Faculty of
Pharmacy
RAMAIAH UNIVERSITY OF APPLIED SCIENCES
ज्ञानं विज्ञानं च भक्तिसहितं

Volume 3
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APRIL –JUNE

SCINTILLA

QUARTERLY E-NEWS LETTER

DEPARTMENT OF PHARMACEUTICS

https://pharmacy.msruas.ac.in/departments/department-of-pharmaceutics

SCINTILLA

QUARTERLY E-NEWS LETTER

Scintilla is the quarterly E-news letter of Department of Pharmaceutics, FPH, RUAS which seeks to provide to world outside, News, Views, and Creative expressions from the members of the Department. Scintilla comes directly from Latin, where it carries the meaning of "spark" - that is, a bright flash such as you might see from a burning ember or spark of specified quality or feeling, which is almost synonymous to department's intent, hence the name SCINTILLA

EDITORIAL BOARD

STUDENTS HAMLET

Ph.D Scholars : Jithu Jerin James, Amit Bhosle

PG Students : **Thejeswini C, Tejaswini D, Anushri G, Shashank A G**

EDITORIAL

Dear Readers !!!

Again we are back with the new issue of Scintilla to share with you all exciting developments and pharma related information.

It's time to roll out the second issue of 2023 with a major emphasis on the spectrum of activities and multiple achievements made in the last quarter by all the inmates of the department along with the active involvement of students.

To start with, we express our heartfelt condolences to the departed noble soul Dr. Vimukta Sharma, Professor and Principal, BM Pharmacy, College, Indore.
Three different clubs that were launched in the last quarter for the benefit of PG students have started progressing in the right way with an ample quantum of activities. The team seems to be extremely optimistic in exploring all the possibilities in organizing transformational programs.

Additionally, this issue includes an invited guest article section, which further improves the value of the newsletter. It is my pleasure to thank Mr. Ravikumar Angadi, Founder Attitude Plus Corporate Solutions for accepting the invitation and sharing an article on various aspects of the pharmaceutical sector.

The newsletter has the glimpses of multifaceted achievements of the faculty members as well as the scheduled activities for the next quarter. My regards to the students for contributing the articles at the right time.

I congratulate the scintilla team for the stupendous efforts they have put in for the release of this present issue.

We look forward to receiving valuable inputs from you, so please share your comments and recommendations whenever it is convenient for you to do so (Email: aswathihegde.ps.ph@msruas.ac.in). This newsletter would not be what it is without your valuable opinions and input.

Do remember the Terry Pratchett words - There isn't a way things should be. There's just what happens and what we do

Do stay positive, better days are ahead.

Twinkle of JOY, PEACE and HEALTH until our next meeting

Dr. S. Bharath
Chief Editor

For any further queries and suggestions contact :

Dr. Aswathi R Hegde

aswathihegde.ps.ph@msruas.ac.in

080-23608942

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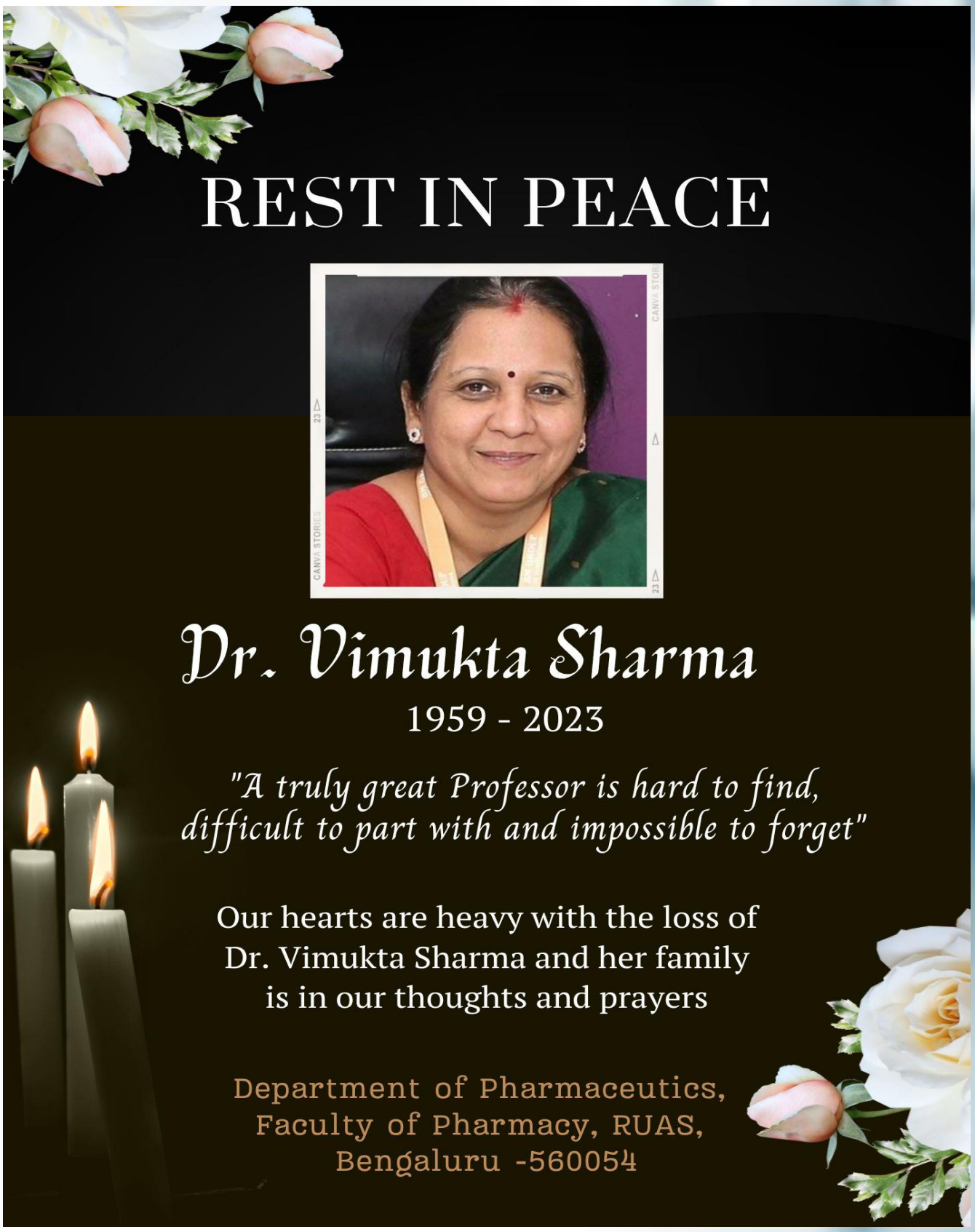

REST IN PEACE
Dr. Vimukta Sharma
1959 - 2023
"A truly great Professor is hard to find, difficult to part with and impossible to forget"
Our hearts are heavy with the loss of Dr. Vimukta Sharma and her family is in our thoughts and prayers
Department of Pharmaceutics, Faculty of Pharmacy, RUAS, Bengaluru -560054

Department Pride

Publications

- **Shwetha K, Basavaraj BV, Bharath S** (2023) Microwave assisted vanillin crosslinked chitosan/polycarbophil superporous hydrogels for biomedical application: Optimization and characterization. *Materials Today: Proceedings (Elsevier)* [Available online]
- **Sharon CF, Bharath S,** Jayaraman Anbu, **Sindhu Abraham** (2023) Lyophilized biocomposite chitin-alginate matrices for wound healing application. *Materials Today: Proceedings (Elsevier)* [Available online]
- Sushil Yadaorao Raut, Kengyen Fu, Huang Taichun, Avinash Gahane, Dasharath Chaudhari, Varun Kushwah, Renuka Suresh Managuli, **Aswathi R Hegde,** Sanyog Jain, Guruprasad Kalthur, Manjunath Bandu Joshi, Hsin-I Chang, Niann-Tzyy Dai, Srinivas Mutalik (2023) Engineered Nano-carrier systems for the oral targeted delivery of follicle stimulating Hormone: Development, characterization, and assessment of in vitro and in vivo performance and targetability. *International Journal of Pharmaceutics (Elsevier)*, 637, 122868 [Available online]
- Aditi Rao, S Ashwini, **R Deveswaran** (2023) Formulation and in vitro evaluation of grape seed extract containing dentifrice. *Materials Today: Proceedings (Elsevier)* [Available online]
- Manasa Biligowda Latha Ashmitha Kishan Shetty, **R Deveswaran**, Ashish Jagannath Rai, Serene Joy, Hadonahalli Munegowda Shashanka, Siddique Sha Muhammad Hussain, Suraksha Shetty (2023) Analysis of smart biomaterial containing umbilical cord blood serum protein conjugated with P-(NIPAAM) using spectroscopy. *Materials Today: Proceedings (Elsevier)* [Available online]

Department Pride

Conference Presentations

- Shreya Singh, **Sandhya KV,** Merin Mathew (2023) Emulgels of biopeptides from lactobacillus strain for management of eczema, International Conference on Innovation and Advances in Pharmaceutical Sciences - Current Scenario and Future Perspectives, Adichunchunagiri University, Karnataka, India, Feb 10-11 [Online]
- **Nikitha S,** Rajeev J Mudakavi, **B V Basavaraj** (2023) Exploratory Research of Prokinetic Nasal Spray for Treating Gastrointestinal Motility Disorder, International Conference on Innovation and Advances in Pharmaceutical Sciences - Current Scenario and Future Perspectives, Adichunchunagiri University, Karnataka, India, Feb 10-11
- Shruthi M, **Sharon CF**, Soumya Joseph, Aditi Vishvjeet Kadam, Revathi N, Chandini A Gowda, Achyuthanandha H K, Sohom Choudhuri (2023), Preparation and evaluation of preservative pellets containing trachyspermum ammi extract, International Conference on Innovation and Advances in Pharmaceutical Sciences - Current Scenario and Future Perspectives, Adichunchunagiri University, Karnataka, India, Feb 10-11 [Online]
- Megha N, Puspanjali Sharma, **Sharon CF,** K. Sundara Saravanan (2023), Novel film forming excipient from a natural source, International Conference on Innovation and Advances in Pharmaceutical Sciences - Current Scenario and Future Perspectives, Adichunchunagiri University, Karnataka, India, Feb 10-11 [Online]

