



The NGSMIPS Herald

NITTE

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VISION

To build a humane society through excellence in education and health care.

MISSION

To develop Nitte University as a centre of excellence, imparting quality education, generating competent, skilled manpower to face the scientific and social challenges with a high degree of credibility, integrity, ethical standards and social concern.

'For Private Circulation Only'

From the Editor's desk

Indian Pharmaceutical industry has emerged as the third largest globally and is the second largest growing Industry in India. From a meager 1800 crores in 1980s, the industry has grown to about 100000 crores by 2009. By 2015, another 2.5 lakh pharmacy graduates will be required.

The statistics present a very rosy picture. Pharmacy students can really be up beat about this. But the ground reality presents a different picture. Pharma graduates are finding it more and more difficult to get suitable placements. One of the common refrains from the prospective employer being the pharmacy students are not having the required skill or additional expertise over science students. It is the time for rehauling the syllabus and delivery system and make the students more competitive.

Of late, there is a shift towards clinical/hospital pharmacy to make our syllabus comparable with that of developed countries. It should be kept in mind that it is the Indian Pharmaceutical Industry which is the biggest employer of pharmacy professionals. Any changes in the syllabi should be brought about keeping in mind the needs of the Indian Pharma Industry.

Another area of concern is the poor infrastructural resources in the colleges. Recently AICTE granted permission to add new courses, to increase the intake in all the colleges. It remains to be seen how the institutions which do not have necessary qualified teaching staff or facilities cope with the situation. The quality of the students passing out will take further beatings and the industry will be more skeptical unless these problems are addressed.

It is the right time to ensure that the quality is not compromised in education institutions. Perhaps all the players will have to exercise more care and concern.



C.S. Shastry



‘Vanamahotsava’ at NGSMIPS

The Institution showed its support to environment awareness by planting trees in the college grounds and celebrating ‘Vanamahotsava’ on 24th September, 2010. The college already boasts of greenery and plentiful vegetation in the vast grounds around the building. Smt. Renuka Shetty, President of Kotekar Gram Panchayat was the chief guest and invited to plant the sapling. Also present were Sri. Rajmohan Mudya, Member of Gram Panchayat and Vice President of Konaje Lions Club, Dr. C.S. Shastry, Principal; faculty and students.



Smt. Renuka Shetty, Sri Rajmohan Mudya, Dr. C.S. Shastry and Faculty at the site in college grounds



Smt. Renuka Shetty drops the first shovel of earth around the sapling, while faculty and students look on

Book Release

Mr. Himanshu Joshi, Lecturer, Department of Pharmacology has compiled a book of quotations entitled, ‘Footprints to Success’. This book was released by Dr. D. Satyanarayana, Director of P.G Studies & Research and Dr. C. S Shastry, Principal on September 25, 2010 in the presence of faculty members. The author has penned most of the quotations himself, inspired by his own experiences. The book encourages the reader to persist in the path of success and not be discouraged by Life’s shortcomings.



Campus Buzz

National Workshop



Dr. C.V.S. Subrahmanyam lights the inaugural lamp

The Department of Pharmaceutics organized a two day national level workshop on “Innovative Trends in Pharmaceutical research” on 28th and 29th July, 2010 at KSHEMA seminar hall, Deralakatte, Mangalore, attended by 150 delegates from different colleges in and around Karnataka as well as from the neighbouring states. This workshop was sponsored



Release of the Book of Abstracts of the two day National level workshop

by the Nitte University and was inaugurated by Dr. C.V.S. Subrahmanyam, Principal, Gokaraju Rangaraju College of Pharmacy, Hyderabad and presided over by Dr. H.V. Sudhaker Nayak, Registrar, Nitte University. The theme of this interactive workshop was to bring awareness to postgraduate students, research scholars and academicians of the latest techniques and methodology currently being used in pharma research. The sessions included demonstration of different software, statistical approaches, and use of optimization techniques such as Factorial design supported with solving of practical problems in which many of the delegates participated actively. The resource persons were Dr. C.V.S. Subrahmanyam, Mr. P.Manoj Kumar, Senior General Manager, Formulation Development R & D, Matrix laboratories Limited, Hyderabad; Mr. Thiyagu R, Faculty, MCOPS, Manipal; Mr. K. Vijayanarayana, Faculty, MCOPS, Manipal; Dr. C. Mallikarjuna Rao, Vice Principal, MCOPS, Manipal and Mr. Kiran Aithal B, Research Scholar, Manipal Life Sciences Centre, Manipal. The workshop concluded with a poster session on research papers in the areas of Pharmaceutics, Pharmaceutical Chemistry and Pharmacology. Prizes were awarded for the best research papers in these subjects.

