SULTAN-UL-ULOOM
COLLEGE OF PHARMACY

PRIDE

Pharmaceutical Research in Drug Evolution

Volume I Issue I R & D Newsletter 2016-17

Special points of interest:

- Abstracts from Department of Pharm. Chemistry, Pharmaceutics and Pharmacology.
- Interesting review of the killer fruit litchi
- Some did you know facts
- Plasma volume expanders

Inside this issue:

Editorial

Sultan-ul-Uloom College of Pharmacy is located in the heart of Hyderabad city. The mission of college of pharmacy is to provide excellence in teaching, research, and service. We are dedicated to the success of our students and the strong research base of our faculty allows us to provide individualized research experience for undergraduates in pharmaceutical sciences, as well as biomedical science. Qualified undergraduates actively participate in our lab courses as Lab Assistants, thus gaining valuable learning and teaching experience. Our commitment is always to our students, so we offer B.Pharam, M.Pharm, Pharm.D. and Pharm.D. (PB) courses. The Department is recognized for the excellence in teaching and research, and attracts both high-quality staff and well-qualified students. There are about 318 undergraduate students, 119 postgraduate students and 60 staff who form a close-knit, friendly department. We have a personal tutor system whereby each student has a member of staff to whom they can go to seek advice and guidance on any problem. The Department runs five highly respected postgraduate masters' degree programs in Pharmaceutical sciences include Pharmaceutics, Pharmaceutical chemistry, Pharmacology, Quality Assurance, and Pharm.D. (PB).

Vision & Mission

Vision

Sultan-ul-Uloom College of Pharmacy aspires to emerge as an internationally acclaimed institute of excellence imparting holistic pharmacy education along with innovative research, industry interface and patient care with a humane touch.

Mission

Our mission is to be an institute of academic excellence in nurturing outstanding pharmacists by:

- Ensuring high standards in imparting quality pharmacy education effectively integrating critical thinking, problem solving, team spirit and leadership skills.
- Promoting the academic, entrepreneurial and career growth of the students with ethical values and social commitment for sustainable development.
- Quenching intellectual thirst and fostering scientific temper for cutting edge research in pharmaceutical and clinical sciences that translates into health care and caters to the needs of the society at large.
- Building a collaborative environment with pharmaceutical industries, academic, clinical and research organizations that values and rewards innovation, productivity and life-long learning.

NEW RP-HPLC METHOD DEVELOPMENT AND VALIDATION FOR THE DETERMINATION OF PAZOPANIB HYDROCHLORIDE IN TABLET DOSAGE FORM

Abstract

The aim of this paper was to develop and validate the stability indicating RP-HPLC method for the determination of Pazopanib hydrochloride in bulk and pharmaceutical dosage forms. A simple, accurate, precise, sensitive and stability indicating RP-HPLC method has been developed for the determination of Pazopanib hydrochloride in bulk drug and pharmaceutical dosage form, in which separations are done using develosil C_{18}, 5µm, 150 × 4.6mm i.d. column at a flow rate of 1.0mL/min with an injection volume of 20µL. The beer's law was obeyed over the concentration range of 5 - 35µg/mL. The correlation coefficient was found to be 0.996 and it showed good linearity, reproducibility, precision in this concentration range. The % recovery values were found to be within the limits, which showed that the method was accurate. The LOD and LOQ were calculated using statistical methods. The % RSD values were less than 2. The developed method was successfully applied for determination of Pazopanib hydrochloride in pharmaceutical dosage form. The results obtained are in good agreement with those obtained by using the standard method.

Keywords: Pazopanib hydrochloride, Develosil, Stability indicating, Method Development, Validation.

Corresponding Author
Dr. N. Appala Raju
Professor
Dept. of Pharm. Chemistry
Sultan-ul-Uloom College of Pharmacy

FORMULATION DEVELOPMENT AND CHARACTERIZATION OF OXCARBAZEPINE MICROEMULSION FOR INTRANASAL DELIVERY

Abstract

OBJECTIVE: The objective of this study was to develop novel intranasal micro emulsion containing oxcarbazepine for treatment of epilepsy. Most drugs cannot be given orally because of significant degradation in the GIT or first pass metabolism in the liver.