Department Pride

Conference Presentations

- M. Annapoorna, **R. Deveswaran,** Santosh (2023), Dissolution rate enhancement of Atorvastatin, International Conference on Innovation and Advances in Pharmaceutical Sciences - Current Scenario and Future Perspectives, Adichunchunagiri University, Karnataka, India, Feb 10-11
- Akhila Jain, **Shwetha K, Sindhu Abraham**, Jeevika M, Rizwan P, Ashok Vital Rathod, Sadara Sanjay Sreenivas, Suhas M, Bharath Kumar, **B V Basavaraj** (2023) Development of anti-oxidant peel off mask containing Trachyspermum Ammi fruit oil, International Conference on Innovation and Advances in Pharmaceutical Sciences - Current Scenario and Future Perspectives, Adichunchunagiri University, Karnataka, India, Feb 10-11
- Sharon Esther Samuel, **Tanmoy Ghosh, Rajamanickam Deveswaran, Basavaraj BV** (2023) Fabrication and Characterization of Vanillin Based Crosslinked Films of CMCh-PVA, International Conference on Innovation and Advances in Pharmaceutical Sciences - Current Scenario and Future Perspectives, Adichunchunagiri University, Karnataka, India, Feb 10-11
- Manisha U Kunder, **Aswathi R Hegde**, **Basavaraj B V,** Chandana S, Likitha R V, Pruthvi H M, Shravan R, Varun Kumar Jetty (2023) Formulation development and in vitro permeation studies of an antifungal gel containing voriconazole, 1st Kerala Pharmaceutical Congress-2023, organized by Kerala Pharmacy Graduates' Association (KPGA), St. James College of Pharmaceutical Sciences, Chalakudy, Kerala, India, Feb 25-26

Department Pride

Conference Presentations

- Akshith R, **Tanmoy Ghosh**, Yusuf Mahammed, Manikanta Murahari, Sharon Esther Samual, **Rajamanickam Deveswaran**, **Basavaraj BV** (2023) Drugless crosslinked polymeric membranes for topical wound healing: An in vitro-in vivo study, SERB-sponsored International Conference on Development in Drug Delivery at Karpagam College of Pharmacy, Coimbatore, Tamil Nadu, Feb 27-28
- Akilan M, **R Deveswaran, B V Basavaraj** (2023) Development of anti ulcer suspension of areca catechu extract, SERB-sponsored International Conference on Development in Drug Delivery at Karpagam College of Pharmacy, Coimbatore, Tamil Nadu, Feb 27-28
- Spoorthi S, **Sandhya KV**, Meena, Sharon Esther Samuel (2023) Prediction of Stability Of Probiotic Suspension using Open-Source DoE Software Develve, SERB-sponsored International Conference on Development in Drug Delivery at Karpagam College of Pharmacy, Coimbatore, Tamil Nadu, Feb 27-28
- S Janhavi, **Sandhya KV,** Arathi (2023) Interpretation Of the Dissolution studies of Marketed Ciprofloxacin Formulations using KinetDS. SERB-sponsored International Conference on Development in Drug Delivery at Karpagam College of Pharmacy, Coimbatore, Tamil Nadu, Feb 27-28
- Shiva S, **Sandhya KV,** Vishnavi (2023) Prospective and Retrospective Analysis of Anticancer Drugs Going Off- Patent in the Present Decade. SERB-sponsored International Conference on Development in Drug Delivery at Karpagam College of Pharmacy, Coimbatore, Tamil Nadu, Feb 27-28
- Raksha CA, **Sandhya KV,** Vishnavi (2023) Patent landscape Analysis of Anti Diabetic Drugs. SERB-sponsored International Conference on Development in Drug Delivery at Karpagam College of Pharmacy, Coimbatore, Tamil Nadu, Feb 27-28

Department Pride

Workshops/Seminars attended

- **Dr. Sandhya K V** attended One-Week Faculty Development program (online) on "Computer Aided Drug Design (CADD)-Advanced" organized by Centre for Advanced Computational Chemistry Studies, Delhi from January 23-29, 2023
- **Ms. Nikitha S** attended a webinar on "Medical Coding as a Career Opportunity" organized by Centre for Molecular and Nanomedical Sciences, International Research Centre, Sathyabhama Institute of Science and Technology, Chennai on April 15, 2023
- **Ms. Nikitha S** attended an online workshop on "Molecular Biological Techniques and Software Packages" organized by Industry institution interaction cell & Vijaya College of Pharmacy from March 9 – 11, 2023
- **Ms. Nikitha S** attended National level Faculty Development program (online) organized by National Level Faculty development program organized by the School of Pharmacy, Sri Balaji Vidyapeeth (Deemed to be University), Puducherry & Mother Theresa Postgraduate and Research Institute of Health Sciences, Puducherry in association with Association of Pharmaceutical Teachers of India (Tamilnadu branch) from April 4 – 25, 2023
- **Dr. Basavaraj B V** attended One-Week Faculty Development program (online) on "Computer Aided Drug Design (CADD)-Advanced" organized by Centre for Advanced Computational Chemistry Studies, Delhi from March 22-28, 2023
- **Dr. Sindhu Abraham** attended One-Week Faculty Development program (online) on "Computer Aided Drug Design (CADD)-Advanced" organized by Centre for Advanced Computational Chemistry Studies, Delhi from March 22-28, 2023

Department Pride

Workshops/Seminars attended

- **Dr. Sharon C Furtado** attended One-Week Faculty Development program (online) on “Computer Aided Drug Design (CADD)-Advanced” organized by Centre for Advanced Computational Chemistry Studies, Delhi from March 22-28, 2023

- **Mrs. Shwetha K** attended One-Week Faculty Development program (online) on “Computer Aided Drug Design (CADD)-Advanced” organized by Centre for Advanced Computational Chemistry Studies, Delhi from March 22-28, 2023

- **Dr. Aswathi R Hegde** attended Teachers' skill Empowerment series (TEM-II) on the theme "Interprofessional Communication: a Big Issue or a Big Opportunity in Pedagogy“ held on March 3 , 2023 (Hybrid mode) , organized by Centre for Pharmaceutical Skill Development (CPSD) , under the aegis of Manipal College of Pharmaceutical Sciences , Manipal

- **Dr. Aswathi R Hegde** completed a certificate course on Drug Metabolism and Pharmacokinetics (DMPK-2022) between Aug – Dec, conducted by Society for the Study of Xenobiotics (SSX) , India with 86% (Grade point: 8)

- **Dr. Aswathi R Hegde** participated in the Cloud-based Hands-on Workshop on Molecular Docking, Pharmacophore Modeling and Machine learning organized by Division of Bioinformatics, ICMR - National Institute of Cancer Prevention and Research, Noida and Schrodinger Inc. from March 15-16, 2023.

Awards and Accolades

The Karnataka Science and Technology Academy [KSTA], Department of Science & Technology, Government of Karnataka has awarded a Certificate of Appreciation for bagging the prestigious **Prof. U R Rao Award for Innovative Project by PG students (2022-2023)** to **Ms. Vidya K** and **Ms. Shivani Srinivasan H**.

Ms. Shivani did her project titled ***'Design of nasal route mucoadhesive in-situ gel and establish pharmacodynamic treatment for motion sickness using animal model'*** under the astute guidance of **Dr. S. Bharath**, Professor & Dean, Dept of Pharmaceutics, RUAS.
Ms. Shivani did her project titled ***'Topical formulation loaded with pomegranate seed oil for the treatment of Psoriasis'*** under the astute guidance of **Dr. B V Basavaraj**, Professor & HOD, Dept of Pharmaceutics, RUAS.

KARNATAKA SCIENCE AND TECHNOLOGY ACADEMY [KSTA]
Department of Science and Technology, Govt. of Karnataka

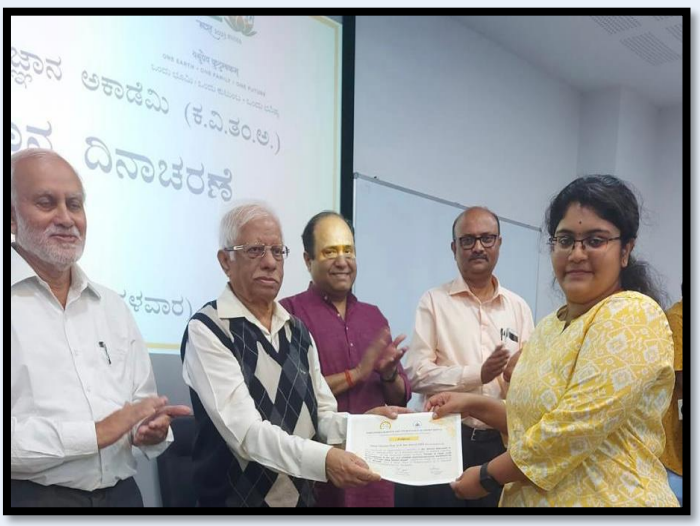
Certificate

Padma Vibhushan Prof. U. R. Rao Award 2022 (Post Graduate Level)

This Certificate of appreciation is awarded to **Ms. Vidya K**, Student, Dept of Pharmaceutics, M. S. Ramaiah University of Applied Sciences, Bengaluru for her innovative project entitled "**Topical formulation loaded with Pomegranate seed oil for the treatment of Psoriasis**" carried out under the guidance of **Dr. Basavaraj B.V.**, Prof. and HOD, Dept of Pharmaceutics, M. S. Ramaiah University of Applied Sciences, Bengaluru

Dr A M Ramesh
Chief Executive Officer

Prof. S Ayyappan
Chairman



KARNATAKA SCIENCE AND TECHNOLOGY ACADEMY [KSTA]
Department of Science and Technology, Govt. of Karnataka

Certificate

Padma Vibhushan Prof. U. R. Rao Award 2022 (Post Graduate Level)

This Certificate of appreciation is awarded to **Ms. Shivani Srinivasan H**, Dept of Pharmaceutics, M. S. Ramaiah University of Applied Sciences, Bengaluru for her innovative project entitled "**Design of nasal route mucoadhesive in-situ gel and establish pharmacodynamic treatment for motion sickness using animal model**" carried out under the guidance of **Dr. S. Bharath**, Prof. & Dean, Dept of Pharmaceutics, M. S. Ramaiah University of Applied Sciences, Bengaluru

Dr A M Ramesh
Chief Executive Officer

Prof. S Ayyappan
Chairman

Mr. Koushal V Gowda, first semester PG student from the Department of Pharmaceutics received the best Oral Presentation award at International Conference on Innovation and Advances in Pharmaceutical Sciences - Current Scenario and Future Perspectives, Adichunchunagiri University, Karnataka

Ms. Tejaswini Dhamdar, Mr. Akshith and **Ms. Spoorthi K S**, first Semester PGs of Department of Pharmaceutics, won awards in the Oral and Poster categories at the SERB-sponsored "International Conference on Development in drug delivery" at Karpagam College of Pharmacy, Coimbatore.

