of drugs, completion of full treatment courses, use of correct doses, and avoidance of self-medication are essential. Regular surveillance of resistance patterns, antibiotic stewardship programs, vaccination, improved sanitation, and public awareness play a crucial role. Strict regulation of drug sales and continuous education of healthcare professionals and the public can help slow the emergence and spread of drug resistance.

In conclusion, drug resistance threatens effective disease management and public health. Coordinated efforts at individual, community, and global levels are necessary to prevent its development and preserve the effectiveness of existing drugs

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POSTER ABSTRACT

PMP-01

SYNERGY OF TRADITION AND EVIDENCE: BRIDGING AYURVEDA WITH MODERN HEALTHCARE

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For the best possible health outcomes, holistic healthcare places a strong emphasis on integrating social, mental, and physical well-being. Through concepts like Prakriti, Dosha balance, dietary control, lifestyle change, and herbal therapies, Ayurveda, a traditional medical system, provides a customized and preventive approach. On the other hand, for precise illness management, modern healthcare depends on pharmacological treatments, evidence-based diagnostics, and cutting-edge medical technologies. A synergistic healthcare approach that integrates preventative, promotive, and curative techniques is produced by fusing Ayurvedic knowledge with contemporary medical research. Early disease prevention, improved therapeutic efficacy, fewer side effects, and patient-centered care are all supported by this integrative approach. For integrative healthcare systems to be safe, effective, and widely accepted, scientific validation, standardization, and interdisciplinary cooperation are crucial. A promising route to long-term, all-encompassing wellness is this kind of synergy.

PMP-02

GREEN PHARMACY: SUSTAINABLE HEALTHCARE THROUGH PHARMACISTS

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The global healthcare system significantly contributes to environ-mental degradation through pharmaceutical waste, energy con-sumption and chemical emissions. Green Pharmacy is an evolving concept focused on minimizing the environmental impact of pharmaceutical practices throughout a drug's life cycle from production to disposal. Pharmacist play a critical role in promoting sustainable healthcare by advocating rational drug use, safe disposal, eco-friendly formulations and public awareness. This poster explores the responsibilities and innovative roles

of pharmacists in implementing green pharmacy principles to ensure health and environmental sustainability.

Keywords: Green Pharmacy, Drug Life Cycle, Pollution Prevention, Public Health, Environmental Sustainability.

PMP-03

A NUTRITIONAL COMPOSITION FOR AMNESIA

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Due to modern stress, memory disorders like amnesia are increasing. Synthetic drugs have limitations, so our objective was to develop a safe nutritional formulation with neuroprotective effects.

Keywords – Memory, Amnesia, piracetam, scopolamine, Nutritional composition.

PMP-04

SRDP: TARGETING GUT DYSBIOSIS AS A THERAPEUTIC STRATEGY FOR IVD DEGENERATION

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Intervertebral disc (IVD) degeneration causes chronic low back pain and may require surgery. Gut dysbiosis can increase inflammation and worsen disc damage. The SRDP (Scientific Reversal Detox Process) uses Ayurvedic formulations to correct dysbiosis, reduce inflammation, and support spine health. This approach may relieve pain, slow degeneration, and reduce the need for surgery.

PMP-05

ADVANCES IN HERBAL DRUG FORMULATIONS FOR VARICOSE VEIN MANAGEMENT

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Varicose veins are a prevalent vascular disorder characterized by venous dilation, inflammation, and impaired circulation. Conventional treatments have limitations and side effects, highlighting the need for safer alternatives. This work focuses on recent advances in herbal formulations for varicose vein management, emphasizing plant-derived bioactives with venotonic, anti-inflammatory, and antioxidant properties that offer a safe, effective, and cost-efficient approach to chronic venous disorders.

Keywords—Varicose veins, Herbal formulation, Venotonic activity, Antioxidant, Vascular health.

PMP-06

NASAL DELIVERY OF MONTELUKAST AND RUTIN VIA NANOCOCHLEATE-BASED DUAL DRUG PATCH FOR OXIDATIVE STRESS ASSOCIATED COPD

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Chronic Obstructive Pulmonary Disease (COPD) is a progressive lung disorder associated with inflammation, oxidative stress, and limited treatment efficacy. Conventional therapies often suffer from poor bioavailability and systemic side effects. Nanocochleates, due to their stability and sustained drug release, offer a promising drug delivery system. Incorporating them into a nasal patch provides non-invasive delivery, improved patient compliance, and enhanced therapeutic outcomes for COPD. The present study aims to develop and evaluate nanocochleates as a combination therapy for COPD and fabricate a nasal patch containing the optimized formulation.

PMP-07

ADVANCE IN DRUG DISCOVERY AND DRUG DELIVERY

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Drug discovery and drug delivery have undergone major changes in recent years, leading to more effective and safer therapeutic options. Conventional drug development is often slow, expensive, and associated with high failure rates, mainly due to problems such as poor target selectivity, limited bioavailability, and unwanted side effects. With the introduction of modern computational tools, structure-based drug design, and high-throughput screening techniques, the process of identifying and optimizing new drug candidates has become more efficient. In addition, advances in genomics and molecular biology have improved the understanding of disease mechanisms and helped in selecting more reliable therapeutic targets. At the same time, significant progress has been made in drug delivery technologies. The development of novel carrier systems such as nanoparticles, liposomes, polymeric micelles, dendrimers, and solid lipid nanoparticles has improved the stability and solubility of many drugs and has allowed better control over their distribution in the body. These systems also help in reducing toxicity by directing drugs more precisely to the required site of action. Recent interest in controlled and stimuli-responsive delivery systems has further strengthened the possibility of achieving sustained and site-specific drug release. Together, these developments in drug discovery and drug delivery are improving treatment outcomes and are expected to play an important role in the management of complex and chronic diseases in the future.

Keywords: Drug discovery, Drug delivery systems, Nanotechnology, Targeted therapy, Controlled release, pharmaceutical research.

PMP-08

FORMULATION AND EVALUATION OF A LICORICE-RESVERATROL LOLLIPOP TARGETING STREPTOCOCCUS MUTANS BIOFILM AND ANTIMICROBIAL RESISTANCE

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Dental caries is one of the most prevalent and significant oral health problems worldwide. Streptococcus mutans (S.M.) and Streptococcus sobrinus (S.S.) play a major role in the etiology of dental caries. A lollipop or lozenge is a flavored medicated dosage form designed to be sucked and retained in the mouth, usually containing one or more drugs in a sweetened base. In the present work, medicated lollipops were developed for dental caries using a non-sugar base infused with anti-caries medicaments, along with prebiotics to support healthy oral microflora.

