



# BANSAL COLLEGE OF PHARMACY, BHOPAL NEWSLETTER

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## Pioneering Advancement: 3D Printing Transformative role in Pharmaceutical Industry



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In the ever-evolving landscape of the pharmaceutical industry, 3D Printing has emerged as a game-changer, offering novel solutions to longstanding challenges in drug development. This innovative approach allows researchers and medical professionals to create three-dimensional structures, ranging from tissues to organs, using a layer-by-layer printing process. 3D printing has emerged as a revolutionary force within the pharmaceutical industry, introducing transformative possibilities in drug development and manufacturing. This cutting-edge technology enables the precise fabrication of pharmaceutical products, ranging from personalized medications to intricate drug delivery devices. The application of 3D printing in pharmaceuticals not only enhances precision in drug formulation but also opens avenues for personalized medicine, innovative drug delivery solutions, and rapid prototyping, heralding a new era in pharmaceutical research and development.

## 3D printed dosage forms for improved patient Compliance

3D printing allows for the fabrication of unique dosage forms with specific release profiles. This innovation can lead to the development of medications that are easier for patients to administer and adhere to, improving overall compliance. Customizable dosages and drug combinations become a reality, contributing to more effective treatments and improved patient outcomes. This is especially crucial in cases where individuals may have allergies, sensitivities, or specific medical conditions that necessitate a personalized approach to drug therapy.

## 3D bioprinting and tissue modelling breakthrough

3D bioprinting revolutionizes manufacturing by depositing biological materials layer by layer to construct three-dimensional structures that mimic living tissues. Its core strength lies in precise cell and biomaterial placement, enabling the creation of tissues and organs with intricate vascular networks and specific functionalities. This innovation holds promise for personalized medicine, utilizing a patient's own cells to craft tissues that closely match their biological makeup, reducing the risk of rejection. In reconstructive surgery, 3D bioprinting provides surgeons with patient-specific models, enhancing precision and improving outcomes. Ethical considerations, responsible innovation discussions, and collaborative efforts among multidisciplinary teams drive the field forward. The future holds exciting prospects, from advancing synthetic biology to creating fully functional organs, proclaiming a redefined healthcare landscape through the meticulous art of biological engineering.

Upskilling  
the  
Future



## Lab-on-a-chip

The application of 3D-printed lab-on-chip devices in the pharmaceutical industry has opened new avenues for innovation and efficiency. 3D printed microfluidic devices can seamlessly integrate sensors and analytical components directly onto the chip. This integration enables real-time monitoring and analysis of fluids, biomolecules, or cells, providing valuable insights for research and diagnostics. Microfluidic devices printed in 3D contribute to disease modelling and drug screening. The microscale platforms replicate physiological conditions, allowing researchers to study the behaviour of cells, tissues, and organs under controlled environments, advancing our understanding of diseases and therapeutic interventions. Compact and portable 3D printed microfluidic devices are well-suited for point-of-care diagnostics. These devices can be designed to detect specific biomarkers, pathogens, or analyse bodily fluids, offering rapid and decentralized testing options.

**Conclusion:** The current applications of 3D printing in the pharmaceutical industry have brought about significant advancements, particularly in drug formulation, personalized medicine, and rapid prototyping for drug development. The technology is already shaping the production of complex drug delivery systems and patient-specific medications, showcasing its potential in enhancing therapeutic outcomes. As 3D printing becomes more integral, the development of regulatory frameworks and standardization efforts will be vital to ensure the safe and consistent production of 3D-printed pharmaceuticals, marking a collaborative effort to unlock the technology's full potential in revolutionizing healthcare.