Dr. Aswathi R Hegde won 2nd prize in Oral presentation category for her research paper presented at the DSU sponsored National Conference on "Drug Delivery and Translational Research" held at the College of Pharmaceutical Sciences, Dayananda Sagar University, Bengaluru

Forthcoming Events

Attractive prizes to be won!!

Showcase your labeling skills!!

Forthcoming Events

RAMAIAH UNIVERSITY OF APPLIED SCIENCES | Faculty of Pharmacy

INSTITUTION'S INNOVATION COUNCIL (Ministry of Education Initiative)

Department of Pharmaceutics
Faculty of Pharmacy

*Cordially invite you to attend the **Alumni** Guest Lecture on*

"Gateway of opportunities at CRO"

Ms. Shivani, completed her B Pharm and M Pharm in Pharmaceutics from Faculty of Pharmacy, M S Ramaiah University of Applied Sciences. She has worked as a Research Associate in Drug Safety and Pharmacovigilance Department at MMSH Clinical Research and currently holding a position as a Client Services Associate in Client Services and Contract Department of ICON PLC. A hardworking and self-motivated personality, Ms. Shivani is also the recipient of Prof. U.N.R. Rao award from KSTA for her M. Pharm project.

Shivani Srinivasan
Client Service Associate
ICON PLC
Bangalore

Who should attend?
UG/PG students in the domain of Pharmacy, B.Sc. Biotechnology and Life Sciences, Dental and Medical Sciences

Convener
Dr. S. Bharath
Dean, FPH, RUAS

Chief Co-ordinator
Dr. Basavaraj BV
Prof & Head-Department of Pharmaceutics
Mob: 9880238650
basavaraj.ps.ph@msruas.ac.in

Co-ordinator
Mrs. Shwetha K
Asst. Prof, Department of Pharmaceutics
Shwetha.ps.ph@msruas.ac.in

Forthcoming Events

RAMAIAH UNIVERSITY OF APPLIED SCIENCES | Faculty of Pharmacy

INSTITUTION'S INNOVATION COUNCIL (Ministry of Education Initiative)

Department of Pharmaceutics
cordially invites you to attend

Session 2

Value Added Course on
Contemporary Approaches to Pharmaceutical Marketing

"Market Research in the Pharmaceutical Industry"

Speaker Profile

Mr. Elton D'Souza is currently UX Researcher at Infra.Market, Bengaluru, Karnataka. He has completed B.Pharm from M.S. Ramaiah College of Pharmacy and MBA in Marketing from Institute of Management, Christ University. He is a seasoned researcher with experience in handling end-to-end User Research projects.

Mr. Elton has also worked as UX researcher at PharmEasy, Research executive at Nielsen Connect and Research Manager at Meraki Research

Mr. Elton D'Souza
UX Researcher
Infra.Market, Bangalore

Who should attend?

VIII Semester Pharmaceutical Marketing students and III SEM Pharma MBA students

Convenor
Dr. Basavaraj BV
Professor & Head
Department of Pharmaceutics

Coordinators
Dr. Sindhu Abraham
Mr. Tanmoy Ghosh
Asst. Professor
Department of Pharmaceutics

Forthcoming Events

RAMAIAH UNIVERSITY OF APPLIED SCIENCES | FACULTY OF PHARMACY

Celebrating 30 Glorious Years (1992 – 2022)

INSTITUTION'S INNOVATION COUNCIL (Ministry of Education Initiative)

Department of Pharmaceutics organizing One day National Level Symposium on

"Novel Drug Delivery Technologies for Maintenance of Oral and GI Health"

11 May 2023 | SSS, Heritage Block

About the seminar: Changes occurring in the oral cavity associated with systemic diseases, including gastrointestinal disease, have been long recognized. This seminar focusses on the various formulations of probiotics used for the prevention and treatment of various health conditions and diseases such as gastrointestinal infections, inflammatory bowel disease, lactose intolerance, cystic fibrosis, various cancers, reduction of antibiotic side effects, in oral health such as prevention of dental caries, periodontal diseases and oral malodour.

Guest Speakers

Dr. Nagaraju Rakesh
Professor and Head
Oral medicine and Radiology
Faculty of Dental Sciences, RUAS

Dr. Sangamesh Puranik
Founder and CEO
Masanga Laboratories Pvt. Ltd.
Bengaluru

Dr. Avinash B
Professor and Head
Medical Gastroenterology and Hepatology
MS Ramaiah Memorial Hospital

Mr. Uday Kumar
Director
Mystical Biotech Pvt. Ltd.
Bengaluru

Dr. Kumaraswamy M V
Principal Scientist
Apollo Biosciences
Bengaluru

For more details contact:

Dr. Sandhya K V
sandhya.ps.ph@msruas.ac.in

Dr. Basavaraj B V
basavaraj.ps.ph@msruas.ac.in

Invited Guest Article

Unraveling the Domains of Pharmaceutical Industry

Mr. Ravikumar Angadi
Founder and Director
Attitude Plus Corporate Solutions
NLP Master Practitioner, Sales Mastery Trainer, Mind Performance and Behavioural Change Coach

The pharmaceutical industry is a vast and complex sector that deals with the development, production, and marketing of drugs and medicines. Here are some details about the pharma industry:

- **Research and Development:** The pharma industry invests heavily in research and development to discover new drugs and treatments for various diseases. This involves conducting clinical trials, identifying potential drug targets, and developing new compounds.
- **Manufacturing:** The pharmaceutical manufacturing process involves a range of activities. The manufacturing process must adhere to strict regulatory guidelines to ensure the safety and efficacy of the products.
- **Quality Control:** Quality control is an essential aspect of pharmaceutical manufacturing. Quality control ensures that the drugs produced meet the required quality standards and regulatory requirements. Quality control involves testing the drugs at various stages of production to ensure they meet the required specifications.
- **Regulatory Affairs**: Regulatory affairs is a critical function in the pharma industry. Regulatory affairs professionals are responsible for ensuring that drugs are developed and marketed in compliance with regulatory requirements. They prepare and submit regulatory filings and communicate with regulatory authorities to gain approvals for new drugs.

- **Marketing and Sales:** The pharma industry spends a significant amount of money on marketing and sales to promote their products. Marketing and sales teams work to educate physicians, pharmacists, and patients about the drugs and their benefits.
- **Distribution:** The pharma industry has a complex distribution network that involves transporting drugs from the manufacturing site to pharmacies, hospitals, and other healthcare providers. This involves managing the supply chain, ensuring product safety and quality, and complying with regulatory requirements.

- **Patent Protection:** Patents play a crucial role in the pharmaceutical industry, as they protect the intellectual property of the drug developers. Patents allow companies to recoup the cost of research and development and incentivize the development of new drugs.

- **Global Market:** The pharma industry is a global market, with products and services distributed and sold in various countries. The industry is highly regulated, and companies must comply with different regulations in different countries.
- **Types of Drugs:** The pharmaceutical industry produces a wide range of drugs, including prescription drugs, over-the-counter drugs, generic drugs, and biologics. Prescription drugs require a physician's order and are usually more potent and specialized than over-the-counter drugs, which can be purchased without a prescription

- **Drug Pricing:** Drug pricing is a highly debated topic in the pharmaceutical industry. The cost of developing and producing drugs is high, and companies often price drugs at a premium to recoup their investment. However, high drug prices can limit access to essential medicines, and some countries have implemented price controls to regulate drug prices.
- **Clinical Trials:** Clinical trials are an essential part of drug development. Clinical trials involve testing the safety and efficacy of drugs in human subjects. The clinical trial process is highly regulated and involves multiple phases before a drug can be approved for use.
- **Generic Drugs:** Generic drugs are copies of brand-name drugs that have the same active ingredients, dosage, and efficacy. Generic drugs are usually less expensive than brand-name drugs and can provide cost savings to patients and healthcare providers.
- **Biologics:** Biologics are a type of drug that is produced using living cells. Biologics are more complex and difficult to produce than traditional drugs and are usually more expensive. Biologics are used to treat a range of diseases, including cancer, autoimmune diseases, and rare genetic disorders.
- **Mergers and Acquisitions:** The pharmaceutical industry is known for its frequent mergers and acquisitions. Companies merge or acquire other companies to gain access to new products or technologies, increase market share, and reduce costs.
- **Intellectual Property:** Intellectual property is a critical aspect of the pharmaceutical industry. Patents protect the rights of drug developers and allow them to recoup their investment in drug development. However, patents can also limit access to essential medicines, and there is ongoing debate about the balance between intellectual property rights and public health.

The pharmaceutical industry is constantly evolving, and there are several future trends to watch. These include the use of artificial intelligence and machine learning to accelerate drug development, the development of personalized medicine, and the increasing use of telemedicine to deliver healthcare services.

Patent and Patent Rejection: Why did India reject J&J's patent on TB drug?

Ms. Thejeswini C
M.Pharm Sem I
Dept. of Pharmaceutics

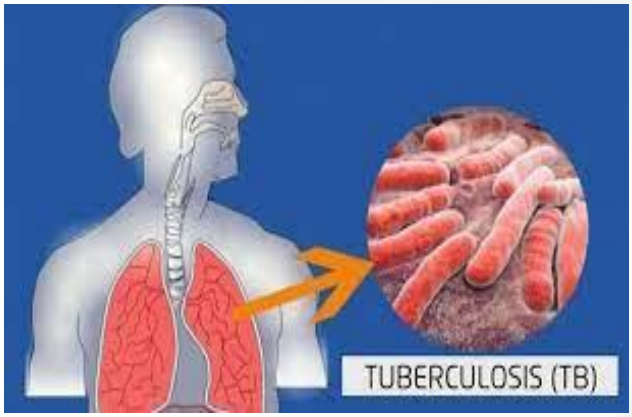
Patent, is a legal document granted by the government giving an inventor the exclusive right to make, use, and sell an invention for a specified number of years. The goal of the patent system is to encourage inventors to advance the state of technology by awarding them special rights to benefit from their inventions.