The heating and congealing method was used for formulation. A two-factor, three-level (3^2) factorial design was applied for optimization of the Liquorice–Resveratrol Medicated Lollipop (LRML). The prepared formulations were evaluated for hardness, thickness, drug content, moisture content, friability, in-vitro drug release, and antimicrobial activity. FTIR compatibility studies confirmed that there was no interaction between the drug and excipients, while DSC analysis verified the purity of the drug and excipients.Among all batches, the F7 formulation showed the best results in terms of hardness, friability, drug content, and in-vitro drug release. Antimicrobial studies against S. mutans and S. sobrinus demonstrated significant activity. For S. mutans, MIC and MBC were 0.2 µg/ml, while for S. sobrinus, MIC was 0.4 µg/ml and MBC was 0.8 µg/ml. Time-kill assay and crystal violet assay indicated strong bacterial growth inhibition by LRML compared to liquorice extract alone.Thus, Liquorice–Resveratrol medicated lollipops can be considered an effective local drug-delivery system for the treatment of dental caries.

PMP-09

IN-VITRO EVALUATION FOR ANTI-ALZHEIMER'S ACTIVITY OF GREEN-SYNTHESIZED NANOPARTICLES USING TINOSPORA CORDIFOLIA STEM EXTRACT.

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Alzheimer's disease (AD) is a multifactorial neurodegenerative disorder involving oxidative stress, neuroinflammation, and cholinergic dysfunction, for which current therapies provide limited symptomatic relief. This study explores a plant-based green nanotechnology approach as a potential alternative. *Tinospora cordifolia* (Guduchi), a well-known Rasayana herb in Ayurveda, contains diverse bioactive compounds, including alkaloids, diterpenoids, glycosides, and phenolics. It was selected due to its documented antioxidant, anti-inflammatory, and acetylcholinesterase (AChE) inhibitory phytoconstituents, along with in silico docking evidence showing strong interactions with AD-relevant molecular targets. Despite therapeutic potential, clinical translation of herbal agents is often limited by poor bioavailability and target specificity.

In this study, for the first time, silver nanoparticles (AgNPs) and zinc oxide nanoparticles (ZnO NPs) were simultaneously synthesized from ethanolic stem extract of *Tinospora cordifolia* through a green, eco-friendly approach, with plant phytochemicals acting as reducing and

stabilizing agents. The nanoparticles were evaluated *in-vitro* for antioxidant (DPPH and H_2O_2), anti-inflammatory (protein denaturation and HRBC membrane stabilization), and neuroprotective activity via AChE inhibition (Ellman's method).

This study reports, for the first time, the combined synthesis of AgNPs and ZnO NPs from *Tinospora cordifolia* with multi-target *in-vitro* activity against AD-relevant pathways. AgNPs were strong antioxidants and AChE inhibitors, whereas ZnO NPs were potent anti-inflammatory agents, supporting this Green nanoplatform as a promising complementary strategy for Alzheimer's disease.

Keywords: *Tinospora cordifolia*; Green synthesis; Silver nanoparticles; Zinc oxide nanoparticles; Alzheimer's disease; Antioxidant; Anti-inflammatory; Acetylcholinesterase inhibition.

PMP-10

DESIGN, SYNTHESIS AND ANTICANCER EVALUATION OF BENZIMIDAZOLE HYBRIDS AS NOVEL KRAS G12C INHIBITORS

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The KRAS oncogene, first identified in lung cancer cells in 1982, is one of the most frequently mutated genes across multiple cancer types and remains a critical target in anticancer drug development.Computational approaches were employed to optimize candidate molecules, including in silico molecular docking, 100 ns molecular dynamics simulations, and ADMET (absorption, distribution, metabolism, excretion, and toxicity) predictions. Several compounds demonstrated strong binding affinities toward KRAS G12C crystal structures (PDB IDs: 6OIM and 4LYJ) and stable ligand–protein interactions throughout simulation studies. Based on these analyses, the most promising candidates were selected for chemical synthesis.

The compounds were synthesized via a two-step reaction using a phenolic antioxidant and (1H-benzo[d]imidazol-2-yl)methanamine as starting materials. A2 exhibited exceptional anticancer activity against A-549 lung cancer cells, outperforming the reference drug sotorasib. In vitro studies revealed that A2 induced cell cycle arrest at the G2/M checkpoint. DAPI staining confirmed apoptosis, while flow cytometry demonstrated significant accumulation of cells in

G0/G1 and G2 phases, indicating disruption of DNA replication and inhibition of cell cycle progression.

PMP-11

PHARMACOVIGILANCE & REGULATORY AFFAIRS

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Pharmacovigilance and regulatory affairs are two interconnected disciplines that play a vital role in safeguarding public health and ensuring that pharmaceutical products maintain high standards of safety, efficacy, and quality. Pharmacovigilance focuses on the continuous monitoring of medicines after they enter the market, aiming to identify, evaluate, and prevent adverse drug reactions (ADRs) and other drug-related problems. It involves robust surveillance systems, spontaneous reporting, signal detection, causality assessment, and implementation of risk-minimization measures. These activities support the early identification of previously unknown risks, help refine therapeutic guidelines, and contribute to safer clinical use of medicines.

Regulatory affairs, on the other hand, serves as the interface between pharmaceutical companies and regulatory authorities. This discipline ensures compliance with national and international regulations throughout the drug development process, from preclinical research and clinical trials to product approval, labeling, and post-marketing requirements. Regulatory professionals prepare and submit documentation such as Investigational New Drug (IND) applications, New Drug Applications (NDA), and Periodic Safety Update Reports (PSURs), ensuring that all scientific and safety data meet regulatory standards. The integration of pharmacovigilance with regulatory affairs is essential for maintaining a continuous benefit–risk assessment of medicines. Through coordinated efforts, both fields ensure timely communication of safety updates, implementation of corrective actions, and adherence to evolving regulatory frameworks. This synergy enhances transparency, strengthens patient confidence, and supports evidence-based decision-making in healthcare. Overall, pharmacovigilance and regulatory affairs together contribute significantly to the safe and effective use of medicines, reinforcing global health systems and promoting public trust in pharmaceutical products.

Key Word: Pharmacovigilance, Post-marketing, Regulatory Affairs.