## Synthesis, characterization and antimicrobial activity of some novel mannich bases Of indole-2,3-dione

Indole-2,3-dione (isatin), an endogenous heterocyclic moiety widely present in human tissues and body fluids. Indole-2,3-dione versatility allows the synthesis of many Schiff and Mannich bases with large variety of heterocyclic compounds. Many of its derivatives were outlined for broad spectrum pharmacodynamic activities like antimicrobial, antiviral, anti-inflammatory and analgesic, anticonvulsant, antituberculosis, anti-helminthic, anticancer and anti-HIV, etc. In present work, we have target to achieve a better antimicrobial profile by synthesizing Mannich bases with indole-2,3-dione and its 5-substituted derivatives. Indole-2,3-dione (isatin) and its 5-substituted derivatives have been reacted with N2-benzylidenepyridine-2,6-diamine to form Schiff bases and the Mannich bases of these compounds were synthesized by reacting them with some secondary amines in presence of formaldehyde. Their chemical structures have been confirmed by mean of their IR and <sup>1</sup>H NMR. Antimicrobial screening of synthesized compounds was done by well diffusion method against 4 pathogenic bacteria and 2 pathogenic fungi. Amongst the tested compounds 3-{{6-(benzylideneamino)pyridin-2-yl}imino}-1-(piperazin-1-ylmethyl)-5-fluoro-indolin-2-one and 3-{{6-(benzylideneamino)pyridin-2-yl}imino}-1-(morpholin-4-ylmethyl)-5-fluoro-indolin-2-one showed significant antibacterial activity and 3-{{6-(benzylideneamino)pyridin-2-yl}imino}-1-(piperazin-1-ylmethyl)-5-methyl-indolin-2-one and 3-{{6-(benzylideneamino)pyridin-2-yl}imino}-1-(morpholin-4-ylmethyl)-5-methyl-indolin-2-one showed the favourable antifungal activity.



**MR. SHOBHIT SHRIVASTAVA**  
Associate Professor  
Pharmaceutical Chemistry

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## Novel drug approvals for 2023 by FDA

| No. | Drug Name | Active Ingredient    | Drug Name | FDA-approved use on approval date*  |
|-----|-----------|----------------------|-----------|---|
| 1.  | Xdemvy    | lotilaner            | 25/7/2023 | To treat Demodex blepharitis  |
| 2.  | Vanflyta  | quizartinib          | 20/7/2023 | To use as part of a treatment regimen for newly diagnosed acute myeloid leukemia that meets certain criteria                                    |
| 3.  | Beyfortus | nirsevimab-alip      | 17/7/2023 | To prevent respiratory syncytial virus (RSV) lower respiratory tract disease  |
| 4.  | Ngenla    | somatrogon-ghla      | 27/7/2023 | To treat growth failure due to inadequate secretion of endogenous growth hormone  |
| 5.  | Rystiggo  | rozanolixizumab-noli | 26/7/2023 | To treat generalized myasthenia gravis in adults who are anti-acetylcholine receptor- or anti-muscle-specific tyrosine kinase antibody-positive |

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## Vision and Mission

### Vision:

We will provide an unparalleled experience to budding pharmacist as the most trusted college.

### Mission:

To improve the overall well-being of a pharmacist by providing the best education through hybrid learning, clinical practice and research.

## Faculty events

### Expert lecture on catch the professional life

Bansal College of Pharmacy organized an Expert Lecture, "Catch The Professional Life," for B. Pharm 7th Students on 07/08/23. Dr. Kuldeep Ganju, Principal of SIPTech, Bhopal, led the event, which began with a lamp lighting and Saraswathi Pooja. Dr. Ganju encouraged students to innovate, conducting experiments with their involvement. Dr. Priyanka Singh coordinated, and Prof. Payal Saiju gave the vote of thanks. The session was well-received by all 110 participants.



### Industrial training session from (13-21 July- 2023)

Bansal College of Pharmacy organized a seven-day training program from July 26, 2023, aimed at creating awareness of professional opportunities in the pharmaceutical industry and its role in healthcare. Mr. Prayansh Rajak, a Regulatory Affairs Executive at Lupin Ltd., led the program. It included Q&A sessions, idea sharing, tips for competitive exams, and interviews with 26 and 28 students at multinational industry levels. The program was coordinated by Prof. Purnima Tripathi.



### Seminar on "fixation of maximum price under NLEM-2022" 19 July

On July 19, 2023, the Madhya Pradesh State Price Monitoring and Resource Unit held a seminar in Bhopal as part of "Ajadi Ka Amrit Mahotsav." The event at RCVN Noronha Academy of Administration focused on "Fixation of maximum price under NLEM-2022" and was attended by faculty and seventh-semester students. Mr. Ratan Khatwani discussed NPPA's role in ensuring medication affordability and accessibility, Dr. Sudam Khade emphasized Madhya Pradesh's commitment to monitoring medicine prices, and Dr. Sarita Bhonsle presented the Pharma Sahi Daam app for affordable medicines.



### Expert lecture on "basics of pharmacovigilance" on August 2023

Bansal College of Pharmacy, Kokta Campus, Bhopal Organized as Expert Lecture On "Basics of Pharmacovigilance" on 14th August 2023. For V & VII semester Students The Programme was inaugurated by lighting the lamp with Saraswathi Pooja in the Presence of Eminent Speaker Ms.Sanchita Shrivastava Pharmacovigilance Executive, in Elite Safety Science. Welcome address was given by Dr. S. Nayak, Principal, Bansal College of Pharmacy. Dr. Sanjay Jain Jt.





