



The NGSMIPS Herald

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Institute of Pharmaceutical Sciences, Mangalore



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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



Friends,

Cancer is still the most dreaded disease known to man and even after spending billions of dollars on cancer research, we are nowhere near reaching an absolute cure. Every now and then we hear from the media that a treatment has finally been found with some or other 'ground breaking research'. But how much of this much hyped research has really materialized into a clinically dependable efficacious and safe treatment? In spite of the increase in the incidence of cancer, research has shown a decline in the number of cancer related deaths. The increase in survival rate is probably due to the fact that more people are aware of cancer and its possible causes and know when to report warning signs to their physicians or adapt to lifestyle changes such as giving up smoking. Of course this in no way helps, if the cancer is genetically acquired or is the result of hormonal changes or gene mutations.

The complex nature of the disease is often attributed to be the cause of the difficulty in finding an unambiguous cure. Cancer is an obscure and potentially lethal collaboration of genes gone haywire, of growth inhibitors gone missing, of hormones and epigenomes changing and rogue cells breaking free. According to Bill Saporito, Assistant Managing Editor of Time Magazine, a team based cross disciplinary approach to research, when Science and Medicine are brought together may work best for this deadly disease. It was a team of an oncologist; biochemist and molecular biologist from different institutions that helped shrink the lung tumors in a patient at John Hopkins Hospital, Baltimore, USA.

Though this kind of cross institutional collaboration is not easy, but it's the only way to take advantage of the latest scientific and technological developments that have taken place in the last few years.

Marina Koland, Executive Editor

Seminars / Workshops



Dr. D.S. Puranik, Dr. C.S. Shastry, Dr. Mudit Dixit, Dr. V. Ankolekar and Dr. Narayana Charyulu at the workshop on Regulatory Affairs



Ms. Anusha Raghava with Dr. C.S. Shastry



Workshop on soft skills and corporate orientation

CAMPUS BUZZ

Seminar on Regulatory Affairs for PG students

The Institute Industry Collaboration and Placement Cell (IICP) of NGSIM Institute of Pharmaceutical Sciences along with the Department of Pharmaceutics organized a Regulatory Affairs based seminar on "Regulation and Registration for Drugs in the Japanese Market" on 8th February, 2014.

Dr. Vidyanand Ankolekar, Sr. Manager, Regulatory Sciences, BIOCON and Dr. Mudit Dixit - Asst. Manager, Regulatory Sciences - BIOCON were the resource persons for this seminar. Addressing the M.Pharm students, Dr. Vidyanand Ankolekar emphasized the growing importance of Regulatory Affairs in the Pharma Industry and how knowledge of this subject was essential since the process of regulation starts at the product conception stage and persists through all the stages until it reaches the market for therapeutic dispensing. Dr. Mudit Dixit also shared valuable information and an interactive session followed the lectures.

Workshop on soft skills and corporate orientation conducted

A soft skill training program and a three day corporate orientation workshop by I-Point was held from 27th Feb to 1st March for the M.Pharm students. Mr. Joe, Corporate trainer introduced the students to different aspects of the selection process during corporate interviews and included techniques such as Facing Interview, Group Discussion, Resume writing, Professional attitude, Corporate mannerism self assessment etc. with the help of interesting role plays and anecdotes.

NSS Cell of NGSIM Institute of Pharmaceutical Sciences organizes Student Awareness Program

A student awareness program on the theme, "Vote for Better India" was arranged by the NSS Cell of the institution on 8th March 2014 at the NIBF Auditorium. With an objective of creating awareness among the student community on the importance of casting their vote at the upcoming Lok Sabha elections, this program was organized by Dr. Murali Mohan, NSS Coordinator, Nitte University and Mr. Santanu Saha, NSS Program Officer, NGSIMIPS and assisted by student volunteers of the NSS Cell

The guest speaker, Ms. Anusha Raghava from 'Art of Living' advised the students to do their bit in contributing to nation building. The young population who are often apathetic or cynical to the problems plaguing the country can make a difference if they participated in the process of creating social awareness against anti-nation activities and also take active part in the election to install a strong, non-corrupt government for a better and vibrant India.

