



APTI BULLETIN

A BI - MONTHLY OFFICIAL PUBLICATION OF
ASSOCIATION OF PHARMACEUTICAL TEACHERS OF INDIA

ISSN 0973-1288

Reg. No: CMM/BNG/DECL/PP/182/2/2002
Vol 19, Issue 111, January - February, 2018



HEADQUARTERS - Bengaluru

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APTI Celebrates Golden Jubilee Year



OFFICIAL DESK



The APTI has been Teachers Association since 51 yrs. It has always worked along with teachers for the betterment of the profession. It has two journals of repute to its credit IJPER and IJOPP. They have got more indexed and better with lot of international scientific exchange of research. Have Got in UGC & PCI listing of Journals. They have become the proceedings scientific journal for many National and International Conferences.

APTI Bulletin continues to be all time favourite with the members. It is a platform for them to share their Achievements. It is Aesthetic and all colour. Women's Forum and News Letter covers all our women teachers contributions and concerns.

APTI has been addressing all Teachers Issues at every forum. It has now two International Branches as well. All State branches are doing exceedingly well and performing from their hearts. There have been collaborative International Conferences and the recently concluded IPC shows the magnanimous potential of APTI to do things in style.

APTI has been doing well and running many Teachers Training modules online. The Awards are its glory and will be given to all awardees during 22nd APTICON at Lloyd's Institute, Greater Noida on 24th March at a glittering ceremony.

Group Insurance to provide Health and Death Benefits to all APTI members will be launched during 22nd APTICON.

Membership drive has been tremendous and many new members have enrolled.

Books of the legendary Padamshri Dr. Harkishan Singh and Dr. S.K. Kulkarni have been published by APTI and released during the 69th IPC.

APTI is your association and remember we all are Teachers First. Good Luck. Stay Connected.

Dr. Satish A. Kavatgimath

Vice President, South Zone

APTI Central

INSTITUTIONAL NEWS



Association of Pharmacy Professionals (APP) Andhra Pradesh State Branch organized 3rd Indo-Australian Conference on "Pharmaceutical Technology: Past, Present and Future Perspectives" at V.V. Institute of Pharmaceutical Sciences, Gudlavalleru, Krishna District, Andhra Pradesh in collaboration with APP Australian International Branch. The inauguration ceremony commenced with lighting of lamp by the Chief Guest Dr. Kamal Dua from Discipline of Pharmacy, University of Technology Sydney, New South Wales, Australia and the Guest of Honor Dr. B. Chandra Shekhar Reddy, Principal, Jayamukhi Institute of Pharmaceutical Sciences, Warangal, Andhra Pradesh. Prof. R. Govinda Rajan, Secretary, APP Andhra Pradesh State Branch and Research Director, Hindu College of Pharmacy, Guntur and Dr. S.R.K. Reddy, Advisor to Management, V.V. Institute of Pharmaceutical Sciences, Gudlavalleru graced the occasion by sharing the dais. For this scientific conference, Dr. Rajiv Dahiya, Founder President APP and Director, School of Pharmacy, Faculty of Medical Sciences, The University of the West Indies, St. Augustine, Trinidad & Tobago acted as 'Organizing Chairman'; Dr. Sunita Dahiya, General Secretary APP from School of Pharmacy, University of Puerto Rico, San Juan, PR, USA acted as 'Convener' and Dr. Suresh V. Chennupati, Vice President, Ethiopian International Branch from School of Pharmacy, Wollega University, Nekemte, Ethiopia acted as 'Scientific Committee Chairman'.

The Convener and Principal of the college Dr. A. Lakshmana Rao welcomed the resource persons and delegates. Later, the CD containing scientific abstracts was released by the Chief Guest from University of Technology Sydney, Australia. The scientific session of the conference was enriched with plenary lectures of Dr. Kamal Dua and Dr. B. Chandra Shekhar Reddy on topics of pharmaceutical interest like "Various Hydrophilic Carriers: Catalyst for Solubility Enhancement of Poorly Water Soluble Drugs" and "Understanding the Role of Preformulation in Drug Development". In the afternoon scientific session, about 100 research and review papers were presented in several sections. Dr. P. Naga Raju from Hindu College of Pharmacy, Guntur; Dr. G. Vijay

Kumar, Dr. T. P. Rao from K.V.S.R. Siddhartha College of Pharmaceutical Sciences, Vijayawada and Dr. A. Ajay Babu from M.A.M. College of Pharmacy, Narasaraopet were the judges for the scientific session. In pharmacology section, Ms. Aishwarya and Finian from Adithya College of Pharmacy, Surampalem won first prize in oral presentations and second prize in poster presentations. In pharmaceutical analysis section, Ms. K. Jyothi from Hindu College of Pharmacy, Guntur and Mr. S. Shakir Basha from Sri Vidhyanikethan, Tirupati won first prize in oral and second prize in poster presentations. In pharmaceutics section, Ms. Nihitha Sanka from Chalapathi Institute of Pharmaceutical Sciences, Guntur and Ms. D. Dharani Srividya from Vijaya Institute of Pharmaceutical Sciences for Women, Vijayawada won first prize in poster and oral presentations and Mr. Ch. Shiva Gopal from V. V. Institute of Pharmaceutical Sciences, Gudlavalleru won second prize in poster presentations. In pharmaceutical chemistry section, Mr. Vikram Choudhary from Srinathji Institute of Pharmacy, Rajasthan and Ms. V. Dhilekha from VJ's College of Pharmacy, Rajahmundry won second prize in oral presentations. During the valedictory function, 'APP Best Faculty Award' was provided to Dr. Sk. Amina Bee, Associate Professor, Department of Pharmacology, VVIPS, Gudlavalleru; 'APP Best Researcher Award' to Dr. P. Bharghva Bhushan Rao, Associate Professor, Department of Pharmaceutics, VVIPS, Gudlavalleru; 'APP Best Student Award' to Ms. Lakshmi Sindhu Atluri, B.Pharm Student, VVIPS, Gudlavalleru; 'APP Appreciation Award' to Dr. V. Nageswara Rao, Chairman, VVIPS, Gudlavalleru and 'APP Recognition Award' to Dr. A. Lakshmana Rao, Principal, V.V. Institute of Pharmaceutical Sciences, Gudlavalleru. Speakers of the conference were felicitated with 'Certificates of Recognition' by the convener during the valedictory function. The program ended with vote of thanks and concluded with national anthem.



Dr. Bhushankumar Sathe was invited to speak on NBA Accreditation by MSBTE, Mumbai sponsored One Week Faculty Development Training Programme on "Health Care System And Pharmacy: New Avenues And Application", at Govt. Polytechnic, Department of Pharmacy, Jalgaon. Dr. Sathe was invited to speak and clear the

concepts of NBA Accreditation process.

All participants cum delegate for the workshop came from various colleges of Pharmacy throughout Maharashtra. The faculty training workshop was limited for only 30 participants. Dr. Sathe covered various aspects of NBA process and also conducted separate hour on SWOT Analysis and had detailed discussion about Strength, Weakness, Opportunity and Threats for the development of any institution and up gradation of the institution. He focused that NBA is not only the generation and maintaining the documents but how the system and process had to be defined, implemented and maintained. **Dr. Sathe** also added that NBA is not only continuous but continual process. Dr. Sathe during his talk discussed in detail all 9 criteria of NBA portfolio and how we have to prepare for achieving the target.



Dr. Sathe focused and cleared doubts about Vision, Mission, PEO's and Mapping of PO's, CO's, PEO's and also Assessment tools. His discussion during the sessions was appreciated and welcomed by Hon.Nandedkar Sir HOD of the Dept., Hon. Tarode Sir, Dr.Argade Prashant.

Dr. Bhushankumar Sathe is presently working as HOD, Smt. Sharadchandrika Suresh Patil College of Pharmacy, Chopda Dist. Jalgaon. He is working here since 2003 and had successfully worked as a NBA coordinator of the College of Pharmacy, Chopda who recently faced the NBA Accreditation team. Dr. Sathe had published 36 research papers and attended 37 conferences of which presented his research in 25 conferences. Also he had received Best research Oral presentation award at International conference and National conference, were as had authored one book and resource person for Maharashtra State Pharmacy Council Drug information Centre, research supervisor for University.