Process of patent approval involves: Filing of the application, examination of the patent application, prior art search, publication, grant/refusal of a patent, opposition, appeal. Rejection of patent applications in India is done under Section 15. It rejected around 1637 patent applications. The applicant is called by the IPO (Initial Public Offering) for clarifications but if he is unable to prove or give clarifications of the raised objections under Section 14. The application gets rejected under section 15 by the Controller.

This article covers an example of patent rejection by Indian Patent Office. The patent applied was by the J&J (Johnson & Johnson) company for the drug Bedaquiline for treatment of drug-resistant tuberculosis.

About disease:

Tuberculosis (TB) is caused by a bacterium called Mycobacterium tuberculosis. The bacteria usually attack the lungs, but TB bacteria can attack any part of the body such as the kidney, spine, and brain. Not everyone infected with TB bacteria becomes sick. As a result, two TB-related conditions exist: latent TB infection (LTBI) and TB disease. If not treated properly, TB disease can be fatal. Each year, we recognize World TB Day on March 24. This annual event commemorates the date in 1882 when Dr. Robert Koch announced his discovery of Mycobacterium tuberculosis. More than 40% of the population in India carry Tuberculosis infection in their body but only 10% get TB disease.



Patent:

An invention relating to a product or a process that is new, involving inventive step and capable of industrial application can be patented in India. If the grant of the patent is for a product, then the patentee has a right to prevent others from making, using, offering for sale, selling or importing the patented product in India. If the patent is for a process, then the patentee has the right to prevent others from using the process, using the product directly obtained by the process, offering for sale, selling or importing the product in India directly obtained by the process. The Patents Act 1970, along with the Patent Rules 1972, came into force on 20 April 1972, replacing the Indian Patent and Design Act 1911. The Office of the Controller General of Patents, Designs & Trademarks (CGPDTM) is located at Mumbai and the Head Office of the Patent office is at Kolkata.

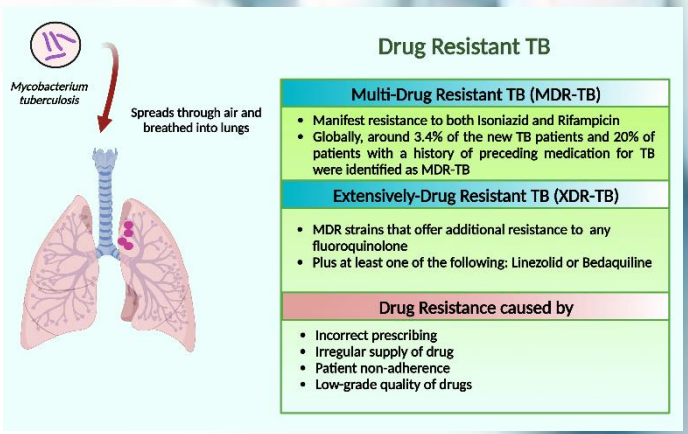
INTELLECTUAL PROPERTY INDIA
PATENTS | DESIGNS | TRADE MARKS
GEOGRAPHICAL INDICATIONS

The story so far:

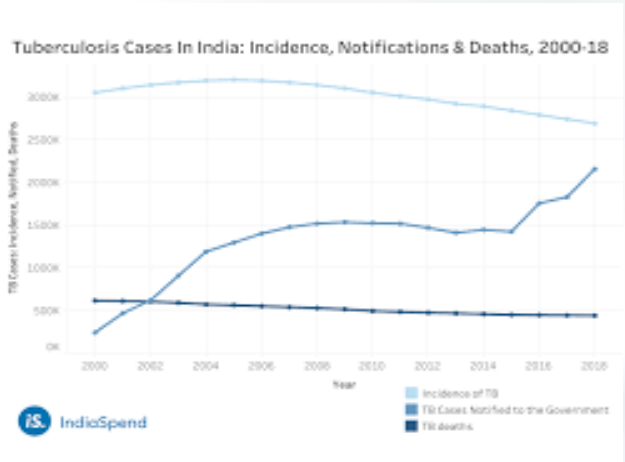
On March 23, the Indian Patent Office rejected an application by pharmaceutical giant Johnson & Johnson (J&) to extend its patent on the drug bedaquiline beyond July 2023. Bedaquiline is a drug in tablet form Used to treat drug-resistant tuberculosis (TB). This opens the door for drug manufacturers to produce generic versions of bedaquiline, which are expected to be more affordable and to contribute to India's goal of eliminating TB by 2025.

What is drug-resistant TB?

As of 2017, India accounted for around one-fourth of the world's burden of multi-drug resistant (MDR) TB and of extensively-drug resistant (XDR) TB. MDR TB resists treatment by at least two frontline drugs in TB treatment, isoniazid and rifampicin.



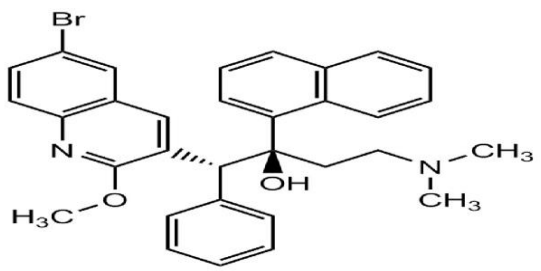
XDR TB resists these two drugs as well as fluoroquinolones and any second-line injectable drug. XDR TB is rarer than MDR TB - there were 1.24,000 cases of the latter in India (2021) versus 2,650 cases of the former (2017).



How effective is bedaquiline?

Typically, bedaquiline needs to be taken for six months: at a higher dose in the first two weeks followed by a lower dosage for 22 weeks. This period is shorter than other treatment routines for pulmonary MDR TB, which can last 9-24 month. A phase II clinical trial observed that culture conversion (turning a patient's sputum culture from positive to negative) at 24 weeks durable and associated with a high likelihood of response at 120 weeks, due to bedaquiline.

Unlike second-line treatment options that are injected and can have severe side effects, like hearing loss, bedaquiline is available as tablets and is less harmful, although it has potential side effects of its own. Studies until 2018 found that it could be toxic to the heart and the liver. This is part of why it is recommended only as a treatment of last resort.



Chemical Formula: $C_{32}H_{31}BrN_2O_2$
Molecular Weight: 555.52

The WHO's decision revitalized a debate on the ethics of making a much-needed but versus insufficiently tested drug available quickly lowering the safety threshold for pharmaceutical companies producing drugs for desperate patients.

Why was the patent application rejected?

J&J's patent application was for a fumarate salt of a compound to produce bedaquiline tablets. Two groups opposed the patent: 1) Network of Maharashtra people living with HIV and 2) Nandita Venkatesan and Phumeza Tisile, both TB survivors, supported by Médecins Sans Frontières

Both groups argued that J&J's method to produce a "solid pharmaceutical composition" of bedaquiline is obvious, known in the art" and doesn't require an "inventive step". According to the Indian Patent Act 1970 Section 2(1)(ja), an 'inventive step' is an invention that is "not obvious to a person skilled in the art". The latter also contended that the current application drew significantly from a previous patent, WO 2004/011436, which discussed a similar compound on which bedaquiline is based and whose priority date (2002) well preceded the new application.

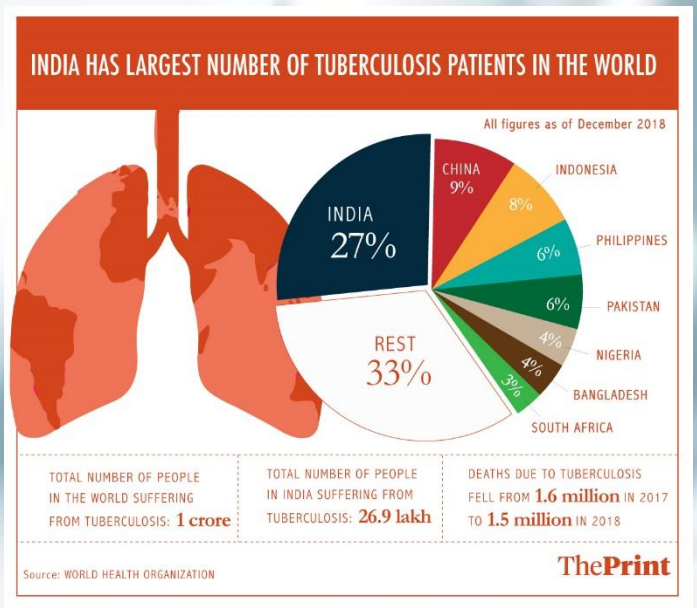
The Patent Office rejected the application on these and other grounds, including Sections 3d and 3e of the Act. These pertain to "mere discovery of a new form of a known substance which does not result in the enhancement of the known efficacy of that substance" and "a substance obtained by a mere admixture resulting only in the aggregation of the properties of the components thereof", respectively, which are not patentable.

Why is the rejection notable?

India has the largest population of people living with drug-resistant TB. J&J's patent on bedaquiline meant the drug cost $400 (revised to $340 in 2020) per person, plus the cost of other drugs. The rejection is expected to lower the cost of bedaquiline by up to 80%.

So far, the Indian government has directly procured the drug and distributed it through State-level TB programmes. After July 2023, manufacturers of generic drugs such as Lupin will be able to produce generic versions of bedaquiline.

The argument based on WO 2004/011436 is also relevant to 'evergreening- a strategy whereby a patent-owner continuously extends their rights and/or applies multiple patents for the same entity. Indian law disallows this.