Literary and Cultural Weeks at NGSIMIPS

A series of competitions were held in various literary events from 3rd to 13th February, 2014 as literary week aptly named as 'Shabd-2014'. Events included drawing, cartoon sketching, poetry, dumb charades, quiz, collage, photography,

essay writing, crossword, Sudoku, extempore, calligraphy and story writing. Likewise, the cultural week, 'Uthkarsh - 2014' held from 4th to 6th March, 2014 attracted the maximum number of participants. With events such as Cooking without Flame, Mehendi, Antakshari, Rangoli, Traditional Day, Face Painting, Slow Bike Race, and Twin Day, there was stiff competition among the different classes.

A day of competitions in stage talents was also organized as 'Cultural Day' on 21st March, 2014 at the KSHEMA Auditorium, which also witnessed enthusiastic participation.

Industrial Tour for PG students

An industrial trip was organized for the M.Pharm students to visit Pharma industries, Biocon and Natural Remedies on 5th March, 2014. They were accompanied by Dr. Vijaya Dodannagoudar, Assist. Professor and Mr. Amit Patil, Assist. Professor from the Department of Pharmaceutics. At Natural Remedies, the students were introduced to the cellular



Student of First Year M.Pharm at Natural Remedies

bioassay unit among other departments such as intellectual property rights, phytochemistry, pharmacology etc. The highlight of the visit to Biocon was the production and packaging of Monoclonal Antibodies.

Annual Day Celebrated

The institution celebrated its Annual Day on 27th March, 2014 at KSHEMA auditorium, Deralakatte. The chief guest for the function was Sri. Manohar S. Shetty, Managing



Lighting of the Inaugural Lamp by Prof. Rajshekar M. and Shri Manohar Shetty

Director, Sai Radha Group and the guest of honor was Prof. Rajshekar M. Director, Curriculum Development, Nitte University. Sri. Manohar Shetty, an alumnus of NGSMIPS



Students of IIIrd Year B.Pharm receiving their trophy

was pleased to note the significant changes in infrastructure, facilities and curriculum that have morphed this institution

since his student days. In his address, he advised the students on the wisdom of taking their Pharma careers seriously to ensure commercial success which required persistence and diligence on their part while pursuing their course.

Besides the presentation of prizes and trophies to students in various literary and sports competitions, toppers in B.Pharm and M.Pharm for the year 2012-2013 were also recognized for their academic achievements. The Sri. K. Sriharsha Memorial Gold Medal was awarded to Ms. Meghana Rao for the best outgoing B.Pharm student and the Sri. G. Venkatanarasamma Memorial Gold Medal for the best outgoing M.Pharm student was awarded to Ms. Sharol Janice Rodrigues. The formal function was followed by a two hour long entertainment programme in which students showed off their talents in dance, music etc

Appointments

Mr. Bharath Raj was appointed as Assistant Professor, Grade I in the Department of Pharmacology with effect from January 27, 2014.

DEPARTMENT ACTIVITIES

DEPARTMENT OF PHARMACEUTICAL CHEMISTRY RESEARCH PUBLICATIONS

DR. JENNIFER FERNANDES, Professor

Synthesis, Anti-inflammatory and Antimicrobial Activity of some novel Carboxamide derivatives of Naproxen. World Journal of Pharmacy and Pharmaceutical Sciences. 2014; 3(2): 2026-2034.

MR. ABHISHEK KUMAR, Assist. Professor

Synthesis and Biological Evaluation of some novel Isoxazoline derivatives of Carbostyryl. World Journal of Pharmacy and Pharmaceutical Sciences. 2014; 3(2): 1267-1277.

MR. PANKAJ KUMAR, Assist. Professor

Synthesis and Biological Activities of Oxazolidinones having N-Methyl Benzo Thiazinen Derivatives. World Journal of Pharmaceutical Research. 2014; 3(1): 1473-1482.

DEPARTMENT OF PHARMACEUTICS RESEARCH PUBLICATIONS

DR. R. NARAYANA CHARYULU, Professor

Comparative Evaluation of the Efficacy of Lignocaine and Benzocaine Patches for Various Dental Treatments in Children. Nitte University Journal of Health Science, March 2014; 4(1): 28-34

DR. NISHA GIRISH SHETTY, Assist Professor

Design and Characterisation of Bilayered Buccal Tablets of an Anticonvulsant Drug. Research Journal of Pharmaceutical, Biological and Chemical Sciences. 2014; 5(2): 1325-1333

MR. JOBIN JOSE, Assist. Professor

Formulation and Evaluation of Mucoadhesive Chitosan Buccal Patch of Tolperisone Hydrochloride. Pharma Science Monitor, 2014; 5(1): 94-102

STUDENT ACTIVITIES

Ms. Avril Candida Mathias, Mr. Lenson Paul D'souza and Mr. Ananth Vinayak Prabhu of First Year M.Pharm (Pharmaceutics) had presented a paper as poster entitled, "Design and evaluation of the topical formulation of ethanolic extract of *Plectranthus amboinicus*" at the International Conference on Drug Delivery 2014 held on 28th February - 1st March, 2014 hosted by the PSG College of Pharmacy, Coimbatore, Tamil Nadu. This paper was co-authored by **Dr. Marina Koland**, Professor.