V. V. Institute of Pharmaceutical Sciences, Gudlavalleru, in collaboration with Association of Pharmacy Professionals(APP) organized **3rd Indo-Australian Conference on Pharmaceutical Technology: Past, Present and Future Perspectives**. Around 200 delegates including students, research scholars and faculty from various institutions attended and participated in the seminar. The inauguration ceremony commenced with



lighting of lamp by Chief Guest Dr. Kamal Dua, Discipline of Pharmacy, New Southwales, Australia and Guest of Honour Dr. B. Chandra Shekhar Reddy, Principal, Jayamukhi Institute of Pharmaceutical Sciences, Warangal, Andhra Pradesh. Dr. R. Govinda Rajan, Secretary, APP, AP State branch and Dr. S.R.K. Reddy, Advisor to Management, V.V. Institute of Pharmaceutical Sciences graced the dias. The Convener and Principal of the college Dr. A. Lakshmana Rao welcomed the resource persons and delegates. He addressed the gathering by emphasing the primary objective of national seminar and importanace of communication in day to day life. Later the CD containing scientific



abstracts was released by chief guest. The seminar was enriched with plenary lectures of Chief Guest Dr. Kamal Dua and Guest of Honour Dr. B. Chandra Shekhar Reddy on topics " Various Hydrophilic Carriers: Catalyst for Solubility Enhancement of Poorly Water Soluble Drugs" and "Understanding the Role of Preformulation in Drug Development" respectively. The convener presented mementos to the guests and inaugural function ended with vote of thanks. In the afternoon scientific session was carried out where 150 research and review papers were presented. The valedictory session was started with inspired speeches of Chief Guest and Guest of Honour. APP presented Best Teacher award for Dr. Sk. Amina Bee, Best Researcher award for Dr. P. Bharghva Bhushan Rao, Best Student award for A. Sindhu, Appreciation award for Dr. V. Nageswara Rao, Chairman and Recognition award for Dr. A. Lakshmana Rao, Principal, V.V. Institute of Pharmaceutical Sciences. Guests were felicitated by the convener of the conference. The program ended with vote of thanks and concluded with national anthem. After



then the best presenters of oral and e-poster presentations of each department were encouraged with prizes. Mementos were presented to the guests by convener of the seminar. The program was curtain downed with vote of thanks and concluded with photo session.



G. Pulla Reddy College of Pharmacy in association with **Care Hospital Nampally** conducted **free health camp** in the college premises for the benefit of public residing surrounding areas. In this camp BMI, Blood glucose (RBS), Blood pressure, Blood grouping, Haemoglobin tests and E.C.G. facility were provided free to the public.

More than 200 local residents were turned up to the camp and got free health check up with all the provided facilities. Public also utilized the services of Consultation of physicians (Cardiology, general medicine) nd dietician and got important suggestions from the doctors. More than 100 patients have taken ECG upon recommendation by the cardiologist. Two doctors Dr. Adithya MBBS, DNB(Cardiology), Dr. Subhash, MBBS, MD., Ms Hameeda, dietician, 2 lab technicians, 2 nurses, 2 ECG technicians from Care Hospital Nampally have contributed their services to the event. 25 students from Pharm D III year and II year have actively participated in the camp and performed various laboratory tests and patient counselling. The program was supervised by Principal Dr. B. Madhava Reddy and co-ordinated by the teaching staff Mrs. Gouhar Sultana, Mr. P. Ravi Kumar, Dr K Naresh, Mrs K. Archana Reddy, and Ms. K Niyati.

JSPM's Charak College of Pharmacy and Research has organized **Poster Presentation competition and Debate competition** as a part of



joint celebrations of **Cynosure -2018** by JSPM's Group, Wagholi Campus, Pune. The objective of the event was to encourage students for self/collaborative learning and improve their presentation and communication skills. The competition began with the inauguration by Dr. Aman Sheikh, Principal, Delight College of Pharmacy, Koregaon Bhīma. The theme for Poster presentation was "Pharmacist: A Healthcare Professional". Seventy five students from different pharmacy colleges participated in the "Poster Presentation Competition". The posters were evaluated by Dr. Vaishali Potnis, Professor, Jayawantrao Sawant College of Pharmacy and Research, Hadapsar, Pune. The theme for Debate Competition was "Pharmacists Right: To Write Prescription". Twenty nine students from different pharmacy colleges participated in the event. Dr. Aman Sheikh, Principal Delight College of Pharmacy, Koregaon Bhima, was present as a Judge for Debate Competition. Ms. Sayali Chandanshive from Rajgad Dnyanpeeth's, College of Pharmacy, Borhore was declared as Winner and Ms. Deepati Varma from Jayawantrao Sawant College of Pharmacy and Research, Hadapsar, Pune secured second position in Poster Presentation Competition. In Debate Competition, UG-Category, Mr. Nimish Panse, AISSPMS, Pune was the Winner and Ms. Sanjana Gawade, JSPM's, Charak College of Pharmacy and Research, Wagholi, Pune secured second position. The Cash Prize, Trophy and Certificates were distributed to Winner and Runner by hands of Dr. Vaishali Potnis, Professor, Jayawantrao Sawant College of Pharmacy and Research, Hadapsar, Pune. The competition concluded with the National Song.

JSPM's Charak College of Pharmacy & Research Wagholi, Pune organized **Human Anatomy and Physiology model making contest**. "**Pharma Model Competition**" is an event organized to encourage the students for self/collaborative learning. The Competition began with the inauguration by Dr. Dheeraj Nagore, Assistant General Manager, Ari Healthcare Pvt. Ltd., Pune. Twenty five students from different pharmacy colleges participated in the Competition. The evaluation was done by the panel of experts. The Winner of the Competition was Mr. Gosavi Revon, Sitabai Thite College of Pharmacy, Shirur and Runner up was Mr. Lunkad Abhijeet, JSPM's, Charak College of Pharmacy and



Research, Wagholi, Pune. The Cash Prize, Trophy and Certificates were distributed to Winner and Runner by hands of Dr. Dheeraj Nagore, Assistant General Manager, Ari healthcare, Pvt.Ltd. Pune. Participation certificates were distributed to all the students who participated in the event.



Evolution of Pharmacy Practice is providing new challenges and opportunities for Pharmacists, redefining their roles and responsibilities in Healthcare sector. To create awareness about current trends in Pharmacy Practice and avenues open for Pharmacy graduates globally, Pharmaceutics department of **Dr. D. Y. Patil Institute of Pharmaceutical sciences and Research**, Pimpri, Pune organised a Two day International level seminar on **"Trends in Pharmacy Practice"**. Seminar was accompanied by Poster competition of Students as well as Faculty to encourage upcoming research in various fields of Pharmacy.

This seminar was sponsored by Savitribai Phule Pune University [SPPU]. The seminar witnessed the participation of about 70 participants for Poster Competition and more than 120 professionals and students from reputed Colleges and Universities Globally.

As conveyed by Dr. Sohan Chitlange, Principal, Dr. D. Y. Patil Institute of Pharmaceutical Sciences and Research, the essence of seminar was to understand and generate awareness about current trends and opportunities for Pharmacist globally.

Key note address of the seminar was delivered by Dr. Subhash Gore, Vice President, Pharma Research, Lupin Limited (Research Park), Pune.

The seminar witnessed presence of eminent international speakers Dr.

Christine Birnie, NY, USA who talked about "Clinical Pharmacists Role in Community Activities", Dr. Vibha Sood, Ohio, USA discussing about "Educating Patients Regarding Infant, Childhood and Adolescent Nutrition" and Dr. Manoj Amrutkar, Oslo, Norway who created awareness about "Opportunities for Indian Pharmacy Graduates in Research, Innovation and Pharmacy Practice". Other eminent speakers were Dr. Atmaram Pawar, Pune who educated audience about "Pharm. D.: Pharmacy Education of the 21st century", Dr. Mohan Sellappan, Coimbatore, Tamilnadu delivered a talk on "Containment of Antimicrobial Resistance in India : Strategic Priorities and Interventions", Dr. Madiwalayya Ganachari, Belgaum, Karnataka talked about "Job Opportunities in Clinical Research" and Dr. Shashikant More discussed about "Clinical Pharmacist's Role in Quality patient care in Indian Hospitals".

Formal presentations were followed by interactive session which gave the participants an opportunity to interact with the eminent speakers.

Seminar was followed by Valedictory function where Prizes were distributed to the winners of Poster completion in various categories to encourage upcoming talent in the field.