Vital intervention

Bedaquiline, manufactured by J&J, is a crucial anti-TB drug

- India has rejected J&J's appeal to extend its patent beyond July 2023
- Currently priced at around $400 for a six-month treatment regimen, the prices are likely to fall
- After July, generic producers like Lupin and Macleods are likely to manufacture the drug
- Over 55,000 patients, in whom other drugs have stopped working, may benefit from Bedaquiline access
- Till March 2020, only a little over 10,000 patients received the drug

Impact of National List of Essential Medicines on Cost Variation of Immunosuppressants available in Indian Market

Ms. Tejaswini Dhamdar
M.Pharm Sem I
Dept. of Pharmaceutics

Immunosuppressants are used commonly in two conditions: to prevent graft versus host rejection in transplantation and autoimmune disorders. Autoimmune diseases are chronic in nature requiring lifelong treatment. Organ transplantation is also expensive. Commonly prescribed drugs in autoimmune diseases are disease modifying anti rheumatic drugs (DMARDs), glucocorticoids and nonsteroidal anti-inflammatory drugs (NSAIDs). Anti-TNF-alpha inhibitors are also widely used. Autoimmune diseases are chronic in nature mostly requiring lifelong treatment. Hence, these diseases result in huge amount of direct as well as indirect cost, and high-out of pocket cost. Therefore, affordability of these medicines is crucial.

To address the problem of affordability, government caps the prices of drugs included in National List of Essential Medicines (NLEM).

However, even cost variation among various brands of the drugs included in essential medicine list is of concern as majority of prescriptions are written using brand names. Hence this study was undertaken to evaluate impact of essential medicine list on cost variation of these drugs.

Cost variation among various brands of the drug is crucial as majority of prescriptions are written using brand names, even though MCI/ NMC mandates physician to prescribe using generic names. Further, prescribing costly drugs can lead to decrease in patient compliance, adversely affect physician- patient relationship and can have psychological impact on patients grappling with financial hardships. Hence this study was undertaken to analyze cost variation among different brands of commonly used immunosuppressant drugs in India. Another objective of the study was to analyze difference in cost variation among drug prices controlled by DPCO (Drugs in National list of essential medicines) and those which are not controlled (not in National list of Essential Medicines).

Methodology:

Immunosuppressant drugs were broadly classified into two categories drugs listed under National List of Essential Medicines (NLEM)22 and drugs not included (NNLEM), but used as immunosuppressants. Fixed dose combination was excluded from the study. Prices of the drugs belonging to both the groups were obtained from website "Pharma Sahi Dam" (https://nppaimis.nic.in › ppaprice › pharmasahidaamweb). Pharma Sahi Dam is developed and maintained by "National Pharmaceutical Pricing Authority" which is a credible online search tool to check prices of scheduled/non-scheduled drugs. Unit prices of all available brands for given formulation of each drug were recorded. The drug strength was considered only if it was available from two or more manufacturers. Ceiling price of the NLEM drugs was noted. Other parameters recorded were the minimum and maximum cost per unit in Rupees (INR) of a particular drug formulation. Later, cost ratio was calculated, it is the ratio of the cost of the costliest to cheapest brand of the same drug. Furthermore, % cost variation was calculated using following formula:

% Cost variation = Maximum cost minimum cost / Minimum cost x 100

The multiple linear regression analysis was performed to investigate association between % cost variation and study independent variables such as essentiality and number of brands. This was performed using IBM SPSS software.

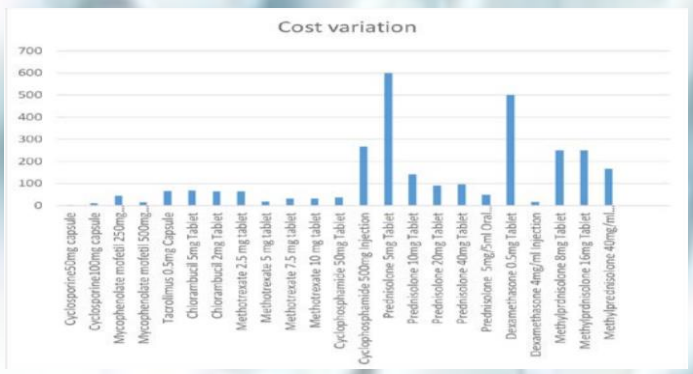


Figure 1: Bar diagram showing cost variation among various drugs from NLEM group

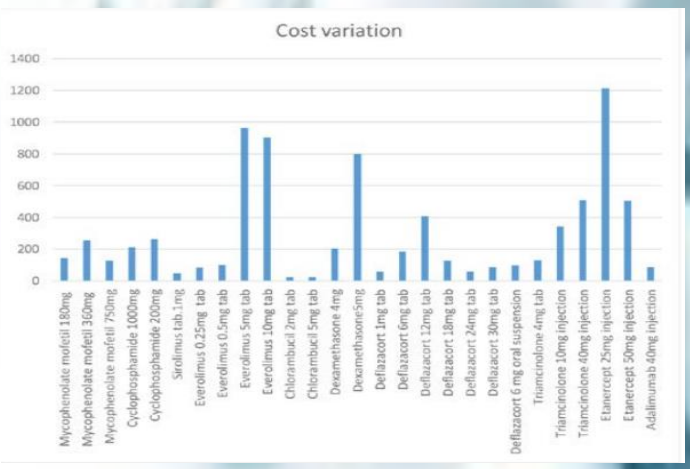


Figure 2: Bar diagram showing cost variation among various drugs from NNLEM group

Results:

NLEM group had 9 drugs (23 different strengths/doses) while NNLEM had 10 drugs (27 different strengths/doses). Figure 1 and 2 bar diagrams depict cost variation among drugs from NLEM group and NNLEM respectively. Immunosuppressant drugs showed wide cost variation. Maximum % cost variation among drugs NLEM drugs was seen with prednisolone 5mg tablet (600%) and dexamethasone 0.5mg tablet (500%)

However, cost of per tablet is very low that is about in range of INR. 0.1-0.7 and INR. 0.1-0.6 respectively, and hence practically %cost variation is insignificant. Minimum cost variation is seen 2% with cyclosporine 50 mg capsule.

Another drug from NLEM group - Cyclophosphamide injection (200mg) also showed high % cost variation that is about 267%. Minimum cost per unit was found to be INR 16 whereas maximum cost was INR 60. Cost variation was seen across all strengths of methylprednisolone, however highest was seen in case of methylprednisolone tablet (8mg ,16mg) that is 250%. Among NNLEM group, maximum cost variation of 1213 % was seen in case of Etanercept 25 mg injection. Everolimus 5mg and 10 mg tablet showed huge cost variation of greater than 900 %. Triamcinolone 10mg, 40mg injection, etanercept injection 50 mg, deflazacort 12mg tablet showed 342%, 508%, 505%, 409% of cost variation, respectively.

Factor	Unstandardized coefficient (B)	S.E (B)	Standardized Coefficient (β)	t	Significance
Constant	-55.223	118.879		-.465	.644
Essentiality	165.463	69.422	.316	2.383	.021
No. of brands	1.184	6.101	.026	.194	.847

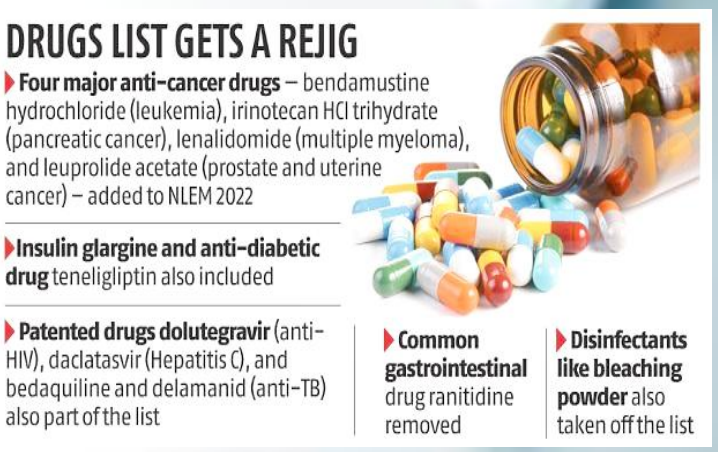
Table 1: Multiple regression analysis summary of percentage cost variation (PCV)

Overall higher cost variation was seen in NNLEM drugs. This was further substantiated by multiple regression analysis (Table 1). β= 0.316, p = 0.021, (significant as $p < 0.05$) proved that listing of drugs as essential medicines and ceiling their prices reduced cost variation among various brands. However, number of brands had no effect on cost variation (β = 0.026, p = 0.847).

References:

1. Tripathi KD. Essentials of medical pharmacology. jay pee brothers; 2019. 937-45

2. Borkar, P., Shinde, V., Bhandari, P., & Patil, R. (2022). Impact of National List of Essential Medicines (NLEM) on Cost Variation of Immunosuppressants available in Indian Market. Journal of Young Pharmacists, 14(3), 310–313.



Pathophysiology and Treatment of Stroke: Present Status and Future Perspectives

Ms. Anushri G
M.Pharm Sem I
Dept. of Pharmaceutics

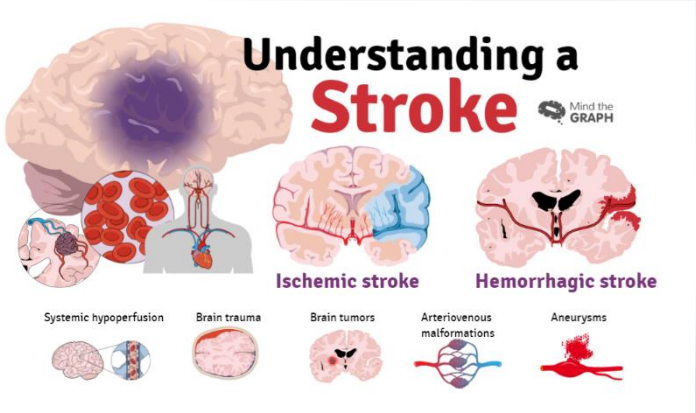
The neurological condition known as a stroke is characterized by blood vessel obstruction. Brain clots block blood flow, obstruct arteries, and lead to blood vessel rupture and bleeding. Brain cells suddenly perish due to a lack of oxygen when the arteries leading to the brain are ruptured during a stroke. Dementia and despair are additional complications of stroke.

Stroke was categorized as a blood vessel illness up until the International Classification of Diseases 11 (ICD-11) was published in 2018. Clinical data were not considered when classifying ICDs in the past. Produced from stroke patients were incorporated into the chapter on cardiovascular disorders, severely distorting the severity and burden of certain conditions associated with stroke. Stroke patients and researchers did not receive government assistance or grant money intended to treat neurological diseases as a result of this incorrect classification inside the ICD.