Guest Lectures by Alumni

The NGSMIPS Alumni Association (NIPSAA) organized lectures by alumni, Mr. Arun A. and Mr. Sojan Thomas on 12th August, 2010 at the college premises. Mr. Sojan Thomas, currently working as a Pharmacist at Riteaid Pharmacy, Detroit, Michigan, delivered an interesting lecture on “Pharmacy Retailing in the US-The current scenario” which was appreciated by students aspiring to work in the U.S. Mr. Arun A., Senior Product Manager at Kottakkal Arya Vaidya Shala, Kottakkal spoke at length on “Pharmacy Practice in Alternative system of Medicine”

Inauguration of New Seminar Hall at NGSMIPS and Practical Hands - On Workshop in Experimental Pharmacology



Inauguration of the new seminar hall by Dr. Rajendra Prasad



Faculty and delegates seated in the new hall

The Institution proudly witnessed the inauguration of its new A/C seminar/conference hall on 7th September 2010. Dr. Rajendra Prasad, Dean of A.B. Shetty Memorial Institute of Dental Sciences, Mangalore did the honours while Dr. C.S Shastry, Principal, NGSMIPS presided over the ceremony.

The inaugural function was immediately followed by the commencement of the two day workshop on “Basic techniques in experimental Pharmacology”. The workshop was sponsored by the Nitte University and was organized by the Department of Pharmacology, NGSMIPS. Around 40 delegates participated in the workshop. The resource persons were Dr. Thippeswamy, Prof. & Head, Dept. of Pharmacology; Dr. Veeresh Veerapur, Prof. and Head, Dept. of Quality Assurance of Siddaganga Institute of Pharmaceutical Sciences, Tumkur, Karnataka.



Dr. C.S. Shastry speaks at the Inauguration of the workshop on experimental Pharmacology

Ph.D Awarded



Mr. Prabhakara Prabhu, Assistant Professor, Dept. of Pharmaceutics, NGSMIPS, Paneer, Derlakatte, has been awarded Ph.D. in Pharmaceutical Chemistry by Rajiv Gandhi University of Health Sciences, Bangalore. He had worked on his thesis entitled, “Investigation of colon specificity of polysaccharides in synthesis of prodrugs and formulations”, under the guidance of Dr. D.Satyanarayana, Director, NGSM Institute of Pharmaceutical Sciences, Paneer, Deralakatte and the co-guidance of Dr.R.Narayana Charyulu, Vice Principal & Head, Department of Pharmaceutics, NGSM Institute of Pharmaceutical Sciences, Paneer, Deralakatte



Mrs. Prerana Shetty, Assistant Professor, Dept. of Pharmaceutical Chemistry, NGSMIPS, Paneer, Derlakatte, has been awarded Ph.D. in Bio-Sciences by Mangalore University, Mangalagangothri. She had worked on her thesis entitled, “Pharmacological & toxicological investigations of *Saraca Indica Linn*”, under the guidance of Prof. M. Krishnamoorthy, Dept of Bio-Sciences, Mangalore University, Mangalagangothri.

Appointments

Mr. Pankaj Kumar was appointed as Lecturer in the Department of Pharmaceutical Chemistry from August 2010.

A JOURNEY OF NATURAL PRODUCTS ON THE WAY TO DRUG DISCOVERY.....