First winner of the faculty category was Ms. Swati Mutha [SGRS College of Pharmacy, Saswad, Pune] for "New approach for Migraine Treatment with Tripta" followed by two runner ups Ms. Jayashri Mahore (Dr. D. Y. Patil Institute of Pharmaceutical Sciences and Research, Pimpri, Pune) for "Prebiotic from Banana: Complete exploitation of underutilized fruit" and Dr. Mrinal Sanaye [Prin. KMK College of Pharmacy, Mumbai] for "Effect of Methanolic extract of Portulaca Oleracease on Reserpine Induced Catalepsy". Winner of student category was Shweta Shah [Wegmans School of Pharmacy, Rochester, NY, USA] for "Screening of Cervical Cancer among underserved women through a free medical camp in Pune" and runner up was Ms. Neha Bhilare [Poona College of Pharmacy, Pune] for "Phenolic acid tethered Isoniazid for amelioration of hepatotoxicity: Design, Synthesis, kinetics & bioevaluation"

Under the guidance of Hon. Dr. P. D. Patil, Chairman, Dr. D. Y. Patil Vidya Pratishthan Society, Dr. Sohan Chitlange and Dr. Satish Shirolkar organised the seminar. Dr. S. S. Bhujbal, Dr. Asha Thomas, Dr. Vaishali Undale, Dr. Sanjeevani Deshkar, Dr. Rupali Kale and Dr. Tanaji Nandgude coordinated the seminar.

Bharati Vidyapeeth, College of Pharmacy, Kolhapur (Maharashtra) Training and Placement Cell & Centre for Skill & Entrepreneurship Development has organized **Guest Lecture on "Hepatitis B: Causes, Screening & Vaccination"** for B. Pharm. & M. Pharm students at Bharati Vidyapeeth, College of Pharmacy, Kolhapur.



The inaugural function started with the recitation of the Saraswati Vandana, followed by the lamp lighting ceremony by the dignitaries on the dais, Dr. Amol Khot, MD (Medicine, DM Gastroenterologist), Dr. Khot Gastroenterologist & Endoscopy Clinic, Kolhapur, Dr. M.S. Bhatia (Vice-Principal), Dr. Anilkumar J. Shinde (Coordinator, Training & Placement Officer & Centre for Skill & Entrepreneurship Development) & Mr. Abhijit Bhiungade (Cipla Ltd. Territory Manager).

Cipla is an 81 year old Indian Multinational Pharmaceutical Company operating in various segments of therapy across 170 countries. Company is not only serve the society by providing quality and affordable medicine but believe in making a healthy society. As a part of social responsibility, company has initiated various activities which would help to give a better life of peoples. Company taking initiative is "Committed to Zero" with an aim to not have anyone left behind and deprived of treatment for Hepatitis B. Company is trying to create awareness about Hepatitis disease by joining hands with doctors and corporates. Cipla organize the doctors talk and Hepatitis B: Screening & Vaccination Camp for School and college students.

Dr. Amol Khot said in his talk, India has 2nd highest number of hepaptis B virus cases in the world. Each year nearly 1 lakh people die India due to hepatitis B viral infection. Every people in India should check hepatitis B virus and its vaccination for betterment of health. Dr. N.R. Jadhav, Dr. Mrs. N.M. Bhatia, Prof. R.J. Jarag, Prof. U.S. Patil, and all the faculty members and students were present on the occasion.

Annamacharya College of Pharmacy hosted **APCON' 17**, a two day national level Pharmacy symposium on "**Clinical Research, Pharmacovigilance & Medical writing**" sponsored by AICTE (All India Council for Technical Education) its sprawling campus at Rajampet. The recently NAAC accredited college chalked out this sumposium as a platform for the pharma students to interact with peers from across the country and exhibit their innovative talent.

The chief guest, Prof. C.K Kokate, Former President PCI, Former VC Kakatiya University, Warangal, revealed the significance of India as a leading exporter of drugs which cures the ailments for mankind, is the

advocate for generations to play the role of Pharmacist for Healing the world. The pharmacists are secondary doctors under who aids the cure of health care society.

Dr. G. Subramanyam, director, Narayana Medical College & Hospital. Nellore expressed his immense pleasure to be a part of this event and discussed on "Role of life cycle exercisers to prevent cardiovascular diseases. He also said that "Hospital and Pharmacy posses indispensable relation in charismatic.

Dr. M. Adharvana chari, Director, Macs Laboratory, Hyderabad at the inaugural function visualized quality medicines at cheaper rates provided research and development is actively undertaken by pharma students. According to him, pharmacists serve the nation by way of making medicines to cure dradful diseases. He suggested students to do their project work program in industry for seeking higher designation within short period of time.

The Guest of honour, Dr. V. Gopal, Principal, College of Pahrmary, Mother Theresa Post Graduate and Research Institute of Health Sciences, Pondicherry, spoke about the importance of the herbal standardization. He also talked about the evolution of pharmacy and origin of science universities in the world.

Mr. C. Abhishek Reddy, Excecutive Director and Treasurer of the Annamacharya Educational Trust, while addressing more than six hundred participants on this occasion, foresaw many events of this kind, which inspire and expose the young pharmacists towards the health care, in future to be organized by ANCP, Rajampet.

Prof. S.V Satyanarayana, R&D Director, JNTUA, Prof. KVSRRG Prasad, Sri Padmavathi Mahila Visvavidyalayam, Prof. R. Nagaraju, Sri Padmavathi Mahila Visvavidyalayam, Prof. C.K Kokate, Former President PCI, Former VC Kakatiya University, Warangal, Dr. M. William Cerey, former President APTI, AP, Dr. M. Subba Rao, GM & Head, Novarities, Hyd, Dr. Venu Gopal Reddy, Group Lead, Medical Writing, Novaritis, Hyd. Mr. C. Pradeep Kumar Reddy, GM, Graviti Pharma, Hyd, Dr. G. Subramaniyam. Sr Investigator, Novaritis, hyd, appreciated the presentaion presented by the students in and across the state.



The Students across the states participated and presented papers constitutes of both the oral and posters in various departments such as Pharmaceutics, Pharmaceutical Technology, Pharmaceutical Chemistry, Pharmacology, Pharmaceutical Analysis, Pharmacognosy, Pharmaceutical Management..

The focus of the paper is on concepts relating to the dreadful diseases in and across India, their causative cycle, modes of transmission and contamination, it affects in gender and age groups, food habits and life style modifications to be changed, the specific drug discoveries and new formulations, new activities proven by using the herbs and other plant products, the novelties to be known to the students to contribute their role in the health care society. The best participants were accolade by certificate and memento for their presentation.

Dr. C. Gopinath, principal, ANCP, proudly revealed the inauguration of the two day seminar program gave him immense pleasure with the visit of eminent personalities from teaching industry as speakers and the participant delegates from the states of Karnataka and Tamilnadu and Andhra Pradesh. He said that the college is striving hard to shape the young pharmacists to be on par with the advancement and innovations in the field of pharmacy.

The Secretary, Sri VC. Gangi Reddy, Chairman, Dr. C Ramachandra Reddy and Vice-Chairman, Sr. C. Yella Reddy said the students studying NBA and NAAC accredited institution like Annamacharya College of Pharmacy can be assured that they will receive a quality education and they would become a very good citizen with good morals.

PHARMA EXPO-2017 is organised in **ANCP**, sponsored by **AET** to create public awareness to the schools and College in and across Rajampet, hosted in pharmacy campus with 200 to 250 exhibits with illustrated videos of them for easy understanding for the students who attends the event.

Dr. C. Gopinath, Principal. ANCP, revealed that expo illustrates the indispensable models on pain pathway, Antacids, Food Varieties, Trace elements in the food and diet, Electrolytes and ways to replenish electrolytes naturally,. Foods to prevent coronary Heart disease, Stages



of Drug Discovery, Epilepsy effects, Various factors of Hyperlipidemia, Snake bite, First aid for Seizures. Students from both Governmental and Non Governmental schools and colleges attended the program.

Prof. SMV Narayana, Principal, AITS, Dr. B. Jayarami Reddy, Principal, Annamacharya College of Education, Mr. M. Changan Reddy, MEO, Rajampet Attended as guests and graced the function expressed to follow the principles of Hard work and attitude to the staff and students of ANCP to fulfil visions for bright future.

The Secretary, Sr. C. Gangi Reddy, Treasurer & Executive Director, Sri C. Abhishek Reddy, Chairman, Dr C Ramachandra Reddy and Vice-Chairman, Sri Yella Reddy Said the students studying NBA and NAAC accredited institution like Annamacharya College of Pharmacy can be assured that they will receive a quality education and they would become a very good citizen with good morale.

An International Conference on challenges for global competitiveness of Ayush and natural products was organized successfully at **Delhi**



Pharmaceutical Sciences and Research University (DPSRU). The conference was organized jointly by **International Association for the Study of Traditional Asian Medicines (IASTAM)** and **DPSRU**. Participants from various units of AYUSH and Ayurvedic colleges along with Faculty of Pharmacy colleges participated in the conference.

DPSRU is the first of its kind Pharmacy University of India. It boasts of various unique courses like Sports Pharmacy, Physiotherapy and yoga. The university also offers Management courses in Business administration, Public Health, Hospital administration. IASTAM is the world's foremost community of scholars and practitioners devoted to understanding the history and contemporary practice of Asian medicines in their various forms. IASTAM is only organization working for Asian medicine for development of AYUSH for the last 38 years.