DEPARTMENT OF PHARMACY PRACTICE RESEARCH PUBLICATIONS

MR. JAVEDH SHAREEF, Assist. Professor

1. Impact of pharmacist's counseling on medication adherence in patients with diabetes mellitus in a tertiary care teaching hospital, International Journal of Comprehensive Pharmacy 2013; 4(9): 1-4.
2. A prospective study on adverse drug reaction in general medicine department in a tertiary care teaching hospital. American Journal of Pharmtech Research 2013;3(6):1-11.
3. A study of knowledge about biomedical waste management among healthcare professionals in a tertiary care teaching hospital. International Journal of Universal Pharmacy and Bio sciences 2013; 2(6): 162-173

WORKSHOPS/SEMINARS ATTENDED

Dr. D.S. Puranik, Assoc. Professor, Mr. Juno J. Joel, Assist Professor and Mr. Javedh Shareef, Assist. Professor attended and participated in the following workshops/seminars.

1. The Indian Congress of Pharmacy Practice & Inaugural Convention of the Indian Association of Colleges of Pharmacy

on the theme “Advancing Pharmacy Practice in India: The Next Generation Pharmacist” held at Hotel Sheraton at Brigade Gateway, Bangalore, 21st & 22nd February 2014.

2. CME on “Polypharmacy in the elderly” Conducted by the Department of Pharmacology, Kasturba Medical College, Manipal University, Mangalore. 1st March 2014.

Mr. Juno J. Joel has also attended as delegate the CME programme of “Neuro-psychopharmacology Update-2014” organized by the Department of Psychiatry & Department of Pharmacology, SDM College of Medical Sciences & Hospital, Sattur, Dharwad on 23rd February 2014.

DEPARTMENT OF PHARMACOLOGY

RESEARCH PUBLICATIONS

DR. C.S. SHASTRY, Professor

Radioprotective Activity of Ethanolic Extract of Seeds of *Drypetes Roxburghii* Wall in Swiss Albino Mice exposed to Electron Beam Radiation. *World Journal of Pharmaceutical Research* 2014; 3(2): 2330-2346

PAPERS PRESENTED AT CONFERENCES

Mr. Prasanna Shama Khandige, Assist. Professor, presented a poster entitled “Anti Diabetic Activity of *Bauhinia Purpurea* Linn Leaf Extract against Streptozotocin Induced Diabetic Rats” at the Dubai International Pharmaceuticals and Technologies Conference and Exhibition - Duphat 2014 from 10th to 12th March 2014, held at the Dubai International Convention and Exhibition Center, Dubai.

DEPARTMENT OF PHARMACOGNOSY

RESEARCH PUBLICATIONS

MR. ATANU BHATTACHARJEE, Assist. Professor

Isolation, Purification and Structural Elucidation of N-Acetyl-5-Methoxytryptamine (Melatonin) from *Crataeva nurvala* Buch-Ham Stem Bark, *American Journal of Phytomedicine and Clinical Therapeutics* 2014; 2(3): 301-309.

DEPARTMENT OF LIBRARY AND INFORMATION CENTRE

MR. CHANDRASHEKHAR D., Librarian

1. Presented a paper entitled, “Institutional Repositories – An Overview” and published in the Conference Proceedings of National Conference on Democratization of Information using ICT: Role of Libraries for social Enlightenment (DEMICT 2014) held at the Department of Library and Information Science, Mangalore University, Konaje from January 24-25th, 2014
2. Published a research paper entitled, “Use of Library E-Recourses in NGSM Institute of Pharmaceutical Sciences - A Study” in the Conference Proceedings of the 6th Annual Conference of Karnataka Health Science Library Association (KHSLA 2014) held at Shri. B.M Patil Medical College, Hospital and Research Centre, BLDE University, Bijapur on 24-25th January, 2014.
3. Attended a National Conference on Management of Modern Libraries (NACML) organized by SEARCH – The Health Sciences Library and Department of Library & Information Science, KMC, Manipal University, Manipal during 21-22 Feb 2014.