Santanu Saha
Lecturer, Dept. of Pharmacognosy

.....down memory lane

Drug, the medicine to treat the ailments or diseases, may be toxic or non toxic but must be a chemical entity. The etymology of Drug, which refers its derivation from a French word “Drogue” means “dried herbs”, itself stands as an evidence for the relationship of medicines with nature. Over the years natural products have served a major role as therapeutic agents or as health care therapy for several traditional medicinal systems around the world. These ancient wisdoms are more based on philosophical and spiritualistic interventions. The involvement of spiritualistic approach as influence of nature on human body has been found as basic principle for traditional Chinese medicine and traditional Indian medicine, Ayurveda. According to ancient Chinese system human body controlled by five earthly elements earth, water, fire, wood and metal. In contrast, the principle of Ayurveda has been conceptualized on five basic elements (pancha mahabhutas) earth, water, fire, air and space, which correspond to develop three humors (vata, pitta, kapha) to control human health. The homeostasis of these elements upholds healthy body, and imbalance manifests disease state. The earliest book on traditional Chinese medicine was found of around 3000 B. C. named *Shennong Bencao Jing* (Shennong Emperor’s *Classic of Materia Medica*), written by an emperor Shennong, which described about 365 drugs

from plant, animal and mineral origins, one for each day of the year. The attribution of natural products in health care therapy like acupuncture, *moxibustion* (using ignited moxa wool, or moxa wool mixed with other herbs to treat and

Type of drug	Name of drugs
Herbal drug	<i>Asparagus racemosus, Boswellia serrata, Cannabis sativa, Curculigo orchioides, Echinacea angustifolia, Glycyrrhiza uralensis, Hemidesmus indicas, Lobelia chinensis, Ocimum tenuiflorum, Panax ginseng, Phyllanthus emblica, Quillaja saponaria, Rauwolfia serpentina, Silybum marianum, Tribulus terrestris, Withania somnifera, Zingiber officinale</i>
Animal product	Amber, Coral, Cowrie Shell, Honey, Horn of Deer, Musk, Oyster, Pearl, Rhinoceros horn, Seahorses, Snail, Tiger nail
Minerals and Metals	Aluminium potassium sulfate, Arsenic, Gold, Iron, Lead, Natural Zinc, Sodium bicarbonate, Sodium carbonate

prevent disease) was described in *Zhenjiu Jiayijing (Systemic Classic of Acupuncture and Moxibustion)* by Huang-fu Mi. Ayurveda traces its origins to the *Vedas, Atharvaveda* in

particular, though, *Charaka Samhita* is considered as first treatise to document the practice and therapeutic concepts of Ayurveda in 900 B.C., and described 341 plants and plant products. The compilation of 470 medicinal plants in *Bhava Prakasha* by Bhava Mishra of 16th century has been held in high esteem by modern Ayurvedic practitioners. Various ayurvedic formulations like Arishta, Asava, Gutika, Taila, Leha, Avleha, etc. are also multi-component mixtures of plant or animal- derived product and minerals and metals.

The western medicinal systems have been developed from ancient Greek and Egyptian medicinal systems. The ancient “Egyptian Papyrus Ebers” is one of the earliest known herbals. Inscribed *Assyrian* tablets dated 668–626 BCE listed about 250 vegetable drugs those are still in use today including saffron, cumin, turmeric and sesame. The Greek physician Hippocrates, known as “father of medicine”, used about 400 drugs, most being of plant origin. The *De Materia Medica* by Dioscorides, a physician in the Roman army, described some 500 medicinal plants.

“the power of Now”

The Indian mythological epic “*Ramayana*” described the resurrection of ‘Lakshman’ by treatment with Sanjeevani plant when he was fatally hit by a fierce fire-power (Shaktiwan). Recently, the scientific investigation showed the protective activity of *Selaginella bryopteris* (commonly known as Sanjeevani) against heat-induced cell death, which is a scientific evidence for therapeutic action mentioned in epic about the plant. Natural Products were being in use as medicine in traditional systems either as whole drug or extract. The revolution in this approach occurred with invention of morphine from opium in 1805 and it became both the first pure naturally derived medicine and the first to be commercialized, by Merck in 1826. However, early doctors, such as Galen, did understand that various natural products contained different compounds that would each affect the human body differently. Soon, Western pharmaceutical companies quickly began to prefer purified natural products as ingredients to make drugs, rather than crude extracts. In addition, the elucidation of the molecular structures of many natural products allowed chemists to synthesize them, rather than isolating them from natural sources, which markedly lowered the cost of drug production. Subsequently, a large number of well-known natural compounds were identified, analysed and synthesized: salicin from *Salix alba* (white willow), emetine from *Cephaelis ipecacuanha* (ipecacuanha), strychnine and brucine from *Strychnos nux-vomica* (strychnos), quinine from *Cinchona ledgeriana* (cinchona bark) etc. The twentieth century saw the discovery of the antibacterial properties of penicillin, derived from the mould *Penicillium notatum*, which was soon followed by various other antibacterials. The structural analysis of natural compounds and the ability to synthesize them allowed chemists to modify them in order to suppress or enhance certain characteristics such as solubility, efficiency or stability in the human body. In beginning of nineteenth century, the invention of chromatographic technique by Mikhail Tsvet accelerated the isolation process of phytoconstituents, which results in discovery of large number molecules from natural sources. Natural products have also been an invaluable