METHODS: Isopropyl myristate was selected as oil while tween 80 and polyethylene glycol was selected as surfactant and cosurfactant respectively based on solubility results. Optimized ratio of tween 80: polyethylene glycol was selected after developing pseudoternary phase diagrams for different ratios and microemulsions were prepared. The prepared microemulsions were characterized for percentage drug content, pH, particle size, polydispersity index, zeta potential, conductivity, viscosity and *in vitro* drug release. *Ex vivo* permeation study for optimized microemulsion was performed through sheep nasal mucosa where cumulative percentage of drug permeated was determined. Further pharmacodynamic performance was evaluated in mice by electrically induced seizures.

RESULTS: It was found that optimized microemulsion was transparent with average globule size of 20.5 nm and cumulative percentage drug permeated was 73.5 %. Pharmacodynamic evaluation of optimized formulation also indicated lesser intensity of seizures with low dose in mice in comparison to mice treated with oral suspension of oxcarbazepine. This may be due to larger extent of selective nose to brain delivery of drug in comparison to oral suspension of oxcarbazepine. This may help in decreasing the dose and frequency of administration of drug and may possibly maximize therapeutic benefits and may also reduce the cost of therapy.

CONCLUSION: Oxcarbazepine intranasal delivery system as an effective alternate therapy for treatment of epilepsy.

Corresponding Author
Dr. T. Mamatha
Professor
Dept. of Pharmaceutics
Sultan-ul-Uloom College of Pharmacy

Co-Author
Sameen Jamal
Sultan-ul-Uloom College of Pharmacy

Did you know?

1. Bacitracin is only administered topically because it can produce toxic effects when given systematically. This drug was developed from a strain of bacteria found growing in a culture of wound drainage taken from a patient named Margaret Tracy. The drug name bacitracin was formed from the bacteria's name and patient's name Bacillus subtilis+ Tracy+in

2. Capsaicin is derivative of habanero hot pepper plant! This variety of hot peppers is so caustic that it will burn your hand if you touch it without wearing protective gloves. The amount of capsaicin in a hot pepper is measured in Scoville units, which were devised in 1912 by the pharmacist Thomas Soville. Habanero peppers are rated the highest of all peppers- 100,000 to 300, 0000 Scoville units. This means you can feel the heat when you taste a solution that only has 1 part habanero pepper in 100000 to 300,000 parts of sugar water and alcohol mix.

3. Exena ® is used as diuretic contains benzthiazide as active pharmaceutical ingredient. The trade name Exena ® gives a clue as to the drug's diuretic action. The prefix *ex-* means coming out and *Na* is the chemical symbol of Sodium.

4. ODT-Stands for orally disintegrating tablet

5. Epoprostanol (Flolan ®) is administered continuously by a computer controlled pump through a catheter that is surgically implanted in a vein in patient's chest. This drug costs about $100000 annually.

6. Nystatin was discovered in 1950 by two physicians who named the drug for their employer-the New York State Department of Health.

7. Tranxene-SD® is benzodiazepine derivative contains clorazepate used for anxiety and neurosis. The SD in brand name stands for single dose. The T in Tranxene-T® refers to the actual shape of the tablet.

8. Aspirin was first introduced in 1899, although for many years prior to that it was used for pain relief in its natural form from willow bark. Aspirin is also known as acetyl salicylic acid (ASA) from the word *salix,* which means willow in Latin.

9. Leucovorin is a derivative of the vitamin folic acid. Administration of leucovorin after methotrexate chemotherapy is known a leucovroin rescue. The drug is also known as citrovorum factor and folinic acid.

10. Several gold salt drug name contain *au* the chemical symbol of gold: Ex: auranofin, Ridaura, aurothioglucose.

A Review on India's Killer Fruit-Litchi:

An unexplained illness in children aged 15 years and younger in Muzaffarpur, Bihar, which claims many lives in May-June, has been solved. Scientists from the U.S. and India have found that consumption of litchi fruit and skipping evening meal can result in very low blood glucose level (less than 70 mg/dL) and acute encephalopathy that provokes seizures and coma, and causes death in many cases.

Children in Muzaffarpur frequently spend the day eating litchis and some skip the evening meal. Skipping evening meal, by itself results in low blood sugar levels during the night. This is particularly so in the case of young children as they have limited hepatic glycogen reserves. Hypoglycin A and methylenecyclopropylglycine (MCPG), which are naturally present in litchi fruit, make the condition worse. The toxins block enzymes involved in normal glucose metabolism and this results in an inability to synthesis glucose leading to acutely low level of blood sugar. The build-up of other metabolic by-products could also have an adverse effect (encephalopathy) on the child. These two cause death in many children.