Student Forum

Q. Why do you think students in India don't prefer a career in Pharmacy as their first choice?

- A. 1. Lack of awareness about actual Pharmaceutical field
–Anupama Shetty, I M.Pharm
- A.2. Low payment.
–Tarun Shetty, I M.Pharm
- A.3. Parents force their children to take up medical or engineering as a choice for career, so no support from parents.
–Meghana Rao. S, I M.Pharm
- A.4. As we all know, engineering and the other courses like medical all have proved to be evergreen fields. The reason being that engineering colleges have more placements and less tension of finding jobs whereas in case of Pharmacy, as there is less awareness about the field hence less people choose this to be their career. Even if students choose Pharmacy they get paid less comparatively.
–Bansari Patel, I M.Pharm

Q. Do you think Euthanasia should be legalized?

- A.1. Yes, it is useful for those who are medically dead.
–Ananth Prabhu, I M.Pharm
- A.2. No, as one does not have the right to give life, one has no right to take away life.
–Tushar K Shetgaankar, I M.Pharm

- A.3. No, I'm totally against Euthanasia being legalized. The terminally ill patients may choose to die through the feeling of guilt. They may feel guilty about the burden that they are putting on their families and choose to die for this reason alone. Generally people who want to commit Euthanasia are under a lot of stress, once they feel better they might change their mind. Dr. Shakira says "we don't need help to die, we need help to live"
–Thabassum. A, II B.Pharm

Q. Do you think clinical trials are ethical?

- A.1. No, because humans are being treated as animals in under developed countries.
–Ananth Prabhu
- A.2. Yes, as long as people volunteer for the trial it is ethical.
–Tushar K Shetgaankar
- A.3. Yes, it is ethical. Without clinical trials a drug won't be marketed and one can't be sure if the given drug shows positive effect on humans. The clinical trials are carried out in 3 different phases, in which people themselves volunteer to take part.
–Avinash, I M.Pharm

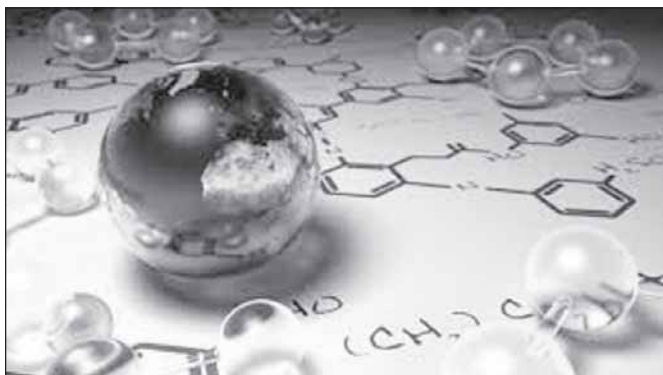
A “Process Chemistry” Point of View

Mr. Abhishek Kumar

Assistant Professor-Grade I

Dept of Pharmaceutical Chemistry

The molecules produced by living systems have always fascinated and inspired synthetic organic chemists. As our skills and tools have advanced, the compounds chosen for synthesis have become ever more challenging. So it is no surprise that today's favourite targets are found among the most diabolically complex natural substances ever discovered, the various secondary metabolites produced by plants and microorganisms for self-defence. No expense or effort is spared to synthesize even minute quantities of these extraordinary molecules.



The pharmaceutical industry, a direct scion of natural products chemistry, has not been put off by difficult synthesis and many compounds being explored today as drug candidates represent substantial synthetic challenges. While it sharpens the skill and fraternal esteem of the research team, implicit in the decision to pursue a complex drug target is the acceptance of enormous constraints on the scope of the structure space to be explored. When natural products are the models, it usually takes so long to synthesize analogues in a given series that even the most ambitious exploratory efforts, viewed objectively, are often superficial. The process of probing structure - activity relationships (SAR) in these situations has a perverse tendency to discover the “best” candidates in difficult synthetic territory, near the outer limits of “accessibility”. Difficult synthesis also tend to arise when trying to reach patentable structural territory after original discoveries have been made by a competitor.