The three-day conference was inaugurated by Hon'ble Lt. Governor Shri Anil Bajjal. While delivering the inaugural address Hon'ble Lt. Governor Shri. Anil Bajjal emphasized on the role of herbal products as traditional medicines, global market of herbal products and potential of Asian medicine in economic development of country. He also mentioned that our country should establish the sustainable market for herbal product. He emphasized the knowledge of the traditional medicine should be protected with Intellectual property right. He advised for the collaboration of the Universities with the "Biodiversity Park" for the exploring the further research and innovation in natural heritage. He also mentioned that Indian system of medicine has unique distinction of having six recognized systems which are Ayurveda, Siddha, Unani and Yoga, Naturopathy and Homeopathy which provides a platform to take initiative to bring together the Asian medicine to develop a roadmap for mutual benefits and complementary outcomes. He expressed that Asian

medicine has potential to contribute to the delivery of health and medical services in the world over. Hon'ble Lt. Governor emphasized on need to encourage engagement of the University in terms of research with Asian medicines as "living traditions" and to promote its relevance to the contemporary world. He was of the view that it is essential to develop 'Centre of Excellence' for AYUSH integrating different disciplines of pharmaceutical sciences with traditional systems of medicine leading to globally acceptable safe, affordable and quality products for the benefit of the people.

Dr. Narendra Bhatt, President, IASTAM in his address highlighted the activities of IASTAM and the role played by the organization in research and development of the herbal medicinal system. He also felicitated and honoured awardees by IASTAM Oration Awards, IASTAM-BVU Awards and IASTAM Baidyanath Awards for their excellent work in the field of traditional Asian medicinal system.

Prof. R.K. Goyal, Vice Chancellor, DPSRU mentioned that the conference is being attended by over 650 delegates and more than 300 abstracts were received for oral as well as for poster presentations. He stated that the objective of the conference was to overcome boundaries, whether they are geographical or subject disciplines, ancient versus modern science and to deliberate on challenges faced in India for the promotion of traditional medicine practice. Dr. Goyal pointed out that a special session of conference was deliberated on the formation of syllabus in Ayurveda, Unani and Homeopathic pharmacy to raise the standards of the products from traditional medicines.

Prof. V.M. Katoch, Secretary, Former Director General, ICMR and Guest of Honour on the occasion enlightened the gathering about the



role of herbal medicine in human health care system and recent innovations and trends in herbal product development. He also emphasized on standardization of treatment methods along with importance of role of quality assurance, pharmacogenomics in integrated medicine.

On the second day of the conference many stalwarts shared their valuable views with the participants. The program started with the honoring of IASTAM oration awardees Mr. Mark Rosenberg, European Academy of Ayurveda – REAA, Birstein, Germany, Prof. (Dr.) Larry Walker, University of Mississippi, USA and Dr. Ram Vishwakarma, Director CSIR- IIM, Jammu, India.

Dr. Ikhlas Khan, National Center for Natural Products Research, USA, while delivering his talk mentioned that the use of herbal medicine has expanded globally and gained popularity, but the safety and efficacy as well as quality control of herbal medicines are matters of concern for both health authorities and the public. He also expressed the concern that Herbal product studies cannot be considered scientifically valid if the product tested was not authenticated and characterized and hence chemical standardization of starting material is very important. He also mentioned that “omics” technologies are promising new avenues for improving the discovery from this rich and vast reservoir of plant drugs.

Dr. Karan Vasisht, University Institute of Pharmaceutical Sciences, Panjab University, Chandigarh, delivered talk on Applications of Modern techniques in herbal analysis. He emphasized that ensuring efficacy, safety and batch uniformity of raw material is of prime importance. Different modern methods, encompassing advanced chromatographic procedures, fingerprint analysis, the concept of QbD, application of modern data

analysing software can be adopted to provide solution to the plant drug industry. Dr. Kishor Patwardhan, Faculty of Ayurveda, BHU, Varanasi suggested policy interventions in the matters related to Ayurveda drug safety.

There was a thought provoking session about opportunities with traditional medicines in which, **Prof. (Dr) Shridhar Dwivedi**, Senior Consultant Cardiologist, National Heart Institute, New Delhi delivered a talk on **Holistic Approach to Prevent Current Pandemic of Non Communicable Diseases**. He stated that it is entirely possible to prevent the further surge of these illnesses by integrating our rich heritage of yoga, Ayurveda with modern scientific recommendations of American Heart Association, European Heart Society on prevention of various heart diseases.

Dr. Narendra Bhatt, President, IASTAM, India., and Consultant - Research & Industry, CRIA Pvt. Ltd., Mumbai, propagated the need for combining modern day equipment and technologies with the therapeutic principles inherent in classical dosage forms to develop effective therapeutics of natural origin.

Dr. D.B.A Narayana Former Director, Regulatory Affairs, Foods & HPC, Unilever Research, Bangalore expressed that well formulated and stable botanical products with adequate quality specifications holds the key for future delivery of health care. Dr. Jai Prakash Senior Principal Scientific Officer, Indian Pharmacopoeia Commission, Ghaziabad., threw light on role of Indian Pharmacopoeia Commission in ensuring quality of herbal drugs while DR. Arun Gupta, Head – Medical Affairs & Clinical Research, Dabur R & D Centre presented a regulatory overview of the herbal drug development.



Prof Anand Chaudhary, Faculty of Ayurveda, Institute of Medical Sciences , Banaras Hindu University and Prof. Kanchan Kohli, Head and Professor, Department of Pharmaceutics, Faculty of Pharmacy, Jamia Hamdard highlighted role on nanomedicine in delivery of Ayurvedic and herbal formulations respectively.

Prof. R. C. Deka, erstwhile Director of AIIMS, delivered Valedictory address and appreciated the efforts of DPSRU and IASTAM for bringing together best brains in the country for deliberating on AYUSH and natural products. He opined that Universities are cradle of the scientific research and called upon University faculty to take up research in earnest. On this occasion, Guest of Honour, **Dr. Markanday Ahuja**, Vice Chancellor, Baba Masth Nath University congratulated the participants on the successful completion of the conference and encouraged them to use the knowledge acquired to bring positive changes to their society and nation. This was the culmination of 3 days conference, in which about 300 researchers presented their view on various aspects ranging traditional medicine. The awards for "Best oral and poster presentations" were distributed by Chief Guest. Dr Mahaveer Dhobi, Organizing secretary, summarized the proceedings and outcomes of the conference. Dr Raman Dang, Registrar, DPSRU presented vote of thanks.

A memorandum of Collaboration (MoC) was signed between Delhi Pharmaceutical Sciences and Research University (DPSRU) and Institute of Nuclear Medicine & Allied Science (INMAS) with co-ordinatorship of Dr. Madhu Gupta. This MoC was signed by Prof.

Raman Dang, Registrar, DPSRU and Dr. A.K. Singh, Director, INMAS to enhance the research services to pharmaceutical, biotech, medical devices.

The venue was the university board room in DPSRU, Delhi. The resource person for this MoC were Prof. Ramesh K. Goyal, Hon'ble Vice-Chancellor, DPSRU, Prof. Raman Dang, Registrar DPSRU, Dr. S.K. Gupta, National Research Professor DPSRU, Prof. D.P. Pathak, Director DIPSAR, Prof. Harvinder popli, Dean DPSRU, Dr. Madhu Gupta, Co-ordinator, DPSRU, Dr. A.K. Singh, Director, INMAS, Dr. Nidhi Sandal, Scientist E INMAS with Dr. Rajkumar, Dr. Sudhir Chandna. Prof. Raman Dang gave his welcome speech and introduce the university formally welcomed the dignitaries. Dr. A.K. Singh, Director, INMAS shared his thoughts and experience and facts of research areas, interdisciplinary research about INMAS, Delhi. Prof. Prof. Ramesh. K. Goyal, Hon'ble Vice-Chancellor envisioned the vision and mission of DPSRU and said that it was not the events but the attitude that caused success as well as an introduction regarding the academic and research disciplines. Dr. Madhu Gupta, Co-ordinator of this event shared her view about this Moc and ultimately the Exchange of Information by conducting joint research projects, teaching, learning materials and other literature relevant to their educational, scientific and research programmes that will benefitted the students and faculty of both the institution so that we may fulfill our moral responsibility to come in market with commercialization aspects. Director DIPSAR Prof. D. P. Pathak offered the vote of thanks for the MoC event.