In 2013, scientists from Delhi's National Centre for Disease Control, India (NCDC) and the U.S. Centres for Disease Control and Prevention (CDC) started an investigation. The first focus of the team was to evaluate if the mysterious condition was due to an infectious cause or not. "Most of the children did not have fever. And on testing the spinal fluid, we did not find elevated white blood cell count. These two indicated that it was less likely to be to an infectious cause. It gave us a clue that we should look at non-infectious causes," recalls Dr. Padmini Srikantiah, Global Disease Detection Programme-India, CDC, Atlanta, and the corresponding author of the paper.

With infectious causes ruled out and most sick children presenting with low blood glucose levels, the team started investigating the role of toxins — exposure to pesticide, insecticide and heavy metals to name a few.

"In late 2013, CDC colleagues in Atlanta brought to our attention the well reported case of toxic hypoglycaemic syndrome in West Indies caused by hypoglycin A, a toxin found in ackee fruit, which is in the same family as litchi," she says. "MCPG, which is a homologue had been detected in the seed of litchis, and was reported to cause low blood glucose in rats. So we started with a hypothesis."
The 2014 outbreak allowed the scientists to investigate the role of pesticides, herbicides, heavy metals, besides hypoglycin A and MCPG in litchi fruits. "We heard over and over again from parents that their children were healthy and running around the day before, but presented with seizures and loss of consciousness in the early morning. Some people also said their children had skipped the evening meal the previous day [to illness]," says Dr. Srikantiah.

Over 62% sick children had blood glucose level less than 70 mg/dL. The median was 48 mg/dL and it was as low as 8 mg/dL. Researchers compared 104 children with illness with similar number of controls. They found metabolites of hypoglycin A and MCPG in 66% (48 of 73 cases) of urine samples but none from the 15 controls. About 90% of children with illness showed severe disruption of fatty acid metabolism. In 36 litchi samples tested, hypoglycin A ranged from 12.4-152 microgram per gram and MCPG ranged from 45-220 microgram per gram. The level of hypoglycin A and MCPG was twice in unripe compared with ripe fruits.

IMPACT OF PATIENT COUNSELING IN DIABETIC OUT PATIENT IN AN URBAN TERTIARY CARE HOSPITAL AT HYDERABAD METROPOLITAN

Abstract

Aim: To find out the impact of patient counseling in diabetic out patient in an urban tertiary care hospital at Hyderabad metropolitan.

Methodology: A total of 170 patients were considered for the study. The data was collected through counseling forms and patient profile forms made available by the institution and the tertiary care hospital unit. These forms include whole data of the patient which is useful for the study. This study was carried out over a period of 8 months (December 2015- July 2016).

Results: Out of a total of 170 patients, the patient with age groups in the range 41 to 50 and 51 to 60 are more prone to diabetes mellitus than other age groups. The sex distribution was found to be in 1:1 ratio. The Co morbidities data were also collected, and found that maximum number of patients were affected with cardiovascular diseases (n=152).

It was found that, 70 patients are categorized as normal as their principal cut off range of BMI was found to be between 18.8 to 24. 90 patients are categorized as overweight as their principal cut off range of BMI was found to be between 25 to 29.99. 09 patients are categorized as obese as their principal cut off range of BMI was found to be between 30 to 40. 01 patients was categorized as underweight as the principal cut off range of BMI was found to be below 18.5. It was found out that, subjects below 6% of HbA1c were found to be 6. The subjects between 6 to 6.4 % were found to be 16. The subjects above 6.5% of HbA1c were found out to be 148. The effect of counseling found that Fasting plasma glucose level (FPG) and postprandial plasma glucose level (PPG) of all the patients included in the study were significantly reductions.

Keywords: Diabetes Mellitus, Patient Counseling, BMI, HbA1c, FPG, PPG.

Corresponding Author
Dr. N. Anitha
Professor
Dept. of Pharmacology
Sultan-ul-Uloom College of Pharmacy

SYNTHESIS AND CHEMICAL CHARACTERIZATION OF SOME NOVEL BENZOPYRANS AND THEIR BIOLOGICAL ACTIVITY STUDIES

Abstract

Substituted benzopyrans such as chromones and coumarins have received significant consideration during last few decades as they are proficient with diversity of biological activities and have extensive variety of therapeutic properties. A literature review postulates that benzopyran derivatives possess different pharmacological and biological activities, of which the most potent is anti-microbial activity. We thought to synthesize pyrano pyramidine moiety incorporating benzimidazole and benzopyran moiety.