The time required for SAR probing and then synthesis of enough of the better compounds for pharmacokinetic and toxicity profiling is staggering, and goes a long way toward explaining why this phase of pharmaceutical research takes so long. And yet, buoyed by the eventual success in obtaining complex target structures, discovery chemists and top

executives alike display little concern for issues of synthetic accessibility. Ignored is the fact that any lead or development series that has supply problems risks inadequate SAR conclusions and development decisions. The story of the carbapenem antibiotic thienamycin is illustrative: it required six years of superb effort by several research groups in both industry and academia to develop the final therapeutic agent (meropenem, a derivative of thienamycin) after the initial synthesis of thienamycin was published. The AIDS protease inhibitor Crixivan (indinavir) provides a more recent example - very difficult synthesis at nearly commodity-chemical scale.

Only at the end are issues of process development considered, and synthesis on production scale is often expensive. Nevertheless, the prospect of a blockbuster drug is such a powerful motivator for a synthesis team that the job nearly always gets done. The crucial point is that the cost which complex synthesis adds to the final drug, while substantial, is insignificant compared to all the “hidden” costs imposed on the speed and quality of the discovery/development phase by this same complex style of synthesis. In other words, the way organic synthesis is done has pervasive effects on the entire process of drug discovery, development, and manufacture. If a more modular, faster style of synthesis were to prove effective, lower manufacturing costs should be the least of its benefits. Lead structures should not be synthetically “precious”, and one should be able to jump easily from one series to another. As it is now, most discovery endeavors suffer from being too invested in structure, when function is what is sought.

Consider how nature synthesizes her most important molecules, the primary metabolites. While the aforementioned secondary metabolites have extensive networks of contiguous carbon-carbon bonds, and have claimed the lion's share of synthetic organic chemists' attention, it is reversible condensation processes involving carbon-heteroatom connections that are used to assemble polynucleotides, polypeptides, and polysaccharides - the three families of macromolecules that are central to life processes. By embracing the strategy of making large oligomers from small building blocks, nature is also a consummate combinatorial chemist and achieves astonishing diversity from less than 40 monomers. These building blocks contain at most six contiguous C-C bonds, with the exception of the three aromatic amino acids. Thus, nature is a promiscuous

creator of carbon- heteroatom connections, choosing this method to encode and express information.

Nature's ability to create and control biomolecular diversity is largely dependent on the exquisitely selective catalysts she deploys. Our devices for managing reactivity and selectivity are much less sophisticated, particularly with respect to C-C bond formation. Therefore, the chemist who plans a synthesis that requires the construction of C-C bonds that are not present or latent (for example, $\text{CH-CX} + \text{base-C}=\text{C}$) in the available starting materials is asking for trouble, particularly if such a synthesis must be reliable for a number of substrates (as for combinatorial searches or SAR studies) or applicable to practical, large-scale production. Problems are less likely if one only needs to unite, functionalize, and/or reorganize starting materials and intermediates in ways which do not require de novo C-C bond construction. If such "new" C-C bonds are required, it is best to make them intramolecularly, but it is better still to leave the really tough C-C bond synthesis to nature.

There is, however, still plenty of room for discovery: Guida and co-workers have estimated the pool of "reasonable" drug candidates ($d \approx 30$ non-hydrogen atoms; $d \approx 500$ daltons;

consisting of only H, C, N, O, P, S, F, Cl, and Br; likely to be stable at ambient temperature in the presence of water and oxygen) at between 10^{62} and 10^{63} discrete molecules. With this kind of structure space available, we contend that it makes little sense to search in hard-to-reach places for a desired function. Instead, we present here synthetic methods for drug discovery that adhere to one rule: all searches must be restricted to molecules that are easy to make. We hope to convince the reader that a wide diversity of interesting molecules can be easily made, and that the chances for achieving desirable biological activity are at least as good with such compounds as with the traditional target structures now favoured by medicinal chemists.

References

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2. Corey EJ, Cheng XM. The logic of chemical synthesis. Wiley, New York. 1989.



*Mr. Prasanna Shama Khandige
at the Dubai International Pharmaceuticals
and Technologies Conference
and Exhibition - Duphat 2014*

Gold Medal Winners For 2012-2013



Ms. Meghana Rao
K. Sriharsha Memorial Gold Medal for
the best outgoing B Pharm Student



Ms. Sharol Rodrigues
Sri. G. Venkatanarasamma Memorial Gold
Medal for the best outgoing M Pharm Student

Annual Day Celebrations & Cultural Day



Cultural Week



Book-Post