This MoC was signed for fostering collaboration to educational, scientific and research programmes as well as also jointly organizing of seminars,





conferences, workshops and short-term/ long-term continuing education programmes on topics of mutual interest, while extending invitations.

This MoC will provide benefits to students through multi-dimensional programmes by the experienced faculty and industry-institute interaction coupled with latest tools and techniques to make them potential leaders, research scientist and entrepreneurs with assured placement in their chosen profession.

The Faculty of Pharmacy of **The Maharaja Sayajirao University of Baroda** had organized a **UGC sponsored National Seminar on “Recent Advances in Dermaceuticals”** at **Dr. Mrunalini Devi Puar auditorium**, Faculty of Family and Community Sciences.

Mr. Ambalal Patel, MD of Centurion laboratories Pvt. Ltd, Vadodara was the Guest of Honour and Prof. Parimal Vyas, Vice-Chancellor of the Maharaja Sayajirao University of Baroda presided over the function. The Seminar was attended by more than 135 delegates representing academia, industry and student fraternity. Eminent speakers from academia and industry were invited to deliver lectures on varied topics related to Dermaceuticals.

Dr Madhusudhan Bommagani, Vice president, Glenmark Pharmaceuticals focused on Topical Formulation Development. Prof. Vandana Patravale, Institute of Chemical Technology, Mumbai provided an overview of Challenges and recent trends in Dermaceuticals. Dr Purnima Shah, Owner of Derosa Pharmacy and Home healthcare, USA shared her experiences on Customized compounding of Dermaceuticals. Dr. Abhay Muthal, Vice President - Regulatory affairs, Sun



Pharmaceutical Industries Ltd. apprised the delegates about Global Regulatory Requirements for Dermaceuticals. Dr Vaibhav Dubey, Sr Manager, Sun Pharma Industries Ltd, discussed about Bioequivalence assessment of Dermaceuticals.

The lectures were highly informative and were very well appreciated by the delegates.



Department of Pharmacy Practice, **KVSR Siddhartha College of Pharmaceutical Sciences(KVSR SCOPS)**, Vijayawada, Amaravati, Andhra Pradesh has organized **one day National Seminar on “Cancer**



Management: Pharmacist Role & Expectations". The seminar was inaugurated by Dr. Rao VSV Vadlamudi, President, Indian Pharmaceutical Association (IPA), Mumbai. In his inaugural speech Dr. Rao VSV Vadlamudi mentioned the need of proper diagnosis and treatment for cancer. It was chaired by Dr. Chadalavada Nageswara Rao, Convener of Pharmacy College. The seminar was sponsored by Siddhartha Academy of General & Technical Education (SAGTE) & APTI –AP State branch. As a part of this seminar, three plenary lectures were arranged. They are:

1. "Role of Clinical Pharmacist in Clinical Management of Cancer" Dr. Ravikiran Bobba (USA), Medical Oncologist & Hematologist.
2. "Evolution of Medical Oncology" Dr. N. Subba Rao, Medical Oncologist & Hematologist.
3. "Essential Concepts in Developing Pharmaceutical Care Plan in Oncology". Mohan Raj, RIPER, Ananthapuram, Andhra Pradesh.

Totally 300 students from different colleges has participated and presented research papers. As a part of this, a 'Special Quiz' programme was also held. The seminar was organised by Dr. Devala Rao Garikapati, Principal and Dr. G. Vijaya Kumar, HoD, Department of Pharmacy Practice, KVSRSOAPS. It was graced by Sri. Perla Bhima Rao, Member, SAGTE. On this occasion, A Textbook entitled "Pharmaceutical Inorganic Chemistry" authored by Dr Devala Rao Garikapati as per the New PCI Syllabus was released by Dr Rao VSV Vadlamudi. This was published by B S Kohli and J S Kohli of Birla Publications, Delhi.

Sri Vijay Vidyalaya College of Pharmacy, Dharamaouri, Tamilnadu, celebrated **56th National Pharmacy Week Celebration** and started with Pharma rally from Dharampuri medical College to Dharampuri town, Nethaji Bye Pass Road, Arumuga Achari Street, Old bye pass road and ended at DMC. Dr. Srinivas Raj, Dean Dharampuri Medical College flagged the rally with his inaugural speech. He insisted for the need of awareness among the public about drug safety and not to purchase or take medicine with proper advice from pharmacist or physician's Consultation. Also he appreciated the steps taken by the college to



create awareness among the public against Dengue Fever by conducting health camp and distributing pamphlets against drug safety and dengue awareness. Do's and don't. Thiru DNC Manivannan, Chairman, Thiru Deepak Manivannan, Director & Selvi Manivannan Correspondent of the college presided over the function. Dr. K.L Senthilkumar, Principal welcomed the gathering and arranged for rally of staff team taking care of safety of rally in National Highways. In Continuation of the pharma rally various cultural programme. Social Welfare activities, Seminars, Elocution and other activities conducted in the college campus.



Dr. T.K Ravi, Principal, SRIPMS, CBE participated in Valedictory Functions as chief guest and he remarked the importance of pharmacists role in health care team and he advised the students to play proper role in health care team by applying their knowledge to help the patients and public. The list of students who played the major role in Drug interaction awareness were awarded by DNC Manivannan, Chairman of the college.



Thiru Deepak Manivannan, Director mentioned in his speech about the role played by pharmacists in France, England and USA and how it is recognized by authorities. He advised the students to get much a recognition in our country also Dr. K.L Senthilkumar, welcomed the

gathering for Valedictory the Dr. Ravi distributed prizes to students the students played major role in drug interaction also. Function ended with Bhatatha Natiyam by B. Pharm students.



Awareness programme on "Pharmaceutical Labelling Aspects" was conducted by **IPA local branch, Belagavi** in association with **KLE College of Pharmacy, Belagavi** for the students of **CMA's Arts, Commerce P.U & Women's Degree College, Mahantesh Nagar, Belagavi**. Lack of awareness regarding labelling has been major concern for improper usage of Drugs in society. **Dr. (Prof).Vinod S Mannur, Secretary, IPA Local branch** has highlighted the different aspects of Pharmaceutical labelling, where the session thrown a light on usage of medicines and its storage. Around 50 students along with faculty were benefitted with the guest lecture. **Dr Satish Karoli, Assistant Professor, Dept.of Pharmacy Practice** incharge extramural activity facilitated the awareness programme.

S. A. Raja Pharmacy College organized **one day CME programme** on **"Advances and applications of nanoscience and technology: Recent trends and future prospects"** in association with **The Tamilnadu Dr. M.G.R. Medical University** and **The Indian Pharmaceutical Association, Tamilnadu state branch**. The objective of this programme was to provide a timely forum to create a platform to deliberate and discuss the novel nano science and technologies amidst the delegates.

The CME programme commenced with prayer song by college choir. The dignitaries on the dias and the deligates were welcomed by **Dr. N. Balakrishnan., M.Pharm., Ph.D., Principal, S.A. Raja Pharmacy College**. It was followed by the presidential address by **Dr. S.A. Jacob Raja, M.D.S., Chairman, Rajas Medical institutions**. In his address he mentioned that the importance of programme is to make the participants of various institutions to be aware of the applications of nanotechnology in pharmaceuticals. Also he stated that the profession of pharmacy plays a vital role in industrial world.

The chief guest address had given by **Dr. Prabal Kumar Manna, Professor & Head., Faculty of Engineering &Technology (Pharmacy), Annamalai**



University, Chidambaram. He motivated the participants to aim high and become excellent pharmacist with high technical stuff in the field of nanotechnology.

The inaugural programme got its full shape by the felicitation address of **Mrs. Sophia Raja, Chairman & Secretary, Selvam Educational & Charitable Trust** and **Mrs. Sabeena Jacob, trustee, Selvam Educational & Charitable Trust**. They advised the participants to make use of the programme and clarify any sort of doubts from the resource persons.



Three scientific sessions were conducted by three resource persons from different Industries. The resource person **Dr. R. Rajesh., M.Pharm., Ph.D., Senior Manager-Quality R&D, Apotex Research Private Limited (ARPL), India** had expressed about **"Comparison of Bioequivalence Requirements between different Regulatory Agencies"**. **Dr. T. Geetha., M.S.(Pharm.),Ph.D., Senior Principal Investigator (Senior Team Leader), Formulation Development Centre, Syngene International Ltd., Bangalore, India** had delivered the lecture on **"Nanotechnology: Application drug delivery"**. **Mr. N. Dhatchana Moorthy., M.Pharm., (Ph.D.), Research Scientist, Department of Biotechnology, Orchid Pharma Limited, Nungambakkam, Chennai** had delivered topic regarding **"Nanobiotechnology in drug discovery and development"**. As a part of scientific session, poster presentation session was accomplished and best three posters were awarded. The organizing secretary **Mr. Bala Subramanian, H.O.D & Department of Pharmaceutics** thanked all the dignitaries and deligates. The remarkable one day CME programme was fulfilled with national anthem. 267 staff and student deligates from various institutions were participated in the programme. The programme was grand success with effective Coordination of all staff.