KEY WORDS: Benzopyrans, chromones, Benzimidazole.

.

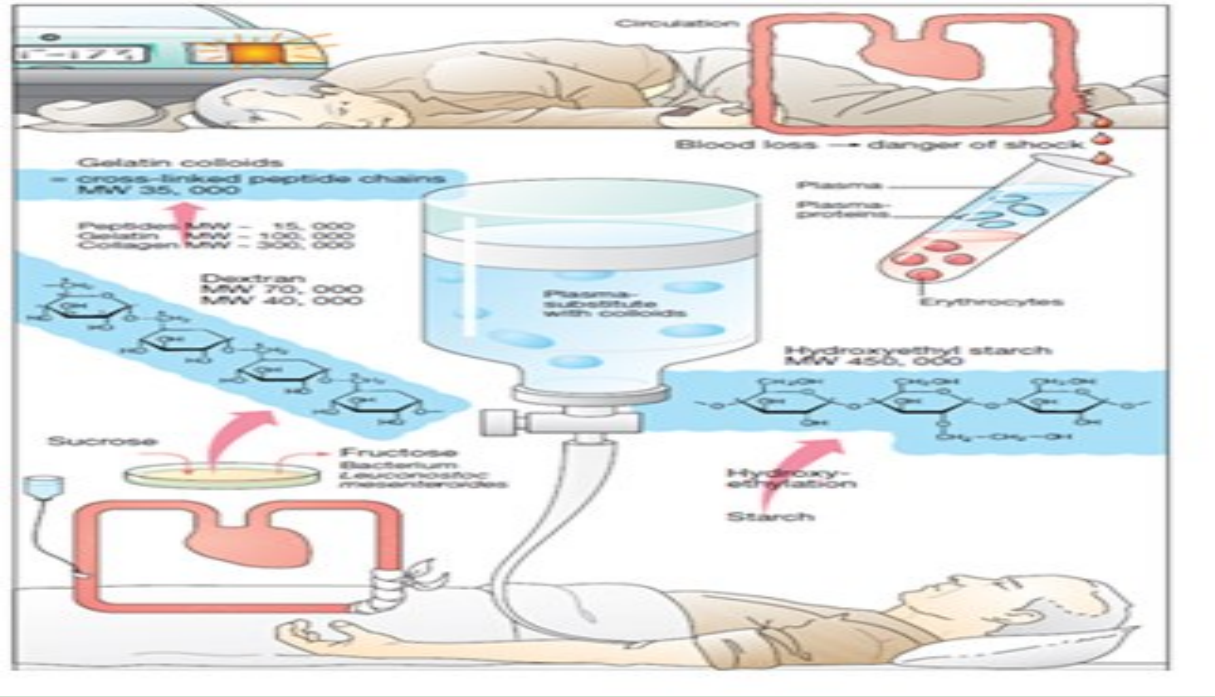
Corresponding Author
Dr. Y. Rajesh Babu
Associate Professor
Dept. of Pharm. Chemistry
Sultan-ul-Uloom College of Pharmacy

Plasma Volume Expanders

Major blood loss entails the danger of life-threatening circulatory failure, i.e., hypovolemic shock. The immediate threat results not so much from the loss of erythrocytes, i.e., oxygen carriers, as from the reduction in volume of circulating blood. To eliminate the threat of shock, replenishment of the circulation is essential. On the other hand, volume substitution is only transiently needed and therefore complete elimination of these colloids from the body is clearly desirable.

Compared with whole blood or plasma, plasma substitutes offer several advantages: they can be produced more easily and at lower cost, has a longer shelf life, and are free of pathogens such as hepatitis B or C or AIDS viruses. Three colloids are currently employed as plasma volume expanders—the two polysaccharides, dextran and hydroxyethyl starch, as well as the polypeptide, gelatin. Dextran is a glucose polymer formed by bacteria and linked by a 1→6 instead of the typical 1→4 bond. Commercial solutions contain dextran of a mean molecular weight of 70 kDa (dextran 70) or 40 kDa (lower-molecular weight dextran, dextran 40). The chain length of single molecules, however, varies widely. Smaller dextran molecules can be filtered at the glomerulus and slowly excreted in urine; the larger ones are eventually taken up and degraded by cells of the reticuloendothelial system. Apart from restoring blood volume, dextran solutions are used for hemodilution in the management of blood flow disorders.