### Expert lecture on "JANAKROSH FOR BETTER TOMORROW"

On August 11, 2023, Bansal College of Pharmacy in Bhopal hosted an expert lecture titled "JANAKROSH FOR BETTER TOMORROW." The event featured distinguished speaker Mr. Anil Joshi and was attended by notable individuals, including Prakash Bhakre and Dr. Ashok Sarharan Karandikar. The NGO "JANAKROSH FOR BETTER TOMORROW," based in Nagpur, Maharashtra, focuses on promoting road safety awareness. Dr. Mamta Yadav coordinated the event, which had 75 participants and provided valuable insights on road safety and laws.



### Independence day celebration 2023

Bansal College of Pharmacy celebrated India's 77th Independence Day on August 15, 2023, as part of Azadi Ka Amrit Mahotsav. The event, graced by Shri Anil Bansal and other dignitaries, included the hoisting of the national flag, singing the anthem, and an inspiring speech by Dr. Sanjay Jain. Dr. S Nayak, the college's Principal, coordinated the event and delivered a motivational speech. NCC and NSS students performed patriotic and cultural activities, fostering enthusiasm and renewed commitment to the nation.



### Orientation program celebration

The Bansal College of Pharmacy organized an Orientation Program on September 16, 2023. The event commenced with a ceremonial lamp lighting and Saraswati Vandana. Dr. AK Pathak, a retired professor from Barkatullah University, Bhopal, and Shailesh Jain, Principal of SAM College of Pharmacy, were the chief and special guests, respectively. Dr. Satish Nayak, the Principal of Bansal College of Pharmacy, welcomed all attendees, emphasizing excellence in their fields.

The program included an overview of the college's history, motto, and achievements. Dr. Pathak encouraged research and entrepreneurship over placement-oriented education. Dr. Jain motivated students for overall development, and Dr. Damodar Tiwari discussed the academic structure. Scholarship rules and library facilities were explained. The event featured cultural performances coordinated by faculty members.



### Faculty members awarded in national conference

Faculty members from Bansal College of Pharmacy participated in the National Conference on "Alternatives to Animal Experimentation in Research" at RB Science, Bhopal on September 17, 2023. The event was inaugurated by RGPV's Vice Chancellor, Prof. Sunil Kumar, and special guest Mr. Sanjay Kumar Jain, President of IPA. The conference aimed to promote multidisciplinary approaches by bringing professionals from various fields together to share their research.

Faculty members from Bansal College of Pharmacy, Dr. Mamta Yadav and Prof. Purnima Tripathi, were honored with the Research Excellence Award in the Drug Delivery category by Prof. Sunil Kumar and Mr. Sanjay Kumar Jain.



## Quiz competition on World Pharmacist Day 2023

On September 25, 2023, Bansal College of Pharmacy, Bhopal, hosted an engaging online quiz competition to commemorate World Pharmacist Day. This event challenged 160 students in their pharmaceutical knowledge, emphasizing the vital role of pharmacists in healthcare. The competition, conducted seamlessly through an online platform, featured timed multiple-choice and short-answer questions, fostering critical thinking. E-certificates were awarded to participants, acknowledging their dedication. Overall, the event was a resounding success, showcasing students' expertise, raising awareness about pharmacists' importance in healthcare, and celebrating World Pharmacist Day's spirit.



## Ganeshotsav 2023 from (19 /Sep/ 2023) to (28/ Sep/ 2023)

Bansal College of Pharmacy joyously celebrated Shri Ganesh Mahotsav, marking the 16th Sthapna of Lord Ganesh. The event kicked off with a heartfelt welcome and traditional Sthapana ceremony, where students, faculty, and staff united in devotion. The vibrant atmosphere was enhanced by a spirited procession led by 5th-semester students, featuring a mesmerizing welcome dance by 3rd-semester students. A spiritually enriching Sundar Kand Path, blending verses from the Ramayana with soulful bhajans, added a serene touch. The visarjan ceremony concluded the festivities, filled with lively music, dance, and heartfelt farewells to Lord Ganesh. Special acknowledgment goes to Dr. Priyanka Singh and the dedicated 5th-semester students for orchestrating a memorable celebration that united the college community in joy, devotion, and cultural spirit. Ganeshotsav 2023 was truly a grand success.