Savitribai Phule Pune University sponsored One day state level seminar on “Emerging Trends in Dosage Form Design” was successfully organized by JSPM’s Charak College of Pharmacy & Research, Wagholi. The seminar was inaugurated in presence of Dr. Jitendra Amrutkar, General Manager, R & D Technical services, Ideal Cures Pvt Ltd Mumbai, Dr. S. V. Admane and Dr. V. M. Kayande, Campus director, Wagholi, and Dr. S. B. Wankhede, Principal JSPM’s Charak College of Pharmacy & Research, Wagholi, Pune. Dr. S. B. Wankhede in his introductory note explained the need of discussing emerging trends in dosage form design and the objectives of the seminar.

The key note address was delivered by Dr. S. V. Admane. The first session was delivered by Dr. Jitendra Amrutkar on Hot Melt Extrusion Method used to improve the solubility and bioavailability of poorly aqueous soluble drugs. In his presentation he had covered concept of drug solubility and permeability, different methods to improve drug solubility i.e. micronization, changing crystal habit, complexation, polymers used etc. The second session was delivered by Mr. Nitin Kadam, Chief Scientific Officer, Shadow Pharma Venture Pvt. Limited. He elaborated the concept of quality by design & formulation by design. He also explained 5D concept i.e., design of experiment, define critical material attributes (CMA), critical process parameter (CPP), design statistical optimization, development of product & process, and design QTPP. The post lunch session was delivered by Dr. Avinash Tekade, Professor, Marathwada Mitra Mandal’s College of Pharmacy, Thergaon (Kalewadi), Pune. He explained the importance of nasal mucoadhesive drug delivery system for drugs acting on CNS. The seminar was attended by faculty members and students of various pharmacy colleges across the state. The scientific sessions concluded with the felicitation of speakers. Mr. D. M. Awari proposed vote of thanks where he acknowledged and thanked Savitribai Phule Pune University for providing the financial assistance, Speakers for sparing their valuable time and insights on the subject, faculty members and students from various institutes for attending the seminar, and Prof. Dr. T.J. Sawant, Founder secretary, for providing the necessary facilities and motivation to organize this seminar. Dr. S. B. Wankhede congratulated the faculty members of the institute and non-teaching staff for successfully organizing this seminar.



Department of Pharmaceutical Chemistry, JSS College of Pharmacy, Mysore, has successfully conducted the third edition of a month long training program cum fellowship on Drug Chemistry. This training program was sponsored by DHR in association with ICMR, New Delhi. The training program was inaugurated by Dr. Purushotam Dewang, Jubilant Biosys Pvt Ltd., Bengaluru on 20th November 2017. Nine faculties from various institutions across the country had participated as Fellows in this training program. The training program had drug research modules such as computer aided drug design, organic synthesis, pharmaceutical analysis, spectral interpretation, in vitro and in vivo pharmacological evaluation for various drug targets, art of scientific and grant writing. Thirty eight trainers from pharmaceutical industry and academia across the country have trained the Fellows during this month long training program. The fellows have rated the training program as excellent. Dr. TM Pramod Kumar, Principal, was the Chairman for this training program. Dr.G.V. Pujar, Head, Department of Pharmaceutical Chemistry was the Convener. Dr.B.R. Prashantha Kumar, Assistant Professor, Department of Pharmaceutical Chemistry was the organizing secretary and Principal Investigator. The Fellows have rated the training program as excellent in their feedback on the training program.



P. E. Society’s Modern College of Pharmacy, Nigdi, Pune hosted Savitribai Phule Pune University sponsored seminar on “Pharmaceutical Innovations and Intellectual Property Rights”. The national seminar was inaugurated by the hands of renowned researcher Dr. Jayant Khandare and the function was chaired by Principal Dr. P.D. Chaudhari and program coordinator Dr. A. A. Phatak. The program started with Saraswati puja followed by key note speech. In his key note address Dr.

P. D. Chaudhari elaborated the objectives of the seminar and the function was compiled by Dr. Smita Pimple.



On the first day of the seminar, Dr. Jayant khandare delivered a speech on 'Translation of biopolymers: Lab to clinic' In his speech, he threw a light on "journey of the polymer from its invention to its actual use in the product and role of a researcher in this translation. He brought to the notice with different aspects in patenting along with future importance in it. The next lecture in the seminar was conducted by Dr. Adinath Shirsat (Manager, Formulation R&D (NDDS) Sun Pharmaceutical Industries Ltd. Vadodara He illustrated the "Importance of QBD in formulation research". This seminar received good response from the participants. In the afternoon session Mrs. Srividya Ravi (Patent Associate, GNA Patent Gurukul, Mumbai) through her speech elaborated "issues in Patenting" she discussed the topic with the help of few case studies.

On the second day of the seminar Mr. Sachin Gundecha (Assistant Manager, Genova Biopharmaceuticals Ltd.) talked about "Intellectual Property and Regulatory Affairs emphasis on Pharmaceuticals". He through his session acknowledged the researchers in pharmaceuticals and explained niches and grace in intellectual property rights. This was followed by the speech of Mr. Avinash Velhal (Assistant Director, Lupin Research Park) He explained "Advances in Multi-particulate Drug Delivery System". The next speaker Mr. Sandip Amritkar shared his experiences with respect to "Innovations in Injectable Drug Delivery Devices". The last speaker of the seminar Mr. Deepak Singh (Head, R & D (Sales) Gansons Ltd.



Thane through his speech explained" DOE - a framework for innovative product development" with some demonstrations. The seminar received huge applause from the participant faculty and research scholars amongst

the various areas of Maharashtra and India. The seminar concluded with the summary by Dr. Karimunissa Shaikh and vote of thanks by Dr. A. A. Phatak. The seminar was attended by 103 participants from various regions of India. This seminar was sponsored by Savitribai Phule Pune University and conducted by the department of Pharmaceutics, P. E. S. Modern College of Pharmacy, Nigdi, Pune.



Gujarat Council on Science and Technology, (GUJCOST) Gandhinagar Sponsored One Day National Seminar on "Scientific Communications in Pharmaceutical Research -Fundaments and Techniques" was organized by Shri B. M. Shah College of Pharmaceutical Education & Research (BMCPER), Modasa . Total 93 students, Teachers and Research scholar drawn from various Pharmacy and Science colleges participated in the seminar. Function was rolled on by welcome speech of Dr. K. R. Patel Principal, BMCPER and chief Guest and keynote speaker of this occasion Dr. C. N Patel, Principal and Professor, Shri Sarvajanik Pharmacy College, Mehsana. Dr. M. C Gohel, Research Director, Pharmacy College, Anand, Mr. Paresb Bhatt, Director, The Advice and Assist, Ahmedabad and Dr. Jayvadan K Patel, Professor and Principal, Nootan Pharmacy College, Visnagar were invited as resource persons who talked on basic communication skills including thesis writing, paper publications and research grants.



Department of Pharmaceutics and Biotechnology, KVSR Siddhartha College of Pharmaceutical Sciences (KVSR SCOPS), Vijayawada, Amaravati, Andhra Pradesh has organized one day National Seminar on "Drug Delivery Aspects of Biologics/Macromolecules". The seminar was inaugurated by Prof. Venuganti Venkata Vamsi Krishna, School of



Pharmacy, BITS Pilani (Hyderabad Campus). In his inaugural speech Dr. Vamsi mentioned the role of Biologics/Macromolecules. It was chaired by Dr. Devala Rao Garikapati, Principal of Pharmacy College. The seminar was sponsored by Siddhartha Academy of General & Technical Education (SAGTE) & APTI –AP State branch. As a part of this seminar, three plenary lectures were arranged. They are:

1. "Delivery of Biologics-A Clinician Perception" Dr. Ravikiran Bobba (USA), Medical Oncologist & Hematologist, Indo-American Cancer Centre, Vijayawada.
2. "Introduction to Biologics and Their Delivery Aspects" , Prof. Venuganti V V Krishna, School of Pharmacy, BITS Pilani (Hyderabad Campus).
3. "Biomedical Nanotechnology: Integrating Biomedicine with Nanotechnology". Dr Anil K .Suresh, SRM University AP Campus, Amaravati.