Hydroxyethyl starch (hetastarch) is produced from starch. By virtue of its hydroxyethyl groups, it is metabolized more slowly and retained significantly longer in blood than would be the case with infused starch. Hydroxyethyl starch resembles dextrans in terms of its pharmacological properties and therapeutic applications. Gelatin colloids consist of cross-linked peptide chains obtained from collagen. They are employed for blood replacement, but not for hemodilution, in circulatory disturbances.



LIST OF EVENTS CONDUCTED IN THE ACADEMIC YEAR 2016-2017

S.No.	DATE	EVENT	DETAILS
1	13.06.2016	**MOU with MaxCure Suyosha Women & Child Hospital**	Executed by: **Dr. Naseem Majid** Head – Marketing & Business Development, Suyosha Healthcare Pvt. Ltd., & **Mr. Zafar Javeed** Hony. Secretary, SUES
2	18.06.2016	**First Aid & Life Saving Sequence Session**	Conducted by: **MaxCure Suyosha Women & Child Hospital**
3	08.09.2016	**GRADUATION DAY 2016**	Guests: **Prof. T. Papi Reddy,** Chairman, Telangana State Council of Higher Education **Dr. B. Prabha Shankar** Chairman & Managing Director, Leads Pharma Pvt. Ltd. & President, Indian Pharmaceutical Association - Telangana State Branch
4	22.09.2016	**BLOOD DONATION CAMP** In Collaboration with *Haripriya Rangarajan Transfusion Medicine & Research Centre* **Red Cross Blood Bank** – Telangana State Branch	Chief Guest**:** **Shri B.V.** Papa Rao Garu I.A.S. Advisor to Govt. of Telangana State
5	18.10.2016	**Indian Pharmaceutical Association National Elocution Competition – 2016 Telangana State Round**	Judges: **Dr. Krishna Mohan Chinnala**, Principal Nalla Narasimha Reddy Group of Institutions **Prof. Nirmala Nair**, H.O.D., Dept., of English, MJCET **Dr. Anusha Bompelli**, Chairperson, Indian Pharmaceutical Association Student Forum (IPASF)
6	24.11.2016	Introduction of **Call Ambulance APP**	Participants: **Pharm. D students**
7	28.11.2016	**First Response Training Program**	Conducted by: **Continental Hospitals** Participants **Pharm. D students**
8	08.12.2016 & 09.12.2016	**Health Awareness Program in SUES Campus**	Participants: **Pharm. D students**

S.No.	DATE	EVENT	DETAILS
9	14.12.2016	Seminar on **Nutrition in the Management of Health & Call Ambulance & Nutrifi Mobile Apps**	**Mr. Umashankar Kotturu**, CEO & Founder, Call Ambulance & Nutrifi **Dr. Suresh Kumar** **Ms. Hari Priya**
10	17.12.2016	Awareness program on **Cashless payments in Devarkonda Basti**	Organized by: **Eenadu News Paper**
11	17.12.2016	Industrial visit to **Sanzyme Pvt. Ltd., Shamshabad**	Visited by: **B. Pharm final year students**
12	19.12.2016	Workshop on **"Be the Change"**	**Mrs. Shobha Nargundkar** Radical forgiveness and Radical Living Coach Integrated Clinical Hypnotherapist
13	23.12.2016	**Health Awareness Program in SUPS Auditorium**	Participants: **Pharm. D students**
14	07.01.2017	Industrial visit to **TherDose Pharma Pvt. Ltd., Pragati Nagar**	Visited by: **M. Pharm Iyr students**
15	12.01.2017 to 14.01.2017	**Sports Week**	**Inter - Class Sports Competition**
16	11.01.2017	Visit to **Dept. of Chemistry, BITS-Pilani, Hyderabad Campus**	Visited by: **M. Pharm Iyr students**
17	27.01.2017	Networking Meeting on **"Funding in Lifesciences & Healthcare"**	Guests: **Mr. Ranajit Sen** – Startup Mentor, IKP Knowledge Park **Dr. Ramjee Pallela** Chief Manager, IKP Knowledge Park
18	28.01.2017	Workshop on "**Clinical Pharmacy – Skills Development Training Program"**	Chief Guest**:** **Dr. Adepu Ramesh,** President, Indian Hospital Pharmacists Division, IPA
19	18.02.2017	**Eye Testing Camp**	By: LV Prasad Eye Hospital Road No. 2, Banjara Hills, Hyderabad
20	18.02.2017	**"Self-defense for women"** by HAPKIDO Association Telangana	Mr. Mohammed Zaheeruddin, President, HAPKIDO Association Telangana
21.	18.02.2017	**SELF DEFENCE COURSE**	By: **HAPKIDO FEDERATION - INDIA**
22.	12.01.2017 to 14.01.2017	**PHARMATHON ABLAZE-2K17**	Sports
23.	25.02.2017 to 28.02.2017	**PHARMA CARNIVAL-2K17**	**CULTURAL EVENTS AND FEST**
24	04.02.2017 to 05.02.2017	**SYNCHROPHARMA 2017**	National Interdisciplinary Conference on "Race to Optimize Antibiotic Usage for Better Therapeutic Outcome"