The actual nature and significance of stroke were finally acknowledged in the ICD-11, and stroke was re-categorized within the neurological chapter as a result of persistent advocacy from a group of physicians. The reclassification of stroke as a neurological condition has resulted in more precise data documentation and statistical analysis, promoting advancements in acute healthcare, and securing financing for stroke research.

Epidemiology of Stroke

Stroke is the second most common cause of death worldwide. About 13.7 million people are affected by it, and every year, 5.5 million people die from it. Ischemic infarctions account for about 87% of strokes, and their prevalence increased significantly between 1990 and 2016, which is attributed to lower mortality rates and better clinical interventions. Strokes are primarily caused by primary (first-time) hemorrhages, with secondary (second-time) haemorrhages accounting for between 10 and 25 percent of cases.



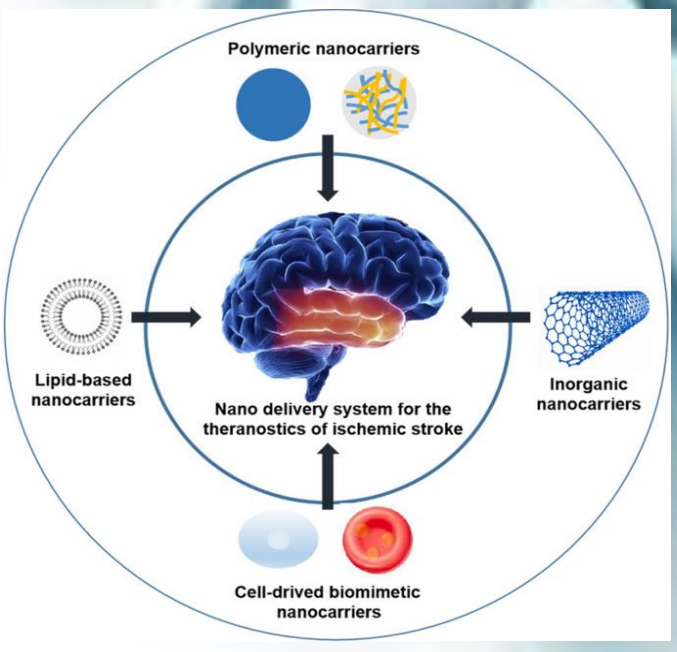
Despite a decline in the occurrence of stroke, the Global Burden of Disease Study (GBD) reports that the age, sex, and location of individuals affected make it more likely that they would experience disability. With time, stroke's socioeconomic cost has grown.

Pathophysiology of Stroke

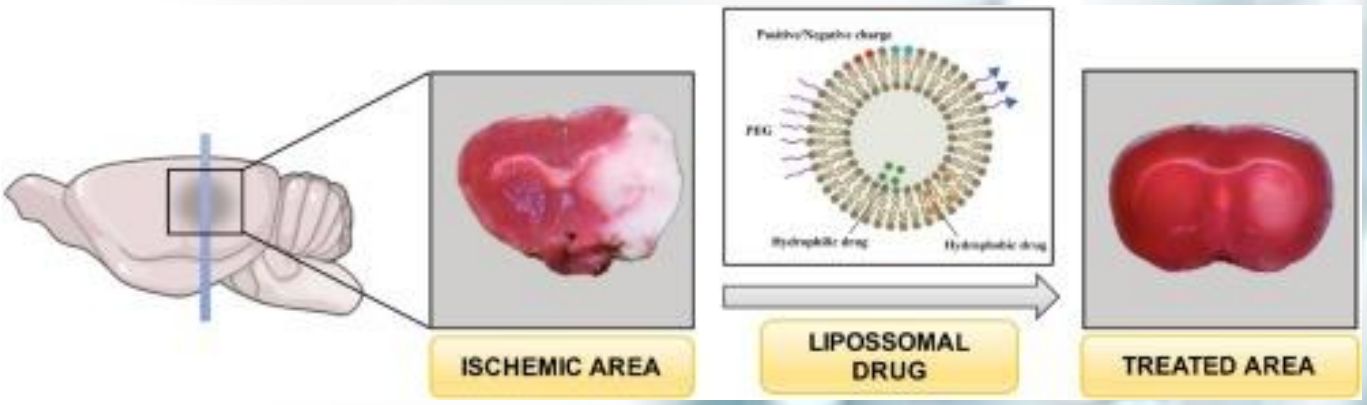
A stroke is described as a sudden neurological outburst brought on by impeded blood flow via the brain's blood vessels. In order to research the neurovascular anatomy, it is crucial to Clinical stroke manifestation. Two internal carotids in the front and two vertebral arteries in the back control the blood flow to the brain (the circle of Willis). Haemorrhagic stroke is brought on by bleeding or blood vessels that are open, while ischemic stroke is brought on by insufficient blood and oxygen reaching the brain.

Over 85% of stroke patients lose their lives as a result of ischemic occlusions, with intracerebral haemorrhage accounting for the remaining 15%. Brain thrombosis and embolism are caused by ischemic occlusion. Vascular narrowing brought on vascular atherosclerosis affects blood flow in thrombosis

Plaque accumulation eventually causes the vascular chamber to narrow and clot, leading to thrombotic stroke. Reduced blood supply to the brain region in an embolic stroke result in an embolism; the reduced blood flow to the brain results in acute stress and premature cell death (necrosis). Plasma membrane breakdown, organelle enlargement and cellular contents seeping into extracellular space, and loss of neuronal function all occur after necrosis. Other significant factors that affect stroke pathology include inflammation, energy failure, loss of homeostasis, acidosis, elevated intracellular calcium levels, excitotoxicity, free radical-mediated toxicity, cytokine-mediated cytotoxicity, complement activation, impairment of the blood-brain barrier, activation of glial cells, oxidative stress, and infiltration of leukocytes.



Due to a better understanding of the pathophysiology of stroke and the discovery of novel medications intended to treat the myriad of potential targets, the frequency of stroke-related emergency has significantly decreased in recent years.

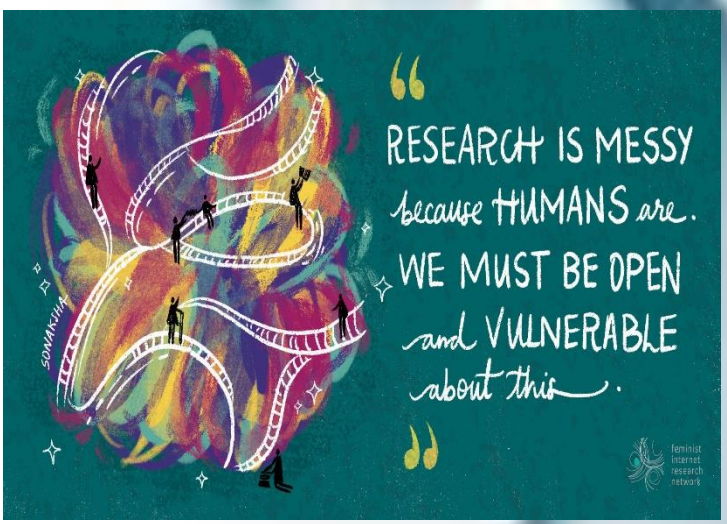


Trends in Stroke Research

Regenerative therapy has been developed to reconstruct brain networks and repair neurons destroyed by ischemia insult as a result of advances in stem cell technologies and genomes. The WIP1 gene is a Want signaling regulator and a potential therapeutic target. Research in mouse models demonstrated that the presence of WIP1 regulates neurogenesis through activation of -Catenin/Want signaling and that its knockdown inhibits the functional recovery process after stroke. Like this, NB-3 (contactin-6) is crucial for neuroprotection, as evidenced by NB-3 knockdown in mice following a stroke event. Increased brain injury during MCAo was observed in NB-3-deficient mice, which also impaired neurite outgrowth and neuronal survival rates. It is thought that NB-3 can treat ischemic insult.

For the treatment and prevention of stroke, many natural substances have been shown to be helpful. They offer comparable efficacy and safety to synthetic drugs and can be manufactured for less money.

Honokiol is a natural substance that has been shown to have neuroprotective benefits in animal models. It also seems to play a part in lowering oxidative stress and reducing inflammatory responses. A possible therapy option for stroke is gastrodin, a substance obtained from Gastrodia elata. It enhanced neurogenesis and turned on -Catenin-dependent Want signalling in a mouse model to offer neuroprotection following ischemia injury. Moreover, it contains antioxidative properties that guard neural progenitor cells from neuronal functional decline. Clinical studies have demonstrated the safety of Gastrodin, making it a viable alternative for stroke therapy in the foreseeable future.



Adverse drug reactions with self-medication

Mr. Shashank A G
M.Pharm Sem I
Dept. of Pharmaceutics

Although self-medication is widely developed, there is little detailed data about its adverse drug reactions. This study investigated the main characteristics of ADRs with self-medication recorded in the Midi-Pyrenees PharmacoVigilance between 2008 and 2014. Self-medication included first OTC drugs and second formerly prescribed drugs later used without medical advice. Among the 12,365 notifications recorded, 160 (1.3%) were related to SM with 186 drugs. Around three-fourth of the ADRs were 'serious'. Mean age was 48.8 years with 56.3% females. The most frequent ADRs were gastrointestinal and neuropsychiatric and main drug classes involved NSAIDs, analgesics, and benzodiazepines. Phytotherapy–homeopathy accounted for 9.1% of drugs.

Around 10% of drug sales in Europe are over the counter (OTC) drugs. However, Self-medication (SM) behavior is relatively frequent, involving beside use of OTC drugs, consumption of formerly prescribed drugs later used without medical advice (which can be called reuse of previously prescribed drugs). In a systematic review performed in an elderly population, Jerez-Roig found prevalence values of SM behavior between 20 and 60% with a 38% mean value . SM is generally believed to be safe. In fact, in the literature, there are relatively few detailed pharmacological and clinical data about adverse drug reactions due to SM. Thus, this study was performed to investigate the main characteristics of SM adverse drug reactions reported to a pharmacovigilance center.

Methodology:

Self-medication with adverse drug reactions were detected in the database after, first, a selection of drugs not requiring a medical prescription and, second, analysis of the medical and pharmacological comments written at the end of each registered case. Thus, the term 'SM' includes first OTC drugs and second formerly prescribed drugs which were later used without medical advice. In this study, phytotherapy was defined as plant-derived medicines. The main characteristics of the patients age, gender, drugs 'suspected' or not and adverse drug reactions seriousness and evolution were investigated. Misuse was defined according to Begaud as prescriptions or uses of drugs not conforming to the approved recommendations.