Totally 300 students from different colleges has participated and presented research papers. As a part of this, e-poster presentation programme was also held. The seminar was organised by Dr. Devala Rao Garikapati, Principal and Dr. Buchi Naidu Nalluri, HoD, Department of Pharmaceutics and Biotechnology. It was graced by Sri. Perla Bhima Rao, Member, SAGTE. The winners of e-poster presentation were given prizes by Dr Suresh and Dr Devala Rao Garikapati. This seminar was widely publicized in the local electronic and print media.

Please Note:

APTI Bulletin and IJPER are not sent to members as hard copies. They are attached individually to the email of registered APTI Members. They are also available on the APTI Website. Hard copy of the APTI Bulletin is only sent to Principals of all the colleges.

Secretary APTI

Ph.D AWARDEES



Dr. Shubhrajit Mantry, working as Assistant Professor in the Department of Pharmaceutics, Himalayan Pharmacy Institute, Sikkim, has been awarded the degree of **Doctor of Philosophy (Ph. D)** in Pharmacy by Bhagwant University, Ajmer, Rajasthan in the month of January 2018.

My research work carried out entitled "Preparation and Comparative Evaluation of Various Strategies of Brain Targeting by Intranasal Delivery" under the guidance of Dr. Anna Balaji, Professor and Principal, Pathfinder Institute of Pharmacy Education & Research.

He has 8 years of teaching, research and individual experience. He has own journal and holding position as Editor-in-Chief of International Journal of Innovative Pharmaceutical Sciences and Research. He has published more than 40 articles in various indexed, Peer-reviewed and UGC approved journal.

He is the life time members of APTI (TL/LM-446) and registered pharmacist of Orissa State Board of Pharmacy. He serves as an Editor/Reviewer/ Advisory board members of various journal of National and International reputation. He deeply acknowledge to my Guide, family members, Principal, Staff, Colleagues, Friends and Management for their motivation and kind support.



Mrs. Prachi Pandey, Assistant Professor, Babaria Institute of Pharmacy, BITS Edu. Campus, Vadodara has been awarded the degree of **Doctor of Philosophy (Ph. D)** in Pharmacy by Gujarat Technological University, Ahmedabad on her work on the title "Novel carrier systems for targeted drug delivery in the treatment of arthritis" under the guidance of Dr. S.S

Pancholi, presently a Professor at Jazan University, Kingdom of Saudi Arabia.

The Ph.d degree was awarded at convocation ceremony held on 12th January, 2018 in presence of honorable guests, the Vice chairman, AICTE, Dr. M.P Poonia, Governor of Gujarat Shri. Om Prakash Kohli,

Chief Minister Shri. Vijay Rupani, Education Minister Shri. Bhupendrasinh Chudasama, Principal Secretary (Higher & Technical Education), Smt. Anju Sharma, Gujarat Government and Vice-Chancellor, GTU, Dr. Navin Sheth.

Her research work has received financial support of 14.5 lakhs from AICTE through Research Promotion Scheme. On completion of research, the work has been selected among few top projects of India through the event "India Innovation Initiative" organized by AICTE, DST & CII, India held at IIT Delhi in year 2015. Later in year 2016, Mrs. Prachi Pandey received GTU Innovation Sankul "Innovate to Impact" award for outstanding research work. In the year 2017, her Ph.D research work has been selected as potential startup for funding in world's longest and biggest Sayaji Startup Summit held at M.S. University of Baroda. Mrs. Prachi Pandey has 4 patent filed and 3 patents published in the India Patent Office in her credit. She has also published 10 papers in national and international journals.



Mr. Nanjappaiah H.M., Asst. Professor, Department of Pharmacology, BLDEA's SSM College of Pharmacy and Research Centre, Vijayapur, Karnataka, has been awarded with **Doctor of Philosophy (Ph. D)** in Pharmacology under Pharmacy Faculty by Rajiv Gandhi University of Health sciences, Bengaluru, Karnataka for his thesis entitled "**Evaluation of**

Adaptogenic and Anxiolytic activities of Piper longum and Dioscorea bulbifera". He carried out research work under the guidance of Dr. Shivakumar Hugar, Prof. and Head, Dept. of Pharmacology, BLDEA's SSM COP & Rc, Vijayapur, Karnataka and Co-supervision of Prof. Dr. Muchachandi I. S., Principal, BVV's HSK COP, Bagalkot, Karnataka.



Mr. Nishant Verma, working as Assistant Professor, Department of Pharmaceutical Chemistry, T.M. College of Pharmacy, Teerthanker Mahaveer University, Moradabad, Uttar Pradesh, has been awarded the degree of **Doctor of Philosophy (Ph. D)** in pharmacy by Teerthanker Mahaveer University, Moradabad on 29th December 2017 for his research work entitled

"Phytochemical investigations, characterization and biological

evaluation of some anti-diabetic plant drugs". The research work was carried out under the guidance of Prof. K. K. Jha, T.M. College of Pharmacy, Teerthanker Mahaveer University, Moradabad and Prof. Shamim Ahmad, TIPER, Meerut. Mr. Nishant Verma has more than 8 years of teaching experience. He has more than 25 research and review papers in various national and international journals to his credit. He has presented various papers in state level and national level seminars and conferences. He is a registered pharmacist of Delhi state pharmacy council, life member of Association of Pharmaceutical teachers of India (APTI) and International Association of Researchers on Natural Substances. He is a reviewer of various national and international journals. He is grateful to his parents, family members, Supervisor and Co-supervisor, College of Pharmacy, TMU, the management, principal, teaching and nonteaching staff members for their help, encouragement and co-operation during the research work.

KUDOS



Dr. Guru Prasad Mohanta, Professor of Pharmacy, Annamalai University, has participated in **Expert Committee Meeting on Under Graduate Pharmacovigilance Education**, at the Netherlands Pharmacovigilance Centre lareb, Amsterdam. The meeting discussed on the methodology to be adopted for teaching the teachers for pharmacovigilance teaching in under graduate medicine and pharmacy curriculum. The meeting was hosted by Netherlands pharmacovigilance centre lareb with the support of World Health Organization. The lareb is the WHO Collaborating Centre for Pharmacovigilance Education and Patient Reporting. Besides India, there were invitees from Chilli, Kenya,

France, Morocco and the Netherlands. Dr. Mohanta made a short presentation on Pharmacovigilance Education in India.



Recently, got the national award, pearl foundation education excellence award-"Best Educator Award in Pharmacy-2017", Madurai. On another hand, he got so many national awards and international awards in the pharmacy field. Another, He has published research and review articles in the national and international journals and participated in the same conferences. In the last year, he got "Best pedagogical Innovation Award (PIA), From Gujarat Technological University, GTU in the presence of Prof.(Dr.) Navin sheth



Mr.Nirav Soni from A-one Pharmacy College, Anasan, Ahmedabad,GTU (Ass.Professor) got "International Award and Gold Medal "-**"Distinguished Faculty Award"** from Indo Global Education Excellence Awards (IGCCIA) from Indo Global Chamber of Commerce, Industries and Agriculture (IGCCIA), and "International Award and Gold Medal"- "**Outstanding Research Scholar Award"**, Indo Global Education Excellence Awards (IGCCIA) from Prof (Dr) Aftab Anwar Shaikh and Ambassador Philippe Le Gall,High Commissioner of the republic of Seychelles, Indo Global Chamber of Commerce, Industries and Agriculture (IGCCIA), 4th February Pune,2018 during the inaugural session of the International Multidisciplinary Conferences.

Mr. Ashok A. Muchandi working as Asst. Professor in Dept. of Pharmacology, Adarsh College of Pharmacy, Vita. Dist-Sangli,



Maharashtra recently participated in 'International Conference and Exhibition on Pharmaceutical Sciences and Technology 2018 (PST2018) at the Ambassador Bangkok Hotel, Bangkok, Thailand. During the conference he presented a poster entitled on 'Protective effects of ethanolic extract of Piper cubeba L. on neuronal lipofuscinogenesis against D-galactose induced ageing accelerated dementia in albino rats'. He acknowledged sincere thanks to his research guide Dr. S.C. Dhawale, Professor, School of Pharmacy, SRTMU, Nanded. For his successful contribution, Principal Prof. N. S. Mahajan., Executive Director Hon. P. T. Patil., President Hon. Vaibhav Patil and Founder Hon. Sadashivrao Patil, Adarsh College of Pharmacy, Vita congratulated and appreciated.



Students of G. Pulla Reddy College of Pharmacy, Hyderabad participated in various events organized by IPA education division during 69th IPC 2017. Student team of K Sai Pradyuth, E Amulya, T Varun Sai from B.Pharm and J Chandrakanth, Pharm D. participated in the IPA 69th IPC National Quiz competition-2017, conducted at Uiversity College of Pharmaceutical sciences, Andhra University, Vishakhapatnam on 10th December 2017 and won 1st Prize.