Graduate Program Outcomes of Sultan-ul-Uloom College of Pharmacy

At the end of the program the graduates shall

a. Acquire fundamental knowledge of pharmaceutical, clinical and life sciences, their practical applications, relevant historical landmarks and political issues.

b. Learn the basic principles of drug treatment, disease modifications, formulation development, manufacturing, quality assurance and analytical techniques.

c. Understand drug designing, cellular mechanism, molecular biology and molecular modelling.

d. Demonstrate knowledge of current regulatory guidelines and intellectual property rights.

e. Have thorough knowledge of pharmacovigilance, ADR–monitoring and pharmacogenetics.

f. Master the key concepts in modern pharmaceutical tools, software, equipments and their validation.

g. Greatly enhance their practical skills, scientific approach, analytical and critical thinking potential accomplishing the real time requirements of all stake holders.

h. Immensely benefit in organizing proficiency and knowledge dissemination in seminars, symposia and workshops.

i. Interact with industries, academic, clinical and research organizations widening their intellectual horizons and entrepreneurial skills.

j. Gain ability for sustainable development through team participation, communication, planning, time management, leadership and interpersonal skills.

k. Be groomed on societal, health and environmental safety, legal, cultural, ethical, moral and social practices for a better professional identity and lifelong learning.

l. Training graduates to achieve global competence to succeed competitive examinations in employment and higher education.

SULTAN-UL-ULOOM
COLLEGE OF PHARMACY

Mount Pleasant, 8-2-2479 to 267
Road No.3, Banjara Hills,
Hyderabad - 500 034
Telangana State

Phone: 040-23280233
Email: suucop@yahoo.com

Find us at
www.sultanuloompharmacy.ac.in

Programme Educational Objectives

Academic Excellence: Graduates of this program shall gain profound knowledge in various disciplines viz., applied mathematics & sciences, anatomy, physiology, pharmacology, pharmaceutics, pharmaceutical chemistry, pharmaceutical analysis, phytochemistry, biotechnology and regulatory affairs to cater to the requirements of pharmaceutical industries, professional pharmacy practice, clinical research organizations, medical transcription and data management companies.

Core Competence: Graduates to be developed into highly competent individuals with practical skills by igniting scientific temper and promoting intellectual quest to gear ahead towards competitive examinations and diverse careers in the field of pharmaceutical sciences through the process of continuous learning.

Personality Development and Professionalism: To inculcate discipline, professionalism, team spirit, communication skills, social and ethical commitment in the graduates in order to adorn leadership roles facilitating improvement in healthcare sector with a distinct professional identity, business acumen, global recognition and sustainable development.

Collaboration: To benefit graduates through industry – institute interface and collaboration works with other academic, clinical and research organizations resulting in confidence building, knowledge advancement and entrepreneurial competencies.

Regulatory Affairs: Graduates to be trained in current acts and regulations governing good manufacturing practices, good laboratory practices, good clinical practices

Committed to Nurturing Outstanding Pharmacists

MoUs with:

- **Aster Prime Hospitals, Hyderabad**
- **Central Research Institute of Unani Medicine (CRIUM), Hyderabad**
- **KIMS Foundation and Research Center, Hyderabad**
- **Omdurman Islamic University, Sudan**

Courses Offered:

B.Pharm (4 Years)

M.Pharm (2 Years)

- Quality Assurance
- Pharmaceutical Chemistry
- Pharmaceutics
- Pharmacology

Pharm.D. (6 Years)

Pharm.D. (PB) (3 Years)

Editor-in-Chief
Dr. Anupama Koneru
M.Pharm., Ph.D.
Principal

Associate Editor
Dr. N. Appala Raju
M.Pharm., Ph.D.
Professor

Assistant Editor
Imran Ahmed
MCA, M.Sc.
Assistant Professor