All the observations studied in this study were also registered in the FPVDB. This study included only suspected drugs and not concomitant ones. Finally, we investigated drug associations Self-medication with adverse drug reactions defined as the most frequent and clinically significant associations seen in the study between an ADR and a class of SM drugs (NB: this term does not mean drug interactions). For statistical analysis, we calculated numbers and percentages for qualitative variables, standard deviations and ranges for quantitative ones

Drug-SM-ADR associations

The most frequent ones were gastrointestinal pain , bleedings, renal insufficiency or pancreatitis with NSAIDs (ketoprofen, ibuprofen), (ii) nausea-vomiting, bleedings , confusional states or pancreatitis with analgesics (tramadol, paracetamol), and (iii) asthenia , confusional states or loss of memory with psycholeptics (oxazepam, zolpidem). With phytotherapy–homeopathy, cholestasis arrhythmias, and pancreatitis were registered. Misuse was found for 67 (36%) drugs, mainly with NSAIDs (n = 11, ketoprofen, ibuprofen, etc.) followed by analgesics (n = 4, acetyl salicylic acid, paracetamol, tramadol, etc.) and psycholeptics (n = 4, zolpidem, bromazepam, oxazepam, and lorazepam). There were 14 reports with acetylsalicylic acid used as an anti-inflammatory.

In conclusion, this study shows that Self-medication with adverse drug reactions are frequently reported to pharmacovigilance centers: around 1.5% of the registered ADRs. They are 'serious' in around three-fourth of cases and occur most frequently in women, mainly with NSAIDs, analgesics, or benzodiazepines. Pharmacovigilance of SM must be developed to better define the benefit-risk ratio of these drugs.

Department Buzz

Alumni Guest Lecture

An Alumni Guest Lecture was organized by Department of Pharmaceutics, FPH, RUAS on 17th February 2023 at 3:00 P.M. **Ms. Meghana** currently employed as **Research Associate at Jubiliant Biosys Ltd., DMPK Department** delivered a talk on *'Introduction to in vitro ADME and in vivo PK research in DMPK'.* The session was attended by 60 students across all departments and faculty members.

The talk focused on importance of ADME and in vivo research in drug development. Following a brief introduction to drug development stages, Meghana emphasized her talk on determination of solubility, and metabolism using liver microsomes. Various methods for determination of invitro permeability using Caco-2, MDR1 MDCK cell lines was explained. The highlights of the talk included her personal experiences during transition from academics to industry and her process of learning throughout the journey. Ms. Meghana acknowledged the role of the department and faculty in building her basics and paving the road for her future.

Department Buzz

Distinguished Lecture Series - I

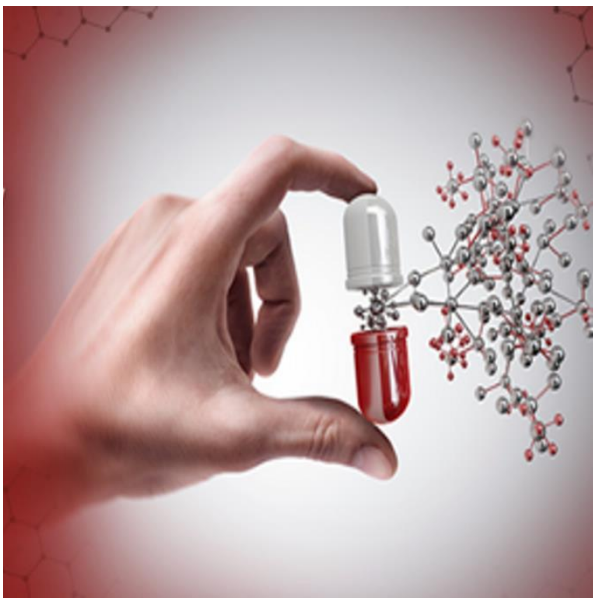
Department of Pharmaceutics at Faculty of Pharmacy, Ramaiah University of Applied Sciences is committed to keeping up with the rapidly changing scientific environment in order to develop efficient drug delivery systems. Resonating with this idea we are organizing a **Distinguished Lecture Series** comprising of eminent speakers with accomplished research experience in formulation development and drug delivery research and drug delivery research.

In this context, we had the inaugural webinar session on ***"Design and Development of Peptide-based Antibiotics to Treat Infections Caused by Multidrug-Resistant Pathogens"*** by **Dr. Prakash Hazam, Post Doctoral Fellow, Academia Sinica, Yilan County, Taiwan** on Saturday, 25th February 2023. Dr. Prakash deliberated on the importance of peptide antibiotics as an alternative means of delivering bioactive due to their resemblance with the bacterial membrane of drug resistant micro-organisms. He also outlined the design and development of peptides using relevant case studies and examples. Over 60 participants from various pharmacy colleges registered and participated in the event.

Department Buzz

Alumni Guest Lecture

On 30th March 2023, Department of Pharmaceutics organized a Guest Lecture by one of our alumni **Dr. Partha Sarathy Roy** (1998-2002 batch) on the topic ***"Recent advances in Drug Development".***



Department Buzz

Value Added Course:

Contemporary Approaches to Pharmaceutical Marketing

Department of Pharmaceutics as part of Value-Added Course (VAC) in Contemporary Approaches to Pharmaceutical Marketing) organized a guest lecture by Mr. Mukesh Kumar Jain, Regional Manager Nova Nordisk India Pvt. Ltd on ***"The Evolving World of Pharma Marketing".***

The lecture was attended by VIII semester B. Pharm and Pharma MBA students. The students were happy to interact with the speaker and got new insights about the world of Pharmaceutical Marketing.

WORD HUNT

CROSSWORD PUZZLE

Challenge your mind and have some fun solving this puzzle with pharmacy and medicine words.

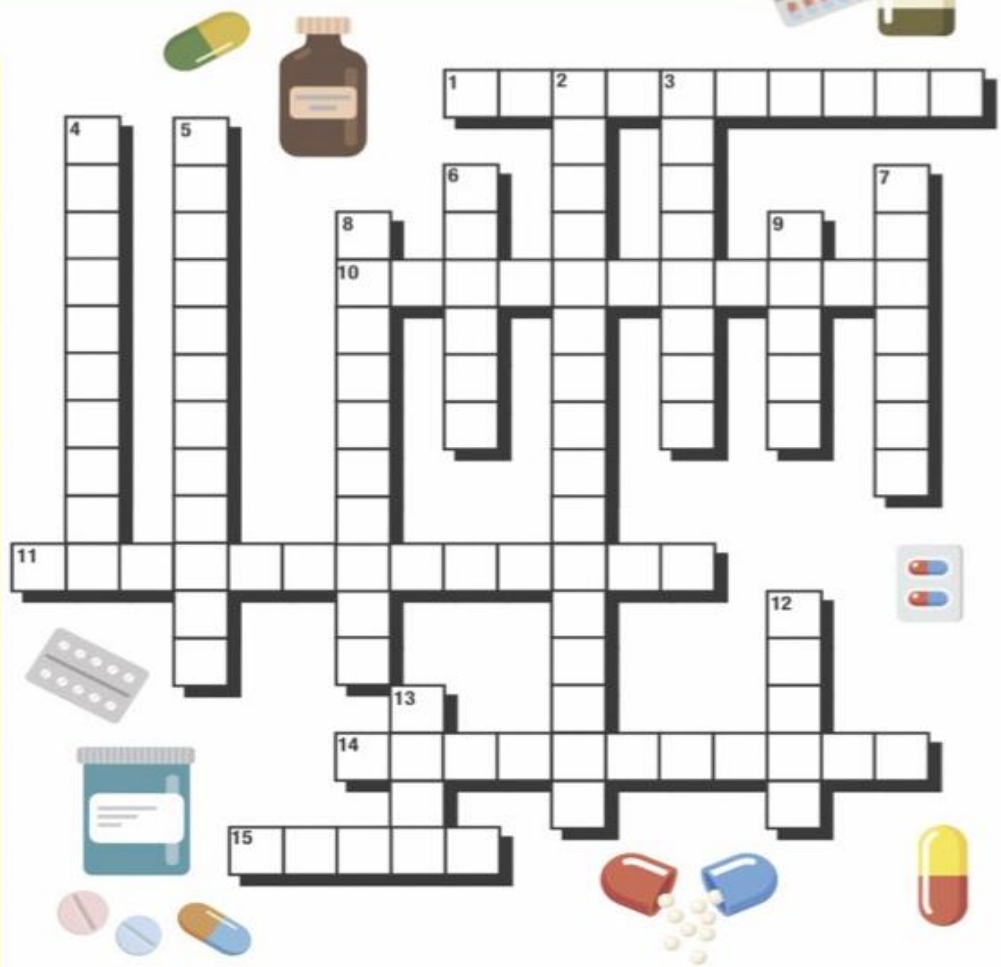
We've Got The Prescription For Excellence
Pharmacy team

ACROSS

1. Professional in charge who dispenses medicine
10. Situation when a substance affects a drug's activity
11. Type of drug used to treat blood clots
14. Combining multiple drugs for personalized treatment
15. Where the patient name and instructions are printed

DOWN

2. Hypersensitive response of the immune system
3. Government insurance program for older Americans
4. Mixture that must be shaken before use
5. Doctor's instructions for dispensing medication
6. Prescriptions should be kept in their original _____
7. A similar medicine that replaces a brand name drug
8. Room where drugs are prepared and dispensed
9. Government law involving patient privacy
12. Class of drugs like ibuprofen or aspirin
13. Amount of medication taken



Submit your answers to the Editorial team – Attractive prizes to be won!!
(aswathihegde.ps.ph@msruas.ac.in)

Club Scientia Activities

And now we have an Identity!!

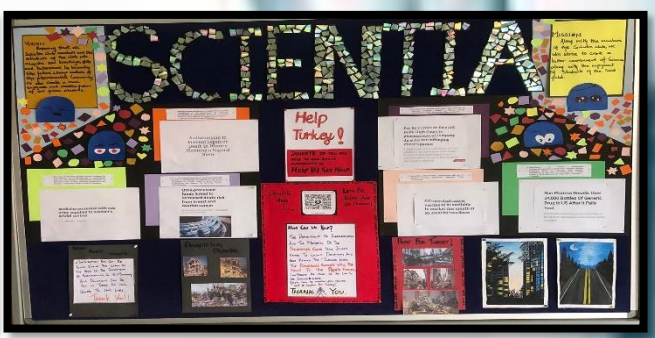
Unveiling the logo of Scientia Club!!