## An educational visit Indira Gandhi Rashtriya Manav Sangrahalaya, Bhopal (14/Oct/2023)

On October 14, 2023, B.Pharm 1st Semester students embarked on an enriching educational journey to Indira Gandhi Rashtriya Manav Sangrahalaya in Bhopal. The museum, a treasure trove of human evolution and culture, showcased an integrated narrative with a focus on India. More than a hundred students and staff explored various sections, gaining profound insights into the evolution of mankind. Coordinated by Dr. Dhanraj Patidar and Prof. Mukesh Sahu, Ankit Gour, and Saurabh Singh, the visit aimed to provide a holistic understanding of history, culture, and techniques.



## College visit organized for b. Pharmacy 3rd semester student at Sanchi Stupa on (03/Nov/ 2023)

In a memorable excursion, Bansal College of Pharmacy, Bhopal, took 53 students and 4 faculty members to the Sanchi Buddhist Stupa on November 3, 2023. The 50 km journey encouraged student interactions. Guided by a knowledgeable companion, the day included a visit to the Sanchi Museum, a lecture on Buddhism, interactive discussions, and a picnic lunch. Beyond educational benefits, the trip fostered a sense of community. Coordinated by Prof. Sourabh Singh and Prof. Ankit Gour, along with non-teaching staff Mr. Rahul Sharma and Mr. Sourabh Shivhare, the journey left an indelible mark, deepening appreciation for India's rich history and cultural heritage.





## Educational visit to bansal extraction and exports pvt. ltd plant (23/Oct/2023)

Bansal College of Pharmacy, Bhopal, orchestrated an enlightening industrial visit for final-year B.Pharm students at Bansal Extraction and Exports Pvt. Ltd Plant, Mandideep. Aimed at exposing students to practical working environments, the visit featured insights from Assistant Manager Mr. Rajesh Kumar Roy. Students observed oil purification, soybean seed oil extraction, color variant identification, and machinery operations. The visit, supported by Shri Parth Bansal MD BGI, facilitated a connection between theoretical knowledge and practical applications, enhancing students' comprehension of pharmaceutical manufacturing processes. The students submitted a comprehensive project report based on their observations.



## Industrial visit of students to scan research laboratories (SRL), Bhopal (3/Nov/2023)

Bansal College of Pharmacy, Kokta Campus, Bhopal, organized an industrial visit to Scan Research Laboratories (SRL), Bhopal, for third-year B.Pharmacy students. The visit aimed to expose students to practical working environments, providing valuable insights. Dr. Prabhat Jain, Head of Scan Research, shared information about the lab, and students encountered various sophisticated instruments. Coordinated by faculty members and staff, the visit enhanced students' understanding of course concepts, with a total of 81 students benefiting from this experiential learning opportunity.



## First aid training program from (8 /Dec/2023) to (9 /Dec /2023)

Bansal College of Pharmacy organized two days training programme on Primary Training of First-aid 8-9 Dec 23, for students of Smt. Sushila Devi Bansal Public School. The purpose of the training is general awareness about first aid and all students of middle standard are attended with interest. Prof. Shilpa Choubey and Prof. Arti Solanki well demonstrated first aid and training given to students for the awareness of first aid box and how to handle emergency cases before the doctor arrived at particular places. They also aware about accidents, illness and treatments how to handle these situation before doctor arrived. Various topic of medical emergency also discussed like injuries, bleeding, fracture, snake bite ,electric shock.This training believe this small effort which make the students learn to safeguard their own health and help others in emergency. Total no of students were 40. The training program was coordinated by Dr.Priyanka Singh.



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## Seminar on financial wellness, enhancement, educational & motivational

Bansal College of Pharmacy, Kokta Campus, Bhopal organized seminar on Financial Wellness, Enhancement, Educational & Motivational on 24th November 2023 under National Pharmacy Week Celebration. The Program was inaugurated by lighting the lamp with Saraswathi Pooja in Presence of Eminent speaker Mr.Vivek Verma (Corporate Trainer), Excellence Global Skill Training &Development Organization  
The eminent speaker Mr. Vivek Verma motivated

the students to set goals of financial management, how to convert liabilities into assets. How they can save their self from cyber crimes. And young professional are switching job day by day because of lack of financial management, which is loss of organization. how they can make their career more

bright with success keys share by the trainer . Sir has also ask some interesting questions which was very interesting student has given full participation and got reward prizes by the sir.