PMP-12

Dual-Drug Transferosomal Gel of Salicylic and Cinnamic Acid for Augmented Psoriasis Treatment

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Background and Objectives: Psoriasis is a chronic inflammatory skin disorder with limited efficacy from conventional treatments and side effects from systemic drugs. Topical therapy is preferred but faces challenges of poor skin penetration. Transferosomes enhance dermal delivery and sustain release of drugs. Combining salicylic acid and cinnamic acid in a transferosomal gel offers synergistic anti-psoriatic effects with faster onset and improved outcomes. This study aimed to formulate a topical gel incorporating transferosomes (TFs) loaded with salicylic acid (SA) and cinnamic acid (CA), intended as a promising therapeutic approach for managing psoriasis. Methods: TF Consisting of Phospholipon 90G as vesicle former and Tween 80, Span 80 as surfactant, were formulated by ethanol injection method & blended in topical gel. Central composite design (CCD) was constructed to study all possible experimental runs. Optimization of the formulation of TF was performed and characterized by determining their particle size, entrapment efficiency, FTIR, stability, in vitro drug release behavior. Also in vitro cellular viability against human epidermal keratinocyte cell lines (HaCaT) was evaluated. Results:The fabricated transferosomes (TFs) and their corresponding gels demonstrated optimal physical and chemical characteristics. Among the formulations, F9 was identified as the optimized formulation, exhibiting 88.60% in vitro drug release, a viscosity of 13,625.78 cP, particle size of 151 nm, a polydispersity index (PDI) of 0.405, and a high entrapment efficiency of 85.72%. Cell viability analysis confirmed that the developed gel possessed significant anti-psoriatic activity. Notably, the combination of salicylic acid (SA) and cinnamic acid (CA) reduced the onset time for observable anti-psoriatic effects to 15 days, Furthermore, the gel formulation exhibited a sustained drug release profile lasting up to 12 hours.

Conclusion: It was concluded from the experimental data that the synergistic combination of SA and CA not only improved therapeutic efficacy against psoriasis but also significantly reduced the time to clinical response when compared to monotherapy. Hence, the formulated gel holds strong potential as a novel and effective delivery system for enhanced anti-psoriatic therapy.

PMP-13

ADVANCES IN DRUG DISCOVERY

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Pharmacovigilance and Regulatory Affairs are critical components of pharmaceutical science, working together to ensure drug safety, quality, and compliance. Pharmacovigilance involves the detection, assessment, and prevention of adverse drug reactions (ADRs), protecting public health throughout a drug's lifecycle. Regulatory Affairs ensures that pharmaceutical products meet national and international standards, overseeing approval processes, documentation, and post-marketing surveillance. As drug development becomes more complex and globalized, these disciplines have evolved to include advanced risk management strategies, harmonized international regulations, and digital tools for safety monitoring. Their integration supports informed decision-making, ethical responsibility, and continuous improvement in therapeutic outcomes. This poster explores the synergy between pharmacovigilance and regulatory affairs, highlighting their role in shaping a robust framework for pharmaceutical quality assurance and patient safety.

INVITED RESEARCH PRESENTATION

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PIR-01

DEVELOPMENT AND VALIDATION OF RP-HPLC METHOD FOR GLYCOSIDES BASED STANDARDIZED FENUGREEK SEED EXTRACT (SFSE-G)

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Abstract
A sensitive, rapid, reproducible, and validated Reversed-Phase High-Performance Liquid Chromatography (RP-HPLC) method was developed for the quantitative determination of marker glycosides in Standardized Fenugreek Seed Extract (SFSE-G, Testosurge®). The objective of this study was to establish a precise and reproducible analytical method. Chromatographic separation was achieved using a C18 column (250 × 4.6 mm, 5 µm particle size) with a gradient elution system composed of water and acetonitrile as the mobile phases. The flow rate was 1.0 mL/min, and a UV-Vis detector at 210 nm was used, with a run time of 30 min.

The method was validated in accordance with ICH Q2(R2). Linearity was established over a concentration from 500 to 1500 µg/mL, with a correlation coefficient (r^2 = 0.999). Precision studies demonstrated high method reliability, with repeatability showing a %RSD of 0.52% and intermediate precision yielding an RSD of 0.93%. Robustness was confirmed by deliberate variations in analytical conditions, resulting in %RSD values of 0.93% for different analysts and 0.47% for wavelength variation. System suitability testing showed acceptable performance with an RSD of 1.57%, while carry-over evaluation showed 0.01%.

The glycoside content of fenugreek seed extract was 82.19%. The present method is reported for the first time and can be used for routine quality control and quantification of these marker compounds in extracts.

Keywords: HPLC, Fenugreek, method validation, marker glycosides

ORAL PRESENTATION

Hurt by antibiotics. Hardened into resistance.

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OMP-01

DOCKING, SYNTHESIS AND ANTIMYCOBACTERIAL ACTIVITY OF NOVEL HYDRAZONE DERIVATIVES OF ACETYL SALICYLIC ACID.

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To synthesize and evaluate antimycobacterial activity of novel hydrazone derivatives of acetyl salicylic acid. Molecular docking of 5 compounds was performed by Autodock Vina software. Compounds were targeted on 2NSD and 2X22 involved in tuberculosis activity. Ester moiety was reacted with hydrazine hydrate to produce hydrazide, which on treatment with aromatic aldehydes or ketones yields hydrazones. The novel series of compounds were elucidated on the basis of spectral studies and screened for antimycobacterial activity. Compound no. 1 and 3 which show the sensitivity towards bacteria at 0.8 µg/ml and compound no. 2 and 5 exhibited at 1.6 µg/ml level. The antibacterial activity is strongly connected with the position of the substituent on aromatic aldehyde or ketones in relation to the hydrazide skeleton.

Keyword: acetyl salicylic acid, hydrazone, antimycobacterial activity.

OMP-03

MICRONEEDLES-BASED DELIVERY OF THERAPEUTICS IN THE MANAGEMENT OF NEURODEGENERATIVE DISEASES: ADVANCES AND CHALLENGES

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Neurodegenerative disorders such as Alzheimer's disease (AD) and Parkinson's disease (PD) are progressive conditions characterized by irreversible neuronal loss and limited therapeutic options. Conventional drug delivery approaches are largely restricted by poor bioavailability and the presence of the blood-brain barrier (BBB). Recent advances in drug delivery have emphasized the development of innovative systems capable of overcoming physiological barriers and enhancing therapeutic efficacy. Among these, dissolving microneedles (DMNs)

have gained significant attention as a minimally invasive and patient-friendly platform for controlled and targeted drug delivery, particularly for brain-related disorders. DMNs are designed to painlessly penetrate biological tissues and dissolve after administration, enabling localized drug release while minimizing systemic exposure and improving patient compliance. DMN-based systems offer a novel strategy to bypass the BBB through transdermal and intranasal routes, resulting in enhanced brain bioavailability and improved therapeutic outcomes. Compared to conventional microneedles, DMNs demonstrate superior biocompatibility, biodegradability, safety, and case of self-administration, while eliminating risks associated with sharp waste and infectious Furthermore, the integration of DMNs with nanocarrier-based drug delivery systems, including polymeric and lipid nanoparticles, has shown potential to improve drug stability, controlled release, and targeting efficiency. Despite challenges such as limited drug-looding capacity, fabrication complexity, and large-scale manufacturing issues, continuous research is addressing these limitations Future perspectives focus on smart and personalized microneedle systems, advanced nanotechnology integration, and extensive clinical validation. Overall, dissolving microneedles represent a promising and transformative approach in advanced drug delivery and drug discovery for neurodegenerative disease management.