source of inspiration for organic chemists to synthesize novel drug candidates. Moreover, development during the last century in new chromatographic techniques, microwave technique for extraction, spectroscopical analysis of leads, supercritical fluid extraction, and high-throughput screening method made this drug discovery process much easier and allowed exploring of previously inaccessible varieties of natural products.

In the days to follow.....

Despite the record of productivity, natural product based drug discovery has encountered serious challenges during the past decade vis-à-vis modern standards of safety and efficacy. Recently many international authorities and organizations, including World health organization, European Agency for the Evaluation of Medicinal Products and European Scientific Cooperation of Phytomedicine, US Agency for Health Care Policy and Research, European Pharmacopoeia Commission, Department of Indian System of Medicine, have promoted new strategies with perspective of standardization, validation, safety and efficacy of botanical medicine. In the year 2002 WHO has unveiled Global strategy for traditional or complementary/alternative medicine (TM/CAM) which included evaluation and regulation to produce stronger evidence base on the safety, efficacy and quality of the TM/CAM products. India is one of the world’s twelve leading biodiversity centers with the presence of over 45,000 different plant species and holding second position as a supplier of herbal product. In India the value of botanicals related trade is about US \$10 billion per annum with annual export of US \$1.1 billion which shares only 2% of global trade on herbal drug but it is expected to become 14% by 2015. Development of new molecular entity into therapeutic drugs takes several years and is capital-intensive, which are greater bottlenecks of natural product drug discovery. The introduction of “Reverse Pharmacology” helps in reducing such bottlenecks of drug discovery process by turning drug discovery from ‘laboratories to clinics’ to ‘clinics to laboratories’ with knowledge of ayurveda. In this trend, theory of “golden triangle” was proposed to unite ayurveda, modern medicine and science to formulate cheaper medicine and to maintain quality of therapy. With these newer approaches and modern technologies the world can achieve new horizon in drug discovery and can provide economical therapy for those people who can’t afford costly western medicine.

References:

1. <http://acupuncture.com.au>
2. Dwarakanath C. Some significant aspects of the origin and development of medicine in ancient India. [Abridged] Indian J Hist Sci. 1970 May; 5:1-12.
3. Chiappelli F, Prolo P, Cajulis OS. Evidence-based Research in Complementary and Alternative Medicine I: History. eCAM 2005; 2(4) 453–458..
4. Mashelkar RA. *Chitrakoot Declaration*, National Botanical Research Institute Convention. 2003.
5. Patwardhan B, Vaidya A, Chorghade M. Ayurveda and natural products drug discovery. Curr Sci. 2004 March; 86(6):790-99.

DEPARTMENT ACHIEVEMENTS

DEPARTMENT OF PHARMACEUTICAL CHEMISTRY

Research Publications

DR. K. ISHWAR BHAT

1. Synthesis and antimicrobial activities of amino benzylated mannich bases of Pyrazinamide. *Internal Journal of Chem Tech Research* 2010; 02: 1368-1371.
2. Antifungal evaluation of some novel mannich bases. *Asian Journal of Chemistry* 2010; 22(8) : 6605-6606
3. Aminobenzylated mannich bases of Amides. *Journal of Chemical and Pharmaceutical Sciences* 2010; 03: 138-140.

DR. PRERANA SHETTY

1. "Toxicological Studies of alcoholic extract of *Curculigo orchioides* on albino rats. *Pharmacologyonline* 2010; 1: 574-579.
2. Evaluation of Genotoxic potential of Aspartame. *Pharmacologyonline* 2010; 01: 753-769

MR. REVANA SIDDAPPA B.C

1. Synthesis and Biological Activity of Some novel 1,3,5-trisubstituted Pyrazoline Derivatives. *J Ind Council of Chemists* 2010; 27(1): 96-98.
2. Synthesis and Biological Evaluation of some Novel Pyrimidine Derivatives. *J Ind Council of Chemists* 2010; 27(1): 85-88.