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## Government unveils national policy on R&D in pharma, medtech:

The Indian government, led by Union Health Minister Mansukh Mandaviya, has launched the National Policy on Research and Development (R&D) and Innovation in the pharmaceutical and medtech sectors. This initiative aims to shift the industry from cost-based to innovation-based, promoting R&D in pharmaceuticals and medical devices. The scheme's goal is to position India as a significant player in the global pharmaceutical market



## Cipla introduces drone-powered critical medicine delivery in Himachal Pradesh:

Cipla has partnered with Skye Air Mobility to introduce drone-powered medicine deliveries in Himachal Pradesh. This initiative aims to provide timely delivery of critical medicines for cardiac, respiratory, and other chronic therapies to remote areas, reducing risks like delays, temperature fluctuations, and accidents. Cipla sees this as a step in enhancing their supply chain resilience and maintaining reliable drug delivery in the region while advancing their digital agenda.



## Digene gel recall- Goa state warns abott india on antacid license suspension:

The Indian state of Goa plans to suspend Abbott Laboratories' manufacturing license for its popular antacid medicine due to contamination and sanitization concerns at its factory. Abbott voluntarily recalled batches of Digene Gel syrup in response to customer complaints about taste and odor, although they claim it doesn't affect patient health. The Goa plant is one of Abbott's two factories in India, and Digene holds a 7% market share for antflatulent medicines, with estimated annual sales of \$11 million. Inspectors found issues like water stagnation, posing contamination risks. Abbott has seven days to respond to the suspension notice.



## Indian pharma industry to log in 8-10 pc revenue growth this fiscal: crisis

The Indian pharmaceuticals industry is projected to see a revenue growth of 8-10% in the current financial year, driven by domestic growth and increased exports to regulated markets, as per a CRISIL report. The growth will be supported by price hikes allowed by the National Pharmaceutical Pricing Authority (NPPA) and the sale of existing drugs and new launches.



## Zydus life Sciences has launched a real-world data registry trial :

To determine the benefits of its liver drug, Saroglitazar Magnesium, on patients with non-alcoholic fatty liver disease and associated ailments. Between 1,500 male and female NAFLD patients are expected to be enrolled in the study, with each participant expected to be traced for around 56 weeks.



## Octave study reveals vaccine response in patients with impaired immune systems:

Preliminary data from the OCTAVE study in August 2021 showed that a significant proportion of clinically at-risk patients with immunocompromised or immunosuppressed conditions mounted a low, or undetectable, immune response after two doses of the same SARS-CoV-2 vaccine





## India bans 14 fixed-dose medicines for likely posing risks to health:

The Indian government has banned 14 types of fixed-dose combination (FDC) medicines due to a lack of therapeutic justification and potential risks to humans, according to an expert panel's recommendations. FDCs mix two or more active ingredients in a fixed ratio. The FDCs that have been banned include Nimesulide + Paracetamol dispersible tablets and Pholcodine+ Promethazine, amongst others. The decision has been taken after an earlier restriction of 344 FDCs was challenged by manufacturers in court.



## Granules India gets usfda nod for generic drug used for short-term treatment of heartburn :

Granules India has received approval from the US Food & Drug Administration (USFDA) for its generic Esomeprazole Magnesium delayed-release capsules. The capsules are used for the short-term treatment of heartburn and other symptoms of gastroesophageal reflux disease. The approval is for capsules with strengths of 20 mg and 40 mg, and they are bioequivalent and therapeutically equivalent to the reference drug, Nexium.



## Glenmark launches triple-drug combo for type 2 diabetes:

Glenmark Pharmaceuticals has launched a triple-fixed-dose combination drug called Zita for the treatment of Type 2 diabetes. The drug, which combines Teneligliptin, Dapagliflozin, and Metformin, is priced at Rs 14 per tablet and aims to improve glycemic control in diabetic patients. The medication is expected to lower the daily cost of therapy by 30%, making it more affordable for patient.



## Lupin gets usfda nod to market generic antifungal tablets:

The approval granted by the US Food and Drug Administration (USFDA) for the abbreviated new drug application of Fluconazole tablets in strengths of 50 mg, 100 mg, 150 mg and 200 mg, Lupin said in a regulatory filing



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## Sun pharma partner's skin cancer drug demonstrates efficacy against skin cancer

Sun Pharma's partner, Philogen, has reported positive results in late-stage clinical trials for its new drug, Nidlegy, which is used to treat skin cancers. In the trial, Nidlegy demonstrated a statistically significant improvement in recurrence-free survival for patients with resectable melanoma. The study compared Nidlegy followed by surgery with surgery alone. The treatment arm showed a reduction in the hazard risk ratio, and treatment-related adverse events were reported to be benign and manageable. Nidlegy is also being developed for the treatment of other types of skin cancers.



## Pregnant women can soon take anti-diabetes drug metformin:

The UK and some EU countries allow this drug for pregnant women and during the periconceptional phase. So far, doctors in India prescribe insulin for pregnant women.



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