Keywords: Neurodegenerative diseases, Drug delivery, Microneedles: Minimally arve devices

OMP-04

GREEN PHARMACY: UNLOCKING THE FUTURE OF SUSTAINABILITY

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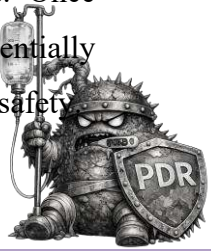
Green Pharmacy represents an innovative and holistic approach to healthcare that focuses on minimizing the environmental impact of pharmaceutical products while promoting sustainable development. The increasing presence of active pharmaceutical ingredients (APIs) in the environment has emerged as a serious global concern. These contaminants enter ecosystems through multiple pathways, including improper disposal of unused medicines, effluents from pharmaceutical manufacturing industries, hospital waste, and excretion by patients. Once released, APIs can persist in water bodies, adversely affecting aquatic organisms and potentially entering the human food chain, thereby posing risks to public health and environmental safety.



The concept of Green Pharmacy aims to address these challenges by integrating environmentally responsible practices across the entire pharmaceutical lifecycle, from drug design and manufacturing to distribution, usage, and disposal. It emphasizes the development of biodegradable and eco-friendly drugs, efficient wastewater treatment technologies, and the implementation of safe disposal methods. Green Pharmacy also supports sustainability by reducing adverse environmental effects, conserving natural resources, and encouraging the use of traditional and nature-based therapeutic systems where appropriate.

Despite its significant benefits, the adoption of Green Pharmacy faces challenges such as standardization of natural products, quality control, regulatory approval, and the need for global awareness and policy support. These abstract highlights the potential of Green Pharmacy in unlocking a sustainable future by reducing pharmaceutical pollution, protecting ecosystems, and aligning healthcare practices with environmental conservation. Ultimately, Green Pharmacy promotes a balanced, nature-centric approach to healthcare that supports both human well-being and ecological sustainability

Keywords: Green pharmacy, Pharmaceuticals, Sustainability, Regulation

OMP-05

HOLISTIC HEALTH INTEGRATING AYURVEDA AND MODERN MEDICINE

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Modern or Western medicine is often the first-line healthcare option due to a strong evidence base, a scientific, systematic approach, well-defined generalizability of therapies to certain populations. However, this disease-focused model has several limitations, such as no cure for all diseases and the high cost of care. On the other hand, Ayurveda, an ancient system of medicine originating in India, has a holistic approach that emphasizes prevention and lifestyle modification, offers a low-cost model, encourages patient empowerment, and promises significant benefits for generalized healthcare. The integration of the two systems can lead to better patient care. However, Ayurveda also has limitations, and the integration with modern medicine faces barriers such as a lack of rigorous scientific research, issues of standardization and quality control, cultural differences and a paucity of trained practitioners. To overcome these

barriers, this presentation will healp. These oral presentation aim to bring together the best of both worlds for enhanced patient care.

Keywords: Ayurveda, modern medicine, integrative medicine, patient care, healthcare, chronic diseases.

OMP-06

IN SILICO NETWORK PHARMACOLOGY AND MOLECULAR DOCKING OF ONION COMPOUNDS AGAINST EPILEPTIC TARGETS

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Epilepsy is a chronic neurological disorder characterized by recurrent seizures, often resulting from an imbalance between excitatory and inhibitory neurotransmission. Traditional antiepileptic drugs frequently provide limited efficacy and are associated with adverse effects, emphasizing the need for safer, multi-target therapeutic alternatives. Onion (Allium cepa), a widely used herb in Ayurvedic medicine, is rich in bioactive compounds such as quercetin, kaempferol, and organosulfur derivatives, which possess neuroprotective, antioxidant, and anti-inflammatory properties. The combination of traditional knowledge and modern bioinformatics tools is used in this research to employ a network pharmacology approach to explain the antiepileptic potential of onion. Phytochemical constituents were identified from phytochemical databases and literature, followed by target prediction using SwissTargetPrediction. Protein–protein interaction (PPI) networks were constructed using STRING. Functional enrichment analysis (GO and KEGG) revealed key pathways associated with epilepsy, including GABAergic synapse, glutamatergic signaling, calcium signaling, PI3K-Akt, MAPK, and inflammatory pathways. Molecular docking was performed to confirm binding affinity of major onion compounds with epilepsy-related targets. The results suggest that onion exerts antiepileptic effects through a multi-component, multi-target mechanism involving modulation of neurotransmitter balance, reduction of oxidative stress, and inhibition of neuroinflammation. This integrative study represents integrative research offering a scientific foundation to the possible application of onion as a complementary medicine in epilepsy and the importance of integration of Ayurveda knowledge with contemporary network pharmacology as the future of healthcare.

OMP-07

"FORMULATION OPTIMIZATION AND EVALUATION OF WOUND HEALING NANOFIBER PATCHES"

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The present study focuses on the formulation, optimization, and evaluation of wound healing nanofiber patches using bioactive phytoconstituents, rutin and silymarin. Nanofibers were prepared by the electrospinning technique to mimic the extracellular matrix and promote effective wound repair. Formulation optimization was carried out using a Taguchi design to obtain optimal nanofiber diameter and high entrapment efficiency. The optimized nanofiber patches were characterized using FTIR, SEM, DSC, and XRD for drug–excipient compatibility, morphology, and physicochemical properties. In vitro drug release studies showed sustained release behaviour, while antimicrobial activity demonstrated effective inhibition against wound pathogens. In vivo wound healing evaluation revealed accelerated wound contraction and improved tissue regeneration. The results suggest that the developed nanofiber patches are a promising advanced wound dressing system.

Keywords: Nanofibers, Wound healing, Electrospinning, Rutin, Silymarin

OMP-08

"FORMULATION OPTIMIZATION AND EVALUATION OF DRUG LOADED NANOSPONGES GEL FOR WOUND HEALING ACTIVITY."

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The present study aimed to formulate, optimize, and evaluate a drug-loaded nanosponge gel intended for enhanced wound healing activity. Drug-loaded nanosponges were prepared using an appropriate polymer–crosslinker system by the solvent evaporation method and experiments approach to achieve desirable particle size, entrapment efficiency, and drug release characteristics. The optimized nanosponges were characterized for particle size, polydispersity index, zeta potential, surface morphology, and drug–polymer compatibility. The optimized formulation was incorporated into a suitable gel base to improve topical applicability and patient

compliance. The nanosponge gel was evaluated for physicochemical properties such as pH, viscosity, spreadability, drug content, and in vitro drug release.