MR. ABHISHEK

1. Synthesis and antimicrobial screening of some novel triazoles their Schiff's bases. *The Pharma Research* 2009; 01: 127-32.

PAPERS PRESENTED AT CONFERENCES

Mr. Revana Siddappa B.C presented the following papers at conferences:

1. A Poster on the research paper entitled, "Synthesis, Antibacterial, Antifungal, Antioxidant Activity of 1, 2, 4-triazolo-thiadiazoles" at the National Institute of Technology Karnataka, Surathkal from Mar 8th -10th (2010) in the National Conference on Recent Trends In Chemical Research.
2. A Poster on the research paper entitled, "Synthesis, Antibacterial, Antifungal, Evaluation Of Some New 1, 3, 4-Oxadiazoles" at B.L.D.E.A's College of Pharmacy, Bijapur, from July 30-31st (2010) in the ICMR sponsored "Advances in Drug Design And Drug Delivery for Pulmonary Diseases"
3. A Poster on the research paper entitled, "Synthesis, Antibacterial, Antifungal, Antioxidant Evaluation of some new 1, 3, 4-oxadiazoles" at the Indian Institute of Chemical Technology, Hyderabad from Aug 1-4th (2010) in the International Conference on Organic Synthesis and Human Well Being: Emerging Opportunities and Challenges.

4. A Poster on the research paper entitled, "Synthesis, Antibacterial, Antifungal, Antioxidant Evaluation of some new 1, 2, 4-Triazolo-1, 3, 4-thiadiazoles" at PES College of Pharmacy Bangalore, from, Aug 20-21st (2010) at the 2nd International conference on "Current Status and Future Perspective In Pharmaceutical Sciences"
5. A Poster on the research paper entitled, "CAT Mediated Synthesis of 1,3,4-oxadiazoles". at PES College of Pharmacy Bangalore, from, Aug 20-21st (2010) at the 2nd International conference on "Current Status and Future Perspective In Pharmaceutical Sciences"

Ms. Jainey. P. James, Lecturer, presented a paper as oral presentation at the 2nd International conference on "Current status & future perspective in Pharmaceutical Sciences" on the topic, "Cytotoxicity studies & synthesis of Pyrazolines & Pyrimidines via common intermediate chalcones" held on 20th & 21st August, 2010 at PES College of Pharmacy, Bangalore

DEPARTMENT OF PHARMACEUTICS

Research Publications

MRS. MARINA KOLAND

1. Fast Dissolving Sublingual Films of Ondansetron hydrochloride: Effect of additives on *in vitro* Drug Release and Mucosal Permeation. *Journal of Young Pharmacists*. 2010; 2(3), 216-222.

DR. PRABHAKARA PRABHU

1. Preparation and Evaluation of Transdermal Patches of Papaverine Hydrochloride. *Int J Res Pharm Sci*, 1(3); 2010:259-266.
2. Investigation of effect of drug solubility on colon specificity of polysaccharide polymers khaya gum and guar gum. *Int J Res Pharm Sci*, 1(3); 2010: 345-352.
3. Investigation and Comparison of effectiveness of novel polymer khaya gum with guar gum for drug targeting to colon. *Pak J Pharm Sci* 23 (3); 2010: 259-265.

PAPERS PRESENTED AT CONFERENCES

Ms. Elizabeth N Xavier, Lecturer, presented a paper as poster on "Microsphere based matrix tablets of Terbutaline Sulohate for Bronchial Asthma" at the second International Conference on "Current status and future perspectives in pharmaceutical sciences" held on 20th & 21st August 2010 at PES College of Pharmacy, Bangalore. The paper was co-authored by Mr. Sreedharan, Mr. Harish Nayari M and Dr. R. Narayana Charyulu.

Ms. Teresa George Poozhikanadake, Lecturer, presented a paper as oral presentation at the 2nd International Conference on "Current status and future perspective in pharmaceutical sciences" on the topic "Comparative study of polyelectrolyte complexes for sustained release of pentoxifylline" held on 20th & 21st August 2010 at PES College of Pharmacy, Bangalore.