Club Scientia Activities

Heralding the New Year 2023 with gusto

The New Year is the time to start over, make new resolutions, and look forward to a great future ahead. Scientia club heralded the New Year with enthusiasm and enjoyment by organizing a small get-together with the department faculty members.

Turkey-Syria Earthquake Relief Fund



One of the worst disasters this century has impacted millions of people and left thousands homeless following two devastating earthquakes near the Türkiye-Syria border on 6 February 2023. As a humanitarian gesture, Club Scientia raised funds to donate towards Turkey-Syria Earthquake Relief Fund

Club Scientia Activities

Soap Box : Pharmaceutical Marketing & Management

On behalf of the SCIENTIA Club, Dept. of Pharmaceutics, a professional talk was organized for the benefit of UG and PG students on 25th February 2023. SCIENTIA Club would like to thank Mr. Sudheer, Business Head- Himalaya, Bengaluru for his informative talk on the pharmaceutical marketing and management.

International Women's Day 2023 and Holi celebrations

Club Scientia honored female faculty members of the department on eve of International Women's Day.

Gathering got pepped by multiple engagements from club members. Though simple yet significant in rejoicing essence of WOMANITY.

The club also had a low-key Holi celebration for spreading the colors of joy, love and peace here and everywhere.

Service to Society

As part of the Annual Service to Society (2023) activity organized by the Department of Student Affairs, RUAS, B.Pharm 2nd year students and M.Pharm 1st year students opted to visit a shelter home under Kalpa Raksha Educational and Charitable Trust, Bengaluru along with their mentor, Dr. Aswathi R Hegde, Assistant Professor, FPH, RUAS on Saturday, 18th March, 2023.

On being briefed regarding Service to Society activity, students suggested several activities that could be organized for the orphanage children including an awareness session on personal hygiene and waste management. As requested by the facilitator of the trust, procurement of the Printer/copier was made using Amazon. Remaining resources were procured locally. Students planned various small activities to engage the children. Importance of personal hygiene and waste management was given. Children were encouraged to discuss about their educational aspirations. The program ended with gifting of the printer/copier on behalf of RUAS. Since the children understood only local language, we had to explain in regional language also. To drive home the messages, we also made use of audio-visual aids to make the session more interactive and mutually inclusive.

Overall, the program was well planned and organized by the students of RUAS. It gave them a platform to express their ideas and talents to engage the children of the orphanage. They took over the event confidently and created a sense of confidence and self-reliance. Children of the orphanage enjoyed the program and wished us to come more often. Students and the mentor are grateful to Department of Student Affairs, RUAS for the opportunity.

RUAS Convocation 2023

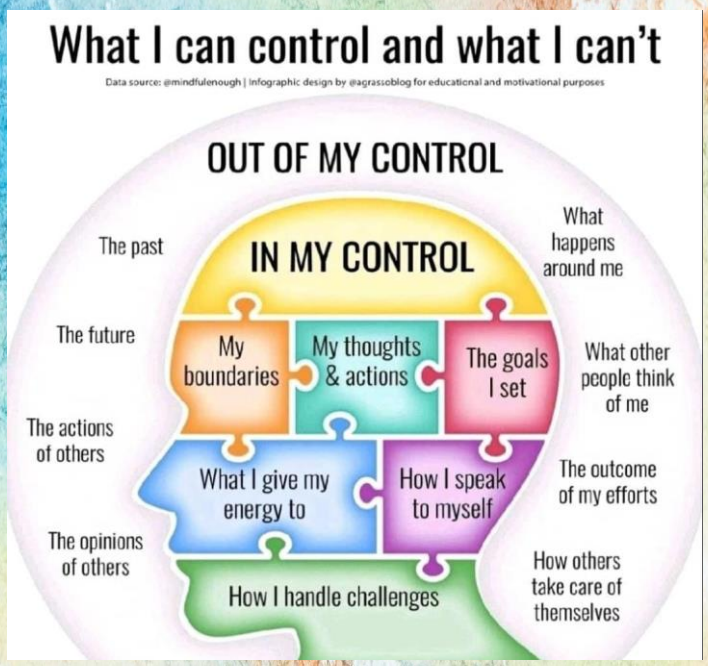
Ramaiah University of Applied Sciences conducted its **7th Convocation** on Thursday, 16th February 2023 atCampuses. Degrees were conferred Gnangangothri and Ramaiah Technology to Undergraduates, Postgraduates and Research Scholars. **Prof. Kuldeep Kumar Raina**, Vice Chancellor-RUAS welcomed the gathering, **Dr. G. Satheesh Reddy**, Scientific Advisor to Raksha Mantri, Govt. of India was the chief guest of the function and delivered the Convocation Address. **Dr. M. R. Jayaram**, Chancellor of the University presided over the convocation ceremony, conferred the degree to the Doctor of Philosophy (PhD) graduands and gave away medals to the toppers of respective UG and PG programmes. The vote of thanks was proposed by **Dr. Medha Y. Rao,** Dean — Academic Affairs, RUAS. **Shri M. R. Srinivasa Murthy**, Chief Executive Officer — GEF(M), **Dr. G S Venkatesh** — Registrar, RUAS graced the occasion. **Dr. Omprakash Kharbanda**, PVC-Health Sciences and **Dr. S Bharath**, Dean, FPH conferred degrees to graduates from Faculty of Pharmacy near Heritage Building, GG campus.

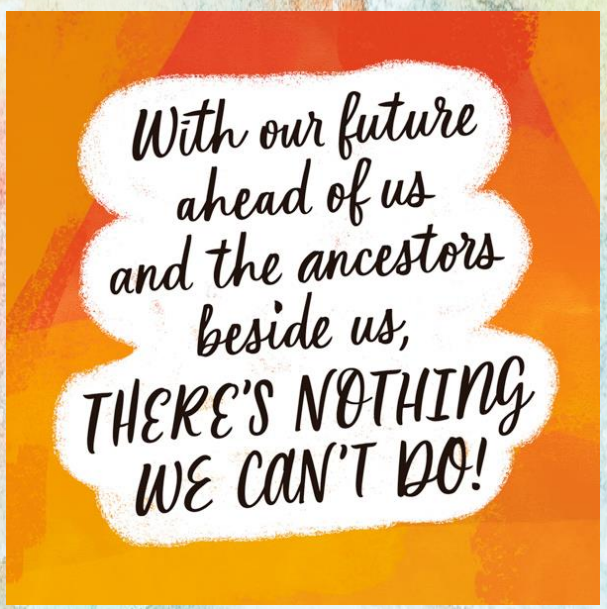
RUAS Convocation 2023

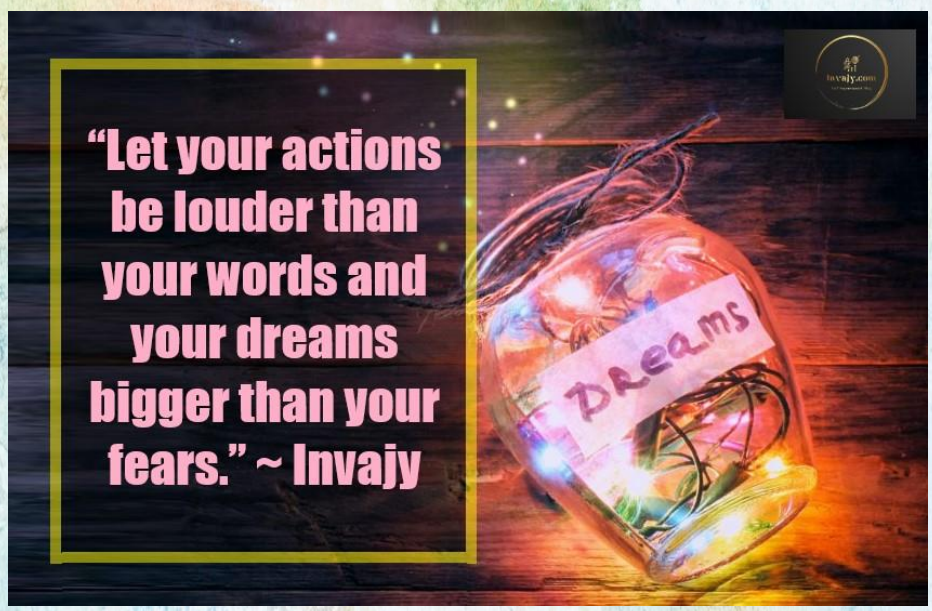
Ms. Shivani Srinivasan, PG 2nd year, Department of Pharmaceutics, bagged ***Smt. Gowramma Ramaiah Silver Medal for Best M.Pharm Dissertation*** for her M.Pharm project titled "***Design of intranasal drug delivery system for the treatment of motion sickness***". Ms. Shivani carried out her Dissertation work under the Supervision of Dr. S. Bharath, Professor and Dean, FPH. Department of Pharmaceutics heartily congratulates Ms. Shivani for achieving this remarkable feat!

It indeed was a proud moment for the Department to be a witness to this grand occasion.

MINDUITION







"Teachers can open the door, but you must enter it yourself." – Chinese Proverb

Seek respect, not attention. It lasts longer.

– Ziad Abdelnour

SCINTILLA

FACULTY OF PHARMACY

(Approved by PCI and AICTE)

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Specializations: Pharmaceutics, Pharmaceutical Chemistry, Pharmacognosy, Pharmacology and Pharmacy Practice

DOCTOR IN PHARMACY (PHARM.D) Degree - 6 years Programme

Ph.D PROGRAMME - In all specializations (Full time/Part time)

IN HOUSE RESEARCH CENTRES

Drug Design and Development Center **(DDDC)**

Pharmacological Modeling and Simulation Center **(PMSC)**

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Gnanagangotri Campus, M S Ramaiah Nagar,
New BEL Road, Bengaluru 560054

P 080 2360 2497/5283 | F 080 2360 8261
E reachus@ramaiah-india.org
W www.ramaiah-india.org