Keywords: Nanosponges, Topical drug delivery, Nanosponge gel, Solvent evaporation method,

OMP-09

FORMULATION, DEVELOPMENT AND EVALUATION OF ANTIFUNGAL DRUG LOADED NANOPARTICLE HYDROGEL FOR TREATMENT OF ONYCHOMYCOSIS

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Onychomycosis is a chronic fungal infection of the nail characterized by discoloration, thickening, and detachment of the nail plate. Treatment remains challenging due to poor penetration of conventional topical antifungal formulations through the highly keratinized nail barrier. Efinaconazole is a broad-spectrum antifungal agent with proven efficacy; however, its clinical performance is limited by low nail permeability and inadequate drug retention at the site of infection. Hence, the present study was designed to formulate and evaluate an efinaconazole-loaded nanoparticle hydrogel to enhance nail penetration and improve antifungal efficacy.

Efinaconazole-loaded nanoparticles were prepared using a polymeric system by the ionic gelation technique and optimized for particle size, polydispersity index, zeta potential, and drug entrapment efficiency. The optimized nanoparticles were incorporated into a suitable hydrogel base and evaluated for physicochemical parameters such as appearance, pH, viscosity, spreadability, and drug content uniformity. In-vitro drug release studies demonstrated sustained release of efinaconazole from the nanoparticle hydrogel compared to conventional formulations. Antifungal activity studies showed improved inhibitory effects against fungal pathogens responsible for onychomycosis. The study concludes that the developed efinaconazole-loaded nanoparticle hydrogel is a promising topical delivery system for the effective treatment of onychomycosis, offering prolonged drug release, and improved antifungal activity.

Keywords: Onychomycosis, Efinaconazole, Nanoparticles, Hydrogel, Nail drug delivery

OMP-10

"FORMULATION OPTIMIZATION AND EVALUATION OF NANOSPONGES GEL CONTAINING ANTI-INFLAMMATORY DRUG"

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The present study focuses on the formulation optimization and evaluation of a nanosponge-based gel containing an anti-inflammatory drug for topical delivery. Nanosponges were prepared using the solvent evaporation technique and optimized by varying the drug-to-polymer ratio to achieve maximum entrapment efficiency and controlled drug release. The optimized nanosponge formulation was characterized for particle size, polydispersity index, zeta potential, drug entrapment efficiency, and in-vitro drug release. The optimized nanosponges were incorporated into a suitable gel base and evaluated for physicochemical properties such as pH, viscosity, spreadability, drug content, and in-vitro diffusion studies. Compatibility between drug and excipients was confirmed using Fourier Transform Infrared (FTIR) spectroscopy. The nanosponge gel demonstrated sustained drug release, good stability, and acceptable rheological properties suitable for topical application. The study concludes that nanosponge-based gel formulation is a promising approach for enhancing the topical delivery of anti-inflammatory drugs with improved therapeutic efficacy and reduced dosing frequency.

Keywords: Nanosponges, Anti-inflammatory drug, Topical drug delivery, Nanosponge gel, Solvent evaporation method

OMP-11

ARTIFICIAL INTELLIGENCE–BASED PRESCRIPTION SCREENING: ENHANCING MEDICATION SAFETY AND PHARMACIST EFFICIENCY IN HOSPITAL PRACTICE

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Artificial intelligence is increasingly being integrated into pharmacy practice as a means to improve medication safety, streamline workflow, and optimize the use of pharmacists' clinical expertise, particularly in busy hospital environments. One of the most promising applications is machine learning–based automated prescription screening and prioritization, which addresses the limitations of conventional manual prescription review. In traditional settings, pharmacists are required to examine every medication order individually; a process that is time-consuming and can increase the likelihood of overlooking clinically significant drug-related problems when workload is high. AI-driven screening systems overcome this challenge by analysing large volumes of clinical data, including patient demographics, diagnoses, laboratory results, medication histories, and previously documented prescribing errors, to identify patterns associated with high-risk prescriptions. Using these insights, the system categorizes and ranks medication orders based on their potential risk, enabling pharmacists to rapidly focus on prescriptions that require immediate intervention while routine or low-risk orders are processed more efficiently. Real-world evidence supports the clinical value of this approach, as studies conducted in hospital settings have shown that AI based tools, such as the Lumio Medication system, are capable of detecting a significantly higher proportion of severe drug-related problems compared with conventional clinical decision support systems. Importantly, cases that were not flagged by the AI were found to be non–life-threatening, demonstrating that such systems are safe when used to support, rather than replace, professional judgment. Overall, AI-assisted prescription screening represents a practical and impactful use of artificial intelligence in pharmacy practice, offering improved efficiency, reduced medication errors, enhanced clinical decision-making, and ultimately better patient safety and quality of pharmaceutical care.

Keywords: Prescription; Hospital screening, Artificial Intelligence; Safety; Pharmacist efficiency.

OMP-12

SYNTHETIC STRATEGIES INTEGRATED WITH ADVANCED IN-SILICO TECHNIQUES FOR ACCELERATED DRUG DISCOVERY

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The conventional drug discovery paradigm is characterized by high costs, extended timelines, and low success rates due to its dependence on large-scale experimental screening and iterative chemical synthesis. Traditional drug discovery and development methodologies are characterized by prolonged timelines and high financial burden, often requiring approximately 10–15 years and billions in investment prior to market approval. To overcome these limitations, modern drug discovery has adopted an integrated strategy that combines advanced In-silico techniques with rational synthetic chemistry. Computational approaches such as molecular docking, virtual screening, scoring functions, optimization of hits, and assessment of (ADMET) properties, pharmacophore modelling, QSAR analysis, and molecular dynamics simulations enable the rapid identification and prioritization of high-affinity drug candidates from vast chemical libraries. These methods significantly reduce the number of compounds requiring synthesis and biological testing. Selected lead molecules are then synthesized using structure-based design principles and advanced synthetic methodologies, followed by targeted biological evaluation. This integrated synthetic–computational workflow accelerates lead identification and optimization, improves prediction accuracy and reduces development cost and time. We additionally address major trends in contemporary drug discovery that are guiding the development of innovative methods, including computer-aided strategies for drug repurposing. The approach enhances translational efficiency from molecular design to biological validation, offering a robust and sustainable framework for next-generation drug discovery. This presentation highlights the role of integrated synthetic and In-silico strategies as a transformative model for efficient, rational, and cost-effective pharmaceutical research.

Keywords:- Molecular docking, Virtual screening, ADMET properties, QSAR analysis, Molecular dynamics, Drug repurposing.

OMP-13

HOLISTIC HEALTH: INTEGRATING AYURVEDA WITH MODERN MEDICINE

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Modern or Western medicine is often the first-line healthcare option due to a strong evidence base, a scientific, systematic approach, and well-defined generalizability of therapies to certain populations. However, this disease-focused model has several limitations, such as no cure for all diseases and the high cost of care. On the other hand, Ayurveda, an ancient system of medicine originating in India, has a holistic approach that emphasizes prevention and lifestyle modification, offers a low-cost model, encourages patient empowerment, and promises significant benefits for generalized healthcare. The integration of the two systems can lead to better patient care. However, Ayurveda also has limitations, and the integration with modern medicine faces barriers such as a lack of rigorous scientific research, issues of standardization and quality control, regulatory hurdles, cultural differences or prejudices, and a paucity of trained practitioners in the West. To overcome these barriers, this paper proposes strategies such as promoting rigorous research, developing stringent standards for Ayurvedic practices and products, regulatory reforms, education and training, and promoting integrative medicine. These strategies aim to bring together the best of both worlds for enhanced patient care.