WORKSHOPS/SEMINARS ATTENDED

Mr. Sreedharan Nair, Assistant Professor had attended a one day workshop on “Rational Drug Use including concepts in essential drugs, drug promotion and rational prescription as per WHO guidelines” was organized by Drug Action Forum, Karnataka and All India Drug Action Network on 20th July, 2010 at MCOPS, Manipal

STUDENT ACHIEVEMENTS

The following students presented research papers as poster presentations at the National level workshop on “Innovative Trends in Pharmaceutical Research” held on 28 & 29th July 2010 at KSHEMA, Mangalore organized by NGSMIPS

- **Nitish kumar Rao**, Second year M.Pharm, on “Synthesis and investigation of colon specific polymeric prodrug of budesonide with cyclodextrin”. The paper was co-authored by Mr. Prabhakar Prabhu, Dr. D Satyanarayana, Dr. R N Charyulu and Mr. Harish N M. The same presentation won the best paper award.
- **Uchil Deepika Vijaykumar**, Second year M.Pharm, on “Investigation of colon specificity of polymeric prodrug of Ibuprofen with cyclodextrin”. The paper was co-authored by Dr. Prabhakara Prabhu, Mr. Harish Nayari M, Dr. D.Satyanarayana and Dr. R. Narayana Charyulu.
- **Maithil R Patel**, Second year M.Pharm, on “Thermoreversible *in situ* nasal sustained drug delivery of ondansetron hydrochloride”. The paper was co-authored by Ms. Sahana Palke and Mrs. Nisha Girish Shetty.
- **Muhammed Jaseer V.K.**, Second year M.Pharm, on “Design and *in-vitro* evaluation of microsphere-based modified release matrix tablets of terbutaline sulphate”. The paper was co-authored by Ms. Elizabeth N Xavier, Mr. Harish N M and Mr. Sreedharan.

The following students presented research papers at the International Conference on “Current status and future

perspective in pharmaceutical sciences” held on 20th & 21st August 2010 at PES College of Pharmacy, Bangalore.

- **Zalak Patel**, Second year M.Pharm, presented a paper as oral presentation on “Formulation and Comparative Evaluation of Mucoadhesive in situ gels of Antifungal Agents” The paper was co-authored by Ms. Elizabeth N Xavier, Mr. Harish N M and Mr. Sreedharan.
- **Zenia Maria Teles**, Second year M.Pharm, presented a paper as oral presentation on “Investigation of Colon specificity of novel polymer Khaya gum”. The paper was co-authored by Dr. Prabhakara Prabhu, Mr. Nissara Ahmed, Mr. Harish N M, Dr. R Narayana Charyulu, Dr. D Satyanarayana.
- **S. Prashanthi**, First year M.Pharm has presented a research paper (oral presentation) entitled “Novel matrix forming materials for sustained drug delivery system using cashew gum”. The paper was co-authored by Dr. Prabhakara Prabhu, Mr. Harish N.M and Miss. Uchil Deepika.

DEPARTMENT OF PHARMACOLOGY

Mr. Ullas Prakash D’Souza, **Mr. Prasanna Shama K**, **Mr. Gururaja MP** and **Mr. Himanshu Joshi** had attended a one day workshop on Rational Drug Use including concepts in essential drugs, drug promotion and rational prescription as per WHO guidelines was organized by Drug Action Forum, Karnataka and All India Drug Action Network on 20th July, 2010 at MCOPS, Manipal

NON TEACHING FACULTY

Mr. Chandrashekar D., Librarian, attended the ‘National Conference on Indian Academic Libraries 2020’ at SIT Campus, Tumkur from 12th – 14th August 2010, and also presented a paper entitled “Effective use of Digital resources among health science libraries in Mangalore city- a study”

National Workshop



Dr. D. Satyanarayana hands over a souvenir to Dr. C.V.S. Subrahmanyam



Posters of research papers displayed on the second day of the workshop



Best paper award presented to Mr. Nitish Kumar, (Pharmaceutics) II Year M. Pharm



Dr. C. Mallikarjuna Rao delivers his lecture



Evaluation of Posters by Mr. Kiran Aithal B

“Sunset on the Nethravathi”

*- Photograph by Mr. Sreedharan Nair,
Asst. Professor, Dept. of Pharmaceutics*



Book Post