Keywords: Ayurveda, modern medicine, integrative medicine, patient care, healthcare, chronic diseases.

OMP-14

ADVANCES IN DRUG DISCOVERY AND DRUG DELIVERY

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Advances in drug discovery and drug delivery have played a major role in improving modern healthcare by enabling the development of safer, more effective, and targeted therapies.

Traditional drug discovery methods were time-consuming and expensive, but recent technologies such as artificial intelligence, bioinformatics, and computational modeling have accelerated the identification and design of new drug molecules. These technologies help in predicting drug–target interactions, improving drug safety, and reducing the time required for drug development. In addition, advances in molecular biology and biotechnology have contributed to the discovery of biologics, gene therapies, and personalized medicines for complex diseases.

At the same time, significant progress has been made in drug delivery systems to enhance therapeutic effectiveness and patient compliance. Novel drug delivery approaches such as nanoparticles, liposomes, microspheres, transdermal patches, and controlled-release formulations help in delivering drugs directly to the target site. These systems improve drug bioavailability, reduce side effects, and provide sustained drug release. Emerging technologies such as smart drug delivery systems, wearable drug delivery devices, and 3D-printed drug formulations are further transforming treatment strategies.

Overall, advances in drug discovery and drug delivery are contributing to the development of precision medicine and improving treatment outcomes. The combination of advanced technologies and innovative delivery systems is expected to make healthcare more efficient, personalized, and patient-friendly in the future.

OMP-15

PHARMACOVIGILANCE & REGULATORY AFFAIRS: ENSURING DRUG SAFETY AND COMPLIANCE IN MODERN HEALTHCARE*

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Abstract (Pharmacovigilance & Regulatory Affairs)

Pharmacovigilance (PV) and Regulatory Affairs (RA) are fundamental to ensuring the safety, efficacy, and quality of medicines in modern healthcare systems. Pharmacovigilance is defined as the science and activities concerned with the detection, assessment, understanding, and prevention of adverse drug reactions (ADRs) and other drug-related problems. While clinical trials provide initial data on safety and efficacy, they are conducted in controlled settings with

limited populations. As a result, rare, long-term, or population-specific adverse effects may only become evident after a medicine is marketed. PV addresses this gap through continuous post-marketing surveillance, ensuring that the benefit–risk balance of medicines remains favorable throughout their lifecycle.

Key pharmacovigilance activities include spontaneous ADR reporting, signal detection, risk assessment, preparation of Individual Case Safety Reports (ICSRs), Periodic Safety Update Reports

(PSURs), Development Safety Update Reports (DSURs), and implementation of Risk Management Plans (RMPs). These processes enable early identification of safety concerns and support regulatory actions such as label changes, safety warnings, restricted use, or product withdrawal. The primary objective of PV is to enhance patient safety and promote rational medicine use. Regulatory Affairs ensures that pharmaceutical products comply with national and international regulations during development, approval, and post-marketing phases. Regulatory professionals prepare and submit dossiers for clinical trials, marketing authorizations, and variations to authorities like CDSCO, USFDA, and EMA, while ensuring adherence to GCP, GMP, and ICH guidelines. Together, PV and RA, supported by technological advancements such as electronic reporting systems and AI-based signal detection, strengthen regulatory oversight and maintain public trust in

healthcare systems.

Key Word: Pharmacovigilance, Post-marketing, Regulatory Affairs.

OMP-16

DESIGN, SYNTHESIS, AND IN-VITRO ASSESSMENT OF BENZOFURAN-3-ONE DERIVED MANNICH BASES FOR THE TREATMENT OF TYPE-2-DIABETES MELLITUS

Harshada Dupade

Type 2 Diabetes Mellitus (T2DM) is a chronic metabolic disorder characterized by persistent hyperglycemia resulting from insulin resistance and progressive β-cell dysfunction. It accounts for nearly 90% of all diabetes cases worldwide and is associated with severe complications such as cardiovascular disease, neuropathy, nephropathy, and retinopathy. The increasing global prevalence of T2DM necessitates the development of novel therapeutic agents with improved efficacy and safety profiles. Inhibition of carbohydrate-hydrolyzing enzymes such as

α-glucosidase and α-amylase represents an effective strategy for controlling postprandial hyperglycemia. Benzofuran derivatives and Mannich bases are known for their diverse pharmacological activities, including potential antidiabetic effects. Therefore, the present study focuses on the design, synthesis, and evaluation of benzofuran-3-one derived Mannich bases as potential antidiabetic agents. Method: Novel benzofuran-3-one derivatives were designed and subjected to in-silico molecular docking studies against α-glucosidase (PDB: 3A4A) and α-amylase (PDB: 1HOE). Selected compounds were synthesized via the Mannich reaction and characterized using IR, Mass spectroscopy, and NMR techniques. The synthesized compounds were further evaluated for in-vitro α-glucosidase and α-amylase inhibitory activity. Results: Docking studies demonstrated favorable binding affinities of synthesized compounds toward both target enzymes. Spectral characterization confirmed the structural integrity of the synthesized derivatives. In-vitro assays revealed significant inhibitory activity against α-glucosidase and α-amylase, indicating promising antidiabetic potential.*Conclusion:* Benzofuran-3-one derived Mannich bases exhibited considerable enzyme inhibitory activity, supporting their potential as lead molecules for the development of novel therapeutic agents for the management of Type 2 Diabetes Mellitus.

MODEL PRESENTATION

Hurt by antibiotics. Hardened into resistance.

D. Pharm Category

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MODEL ABSTRACTS

MDP-01

AUTOMATED ORAL LIQUID SYRUP MANUFACTURING PROCESS MODEL FOR ENHANCED EFFICIENCY

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Oral Liquid syrups are widely used pharmaceutical dosage forms due to their ease of administration and patient compliance. Traditional syrups manufacturing involves multiple manual steps such as weighing, mixing, heating, filtration, fillinf, and labelling, which may lead to variability, contamination risks, and reduced production effiency. The automated oral liquid syrup manufacturing process model is designed to enhance effienect, accuracy and product quality by integrating advanced automation technologies.

MDP-02

MODERN PHARMACY

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The autonomic nervous system (ANS) serves as the primary regulatory mechanism for involuntary physiological processes, including cardiac rhythm, gastrointestinal activity, and pulmonary function. Central to this regulation is the action of neurotransmitters-specialized chemical messengers that facilitate communication between neurons. This system is primarily governed by the functional interplay between two key neurotransmitters: *acetylcholine* and *norepinephrine. Acetylcholine, the primary mediator of the **parasympathetic division, induces a sedative effect on the physiology by decelerating the heart rate and augmenting digestive processes to promote a state of homeostasis and relaxation. Conversely, norepinephrine, secreted by the **sympathetic division", acts as an excitatory agent. It accelerates heart rate and induces vasoconstriction, thereby mobilizing the body's "fight or flight" response in reaction to external stressors. Acetylcholine, the primary mediator of the

parasympathetic division, induces a sedative effect on the physiology by decelerating the heart rate and augmenting digestive processes to promote a state of homeostasis and relaxation. Conversely, norepinephrine, secreted by the sympathetic division", acts as an excitatory agent. It accelerates heart rate and induces vasoconstriction, thereby mobilizing the body's "fight or flight response in reaction to external stressors. The precise modulation and release of these chemicals are essential for maintaining systemic equilibrium and ensuring the coordinated execution of vital bodily functions. Understanding these biochemical pathways is fundamental to the study of human physiology and serves as a critical foundation for medical and educational frameworks regarding neural regulation

MDP-03

GREEN PHARMACY

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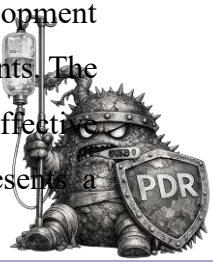
Green pharmacy is an emerging concept that focuses on minimizing the environmental impact of pharmaceutical activities while promoting sustainable healthcare practices. It integrates eco-friendly approaches in drug manufacturing, waste management, research, and campus infrastructure to ensure environmental protection and public health safety. Pharmaceutical waste, if not properly segregated and treated, can lead to serious environmental pollution affecting soil, water, and living organisms.

The concept of green pharmacy emphasizes proper waste segregation, treatment of chemical and biological waste, use of renewable energy sources such as solar power, and adoption of green chemistry principles in drug development. Sustainable practices like recycling, reduction of hazardous materials, and use of biodegradable alternatives play a crucial role in reducing the ecological footprint of pharmaceutical industries and educational institutions.

In addition, green pharmacy promotes responsible disposal of expired medicines, development of environmentally safer drugs, and awareness among healthcare professionals and students. The implementation of green pharmacy practices helps in achieving a balance between effective healthcare delivery and environmental sustainability. Overall, green pharmacy represents a



progressive step toward a cleaner, safer, and healthier future by transforming pharmaceutical waste into an opportunity for wellness and sustainability.

Keywords: green pharmacy, pharmaceutical waste management, sustainability, green chemistry, eco-friendly healthcare.

MDP-04

TABLET COATING MACHINE

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The tablet coating machine is used to apply a uniform coating on tablets to improve their appearance, taste, and stability. This working model demonstrates the basic principle of tablet coating using a rotating pan, spray system, and drying air. It helps pharmacy students understand the tablet coating process in a simple and practical.

MDP- 05

SYNAPTIC TRANSMISSION

Sanika Vijay Shalgavkar and Payal Rajendra more

Synaptic transmission is a vital physiological process that enables communication between neurons and between neurons and effector organs such as muscles and glands. This model presentation explains the structure of a neuron, generation of action potential, and the detailed mechanism of chemical synaptic transmission. A neuron, the structural and functional unit of the nervous system, consists of dendrites, a cell body (cyton), and an axon. Dendrites receive impulses, the cell body integrates signals, and the axon transmits impulses to the synaptic terminal. At rest, neurons maintain a resting membrane potential of approximately –70 mV due to unequal distribution of sodium and potassium ions. When stimulated, depolarization occurs due to sodium influx, followed by repolarization through potassium efflux, forming an action potential that travels along the axon.

Synaptic transmission is mainly chemical. When an action potential reaches the presynaptic terminal, voltage-gated calcium channels open, causing calcium influx. This triggers fusion of synaptic vesicles with the presynaptic membrane and release of neurotransmitters such as acetylcholine into the synaptic cleft. The neurotransmitter binds to specific receptors on the

postsynaptic membrane, leading to ion channel opening and generation of a new impulse. Termination occurs by enzymatic breakdown (acetylcholinesterase), reuptake, or diffusion. Acetylcholine acts on two types of receptors: nicotinic receptors, which are ligand-gated ion channels producing rapid excitatory responses, and muscarinic receptors, which are G-protein coupled receptors producing slower and longer-lasting effects. This model enhances understanding of neuronal physiology, synaptic mechanisms, and receptor pharmacology, forming the basis for studying nervous system function and drug action.

B. Pharm Category

MBP-01

MEDI WITH CARE

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Medi with Care is a pharmacist-centric digital healthcare application designed to improve medication management and patient awareness. The platform connects patients with pharmacists for medicine requests, prescription refill reminders, treatment follow-ups, and access to reliable health information. It supports better medication adherence and reduces errors, especially for chronic and elderly patients. A dedicated pharmacist dashboard enables efficient handling of patient requests and basic medication counseling within professional limits. Medi with Care enhances the role of pharmacists without replacing doctors. Developed as a functional prototype, the project demonstrates a scalable, affordable approach to strengthening community-level pharmaceutical care through technology.

MBP-02

DESIGN AND FABRICATION OF A MINI FLUIDIZED BED DRYER

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This model demonstrates the working principle of a Fluidized Bed Dryer, a crucial equipment in pharmaceutical manufacturing. The setup showcases how hot air, introduced through a perforated distributor plate, fluidizes solid particles, enhancing heat and mass transfer for efficient drying. As the air flows upward, it suspends the particles, creating a fluid-like state that promotes uniform mixing and heat transfer. The model highlights key components like the air distributor, bed chamber, expansion chamber, and cyclone (if included), illustrating the process of moisture removal from pharmaceutical powders or granules. The fluidization process allows for uniform drying, reduced drying time, and improved product quality. The model's interactive design helps visualize the technology used in pharmaceutical drying processes, making it an

effective tool for understanding this essential unit operation. Potential applications include drying of pharmaceutical powders, granules, and solid dosage forms.

MBP-03

PHARMACY BASED MODEL

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A drug delivery system refers to the method or process of administering a pharmaceutical compound to achieve a desired therapeutic effect in the body. The main objective of an effective drug delivery system is to deliver the drug at the right site, in the right concentration, and for the required duration, while minimizing side effects. Conventional drug delivery systems often suffer from limitations such as poor bioavailability, frequent dosing, and non-specific distribution of drugs. To overcome these drawbacks, novel drug delivery systems have been developed, including controlled, sustained, targeted, and site-specific drug delivery systems. These advanced systems improve patient compliance, enhance therapeutic efficacy, and reduce toxicity. Various carriers such as nanoparticles, liposomes, microspheres, and polymers are used to achieve better drug targeting and controlled release. Thus, modern drug delivery systems play a crucial role in improving the safety, effectiveness, and quality of pharmacotherapy.

Keywords: Drug delivery system, Conventional drug delivery, Novel drug delivery system, Controlled release, Targeted drug delivery.

MBP-04

CLINICAL PHARMACISTS BASED ADR MONITORING AND PREVENTION SYSTEM

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Adverse Drug Reactions (ADRs) are a significant challenge in healthcare, leading to increased patient morbidity, prolonged hospital stay, and higher treatment costs. Early identification and prevention of ADRs are essential to ensure patient safety and rational use of medicines. The present working model, titled "Smart Adverse Drug Reaction (ADR) Detection and Prevention System", demonstrates the crucial role of a clinical pharmacist in monitoring and preventing ADRs.This model is designed to simulate a clinical decision-support system by incorporating patient-related factors such as age, disease condition, and comorbidities along with drug- related parameters including drug selection, dosage, and potential drug–drug interactions. Based on these inputs, the system analyzes the risk of ADRs and provides visual alerts categorized as Safe, Caution, or High-Risk ADR using LED indicators and an alert buzzer. The model emphasizes the importance of pharmacovigilance, dose optimization, and timely reporting of ADRs. It highlights how clinical pharmacists contribute to safer medication use by identifying high-risk drug combinations and preventing medication-related harm. Overall, this model serves as an effective educational tool for pharmacy students and healthcare professionals, promoting patient safety and rational drug therapy.

MBP-05

HERBAL MEDICINE IN MODERN THERAPY WITH NETWORK PHARMACOLOGY

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Herbal medicine plays a significant role in modern therapy due to its rich source of bioactive compounds and holistic approach to disease management. Medicinal plants contain diverse phytochemicals such as alkaloids, flavonoids, terpenoids, phenolics, and glycosides, which contribute to their therapeutic effects. However, the complex and multi-component nature of herbal medicines poses challenges in understanding their precise mechanisms of action. Network pharmacology has emerged as an innovative approach to address this complexity by integrating systems biology, bioinformatics, and pharmacology. It helps elucidate the interactions between multiple bioactive compounds, target proteins, and disease-related pathways. In modern therapy, network pharmacology provides a scientific basis for validating traditional herbal medicines, predicting potential drug–target interactions, and identifying synergistic effects. This approach

supports the development of safer and more effective herbal formulations and facilitates their integration into evidence-based healthcare. By bridging traditional knowledge with modern scientific tools, network pharmacology enhances the understanding of herbal medicines at a molecular and systemic level. Thus, the combination of herbal medicine and network pharmacology represents a promising strategy for drug discovery, disease treatment, and personalized therapy in modern medicine.

Keywords: herbal medicine, modern therapy, network pharmacology, phytochemicals, teaching aid.

MBP-06

JOURNEY FROM MOLECULES TO DRUG

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The journey from molecules to a drug is the step bystep process used in drug discovery & development. It starts with target identification & validation, where a biological target related to a disease is selected. In lead optimization, these molecules are chemically modified to improve potency, safety, & pharmacokinetic properties. The best candidate is then developed into a drug model & tested through preclinical studies (in-vitro & in-vivo) to evaluate efficacy & toxicity before clinical trials.

MBP-07

THE SILENT DRUG RESISTANCE FACTORY

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Drug resistance is a growing global health threat caused mainly by the misuse and overuse of antibiotics. “The silent drug resistance factory” is a conceptual model designed to explain how human practices create selection pressure that allows resistant bacteria to survive and multiply. The model visually represents key factors such as incomplete antibiotic courses, self-medication,

over the counter antibiotic sales and the use of antibiotics in animals. It also demonstrates the silent spread of resistant bacteria through hospitals, water sources, farms and the environment leading to treatment failure and increased healthcare burden. The model highlights the critical role of pharmacists in preventing drug resistance through patient counseling, antibiotic stewardship and awareness programs. This model emphasizes that drug resistance is manmade and preventable problem, requiring rational antibiotic use to protect global health.

Keywords: Drug resistance, Antibiotic misuse, Selection pressure, public health.

MBP-08

MODIFIED PSYCROMETER APPARATUS FOR HUMIDITY DETERMINATION

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This paper presents the design and development of a modified psychrometer model for accurate and efficient detection of atmospheric humidity. The proposed system is an advanced version of the conventional psychrometer, integrated with a digital meter to enhance measurement precision and ease of operation. The use of a digital display enables direct and accurate reading of both dry bulb temperature (DBT) and wet bulb temperature (WBT), thereby reducing observational errors associated with analog instruments. The modified psychrometer operates using an automatic rotating mechanism driven by an electric motor, which is activated through a simple on–off switch. This automation minimizes manual effort and significantly reduces manpower requirements during operation. As a result, the system ensures consistent airflow over the wet bulb, leading to improved accuracy and repeatability of readings. The digital interface further decreases errors that commonly occur during the measurement process, such as parallax and manual recording mistakes. The instrument is designed to be user-friendly, making it suitable for both laboratory and field applications. Humidity is determined based on the measured DBT and WBT values using standard psychrometric charts and calculations. The combination of digital sensing, automated rotation, and simplified operation makes this modified psychrometer a reliable and efficient tool for humidity measurement. Overall, the proposed model offers higher

accuracy, reduced human intervention, lower error probability, and improved operational convenience compared to traditional psychrometers.

Keywords: modified psycrometer, atmospheric humidity, digital meter.

MBP-09

WORKING MODEL OF HEMODIALYSIS

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Hemodialysis is the most common method used to remove waste and hazardous products of metabolism in patients suffering from renal failure. Most of the patient succumb to cardiovascular disease that is exacerbated by the chronic induction of inflammation caused by contact of the blood with the dialysis membrane.

In hemodialysis blood is withdraw from the patient body, passed through the dialyzer where diffusion and ultrafiltration occur, and then returned to the circulation.

Keywords: Renal failure, hemodialysis membrane, dialysis membrane.

VISION

Transformation of youth power into knowledgeable, skilled & competent pharmacy professionals

MISSION

M1: To Facilitate best teaching learning practices
M2: To create and maintain a supportive environment
M3: To develop competent pharmacy professionals

PROGRAMME EDUCATIONAL OBJECTIVES

- To equip pharmacy graduates with desired pharmacy knowledge & skills that constitute basis for their success while entering in/serving for pharmaceutical industry/ hospital/community pharmacy and/or educational institutes
- To strengthen learner-centric pedagogy so that to increase inclination for higher studies and research
- To inculcate leadership, team working, effective communication, professional ethics & entrepreneurship capabilities for assured professional success
- To support the students in decision-making process for productive career & thereby encouraging them to participate in life-long learning process

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