Ms P. Kavya of M.Pharm I year participated in **National Elocution Competition 2017** conducted at 69th IPC at Chitakara University on 23rd December and won **2nd prize**. Winners of the Quiz and Elocution competition were presented Mementos, certificates and cash awards during the Valedictory function of 69th IPC at ,Chitkara University, Punjab.



Professor Mr. Nirav Soni has been awarded with **Best faculty of the year-2018** and **Best Industrial Aligned Research selected** from CSI Mumbai chapter Tech next India -2018, Nirav soni got the award from Dr. Pradeep Pendse (Event Chair, TechNext India 2018) and Dr. Devaang Khakhar, Director IIT Bombay.



Pharmacy Teachers Trust, Hyderabad Organized **Teachers award function at IST, JNTUH, Hyderabad** to present best teacher of the year 2017. **Dr. Sama Venkatesh**, Professor, Department of Pharmacognosy, G. Pulla Reddy College of Pharmacy, Hyderabad received the **Best Pharmacy Teacher of the year 2017** award for Telangana state.

The Award was presented by the Chief Guest Prof. C. K. Kokate, Former Vice - Chancellor, Kakatiya University and KLE University and Guest of Honour Dr. V. P. Singh, Officiating Vice-Chancellor, Sumandeep University, Vadodara. Members of the Trust, APTI members, teachers and principles principals from various colleges were present on the occasion.

Dr. Sama Venkatesh is a Professor , Department of Pharmacognosy, G. Pulla Reddy College of Pharmacy, Hyderabad . He has been working in this college for the past 20 years. He has 25 years of teaching experience. He guided 60 M. Pharm Theses and three Ph.D scholars are working under him. He has published 50 research articles in national and international journals with 900 citations and h.indexed 15.

Dr. Sama venkatesh also recognized as best Research Guide (in Pharmacognosy subject) for year 2013-14 at national level under Rajnibhai V. Patel Pharmalnova Award. The award was sponsored by M/S Troikka Pharmaceuticals Ltd, Ahmadabad and under patronage of Department of Science & Technology, Govt. of India. He is life membership of APTI and IPA.



Dr. R. B. Saudagar, Principal, KCT'S R. G. Sapkal College of Pharmacy (NAAC Accredited- B+ Grade), Anjaneri, Nashik, Maharashtra has been elected as **BoS member in Pharmaceutical Chemistry in Savitribai Phule Pune University, Pune**, Maharashtra. Dr. R. B. Saudagar has 26 years of Teaching and Research

Experience. So far he has published more than 152 Research Publications, authored 10 Text Books in Pharmacy, received Research Grant of Rs. 12 lakhs from AICTE under MODROB Scheme . He has Guided 09 Ph.D. and 39 M.Pharm students for Project work. He is life member of APTI and IPA.



Dr. Sunil S. Jalalpure; Professor at Dept. of Pharmacognosy at **KLE Academy of Higher Education and Research's College of Pharmacy**, Belagavi; received '**ISP Eminence Award – 2018**' by the Indian Society of Pharmacognosy on 20th January 2018 during the 22nd National Convention of Society of Pharmacognosy at Ganpat University, Mehsana, Gujarat. The dignitaries who were present for the aforesaid programme: Dr. C. K. Kokate (Vice-President, AIU, New Delhi), Dr. Mahendra Sharma (Director General, Ganpat University), Dr. V. K. Dixit (National Advisor, Society of Pharmacognosy), Dr. N. R. Sheth (Vice Chancellor, GTU and President, Society of Pharmacognosy), Dr. H. G. Koshia (Commissioner, FDCA, Gujarat State), Dr. Shailendra Saraf (Vice-President, PCI, New Delhi), Shree Anandbhai Patel (Member, BOG, Ganpat University), Dr. Umesh Patil (General Secretary, Society of Pharmacognosy) and Dr. Amit Patel (Registrar, Ganpat University).

Earlier to this honour, Dr. Jalalpure has received some other prestigious awards such as STARS (Sri Subbaraya Setty Teachers and Research Students Award) Award- 2017 at Bengaluru on 12th August 2017, National Level Young Pharmacy Teacher Award for the year 2012 by APTI (Association of Pharmaceutical Teachers of India); Best Teacher Award – 2011 on 5th September 2011 on Teachers Day and Best Young Scientist Award 2011-12 from KLE Academy of Higher

Education and Research, Belagavi, Karnataka.

Dr. Jalalpure has completed 3 research projects funded by UGC, ICMR & AICTE and has published 101 scientific papers in national and international journals. He has presented 76 papers at national / international conferences and has 3 intellectual property rights to his credit. He has successfully guided 40 M.Pharm and 11 Ph.D. students and 1 Post Doctorate fellow towards successful completion of their research. Dr. Jalalpure authored a Text Book of Pharmaceutical Biotechnology published by Elsevier. He is recently involved in nanoparticle drug delivery system of herbal actives and green nanotechnology.

KLE Academy of Higher Education and Research's Hon. Chancellor, Vice-Chancellor, Registrar and Principal / Staff Members from College of Pharmacy congratulated Dr. Jalalpure for receiving 'ISP Eminence – 2018 Award'.



Dr. J. B Dave appointed as **ADVISOR to Gujarat Technological University**, School of Pharmacy offering Post graduate program in the subject of Regulatory Affairs in Sept 2017. Attended the first meeting of Advisory committee chaired by Hon. Vice- Chancellor on 1st Feb 2018 and made many useful suggestions regarding the subjects in the syllabus and dissertation to be carried out by the students.



Dr. J. B Dave attended seminar on the scientific and regulatory aspects of HPLC organized by Waters India at Powai, Mumbai on 12.09.2017 and acquired knowledge on newer approaches, strategic method development and method transfer and interacted with faculty.



Dr. J. B Dave delivered opening address followed by first talk of the course on Correlation between Diabetes and Depression & Management of co-morbid patients at Gujarat State Pharmacy Council sponsored Refresher course for Registered pharmacists held by Shri Sarvajanik Pharmacy College at Dolby Hall, SSKM, Mehsana on 7th October, 2017.

Dr. J. B Dave served as Coordinator of Technical Seminar arranged by Department of Pharmaceuticals, Government of India jointly with Industry Association IDMA Gujarat State Board held on 24th November 2017 at Vadodara. Later, conducted interview of one of the speakers on Calibration-Qualification-Validation for publication in Pharma Times.

Two Articles published in Speaking Tree, prestigious publication of The Times of India. One, Self inspection is key to Inner transformation (22.09.2017) & Dual Power on 23.01.2018 highlighting different means to combat the evil.

Published two research papers in Scientific journal- World Journal of Pharmaceutical Research:

(I) Bhamini R. Chaudhary and Dr. Jayant B. Dave; Development and validation of stability indicating gradient RP-HPLC method for simultaneous estimation of telmisartan and chlorthalidone in bulk and fixed dose combination: World Journal of Pharmaceutical Research (Volume 6, Issue 10, 1015-1029. Oct 2017).

(ii) Vandana P. Dhokiya and J. B. Dave; Stability and analysis of Meropenem & Beta Lactamase Inhibitors in Injectable preparations: World Journal of Pharmaceutical Research (Volume 7, Issue 2, 1029-1048. Jan 2018).

OBITUARY



Dr. C. L. Kaul

Founder Director of NIPER, SAS Nagar

We have lost not only the founder of NIPER but a great Pharmacologist and Pharmacists.

BOOK REVIEW

Title: **Pharmaceutical Quality Assurance**
 Authors: **Dr. B. P. Nagori, Dr. Ajay Gaur, Dr. Renu Solanki & Dr.Vipin Mathur**
 Publisher: **Scientific Publishers, New Pali Road, Jodhpur, Rajasthan, India**
 Year: **2018**
 Pages: **268**



I would like to thank Prof. Raman Dang, Editor, APTI Bulletin, published by APTI, Bangalore, for giving me the opportunity for reviewing the book entitled "Pharmaceutical Quality Assurance" by Prof. B.P. Nagori and co-authors.

From the academic session, 2017-18, Pharmacy Council of India has notified the syllabi of B.Pharm. and M.Pharm. courses, to be followed by all the pharmacy colleges throughout the country. Looking at the industrial needs, it is a welcome step taken by PCI to incorporate the basic concepts of Quality Assurance even at B.Pharm. level. There is lack of good quality text books on Pharmaceutical Quality Assurance for UG, PG and Ph.D students. The book written by Prof. Nagori and the co-authors fulfils this need.

The book has been written as per the new syllabi of B.Pharm. and M.Pharm. courses introduced by PCI. It covers the contents and outline of Pharmaceutical Quality Assurance required by UG, PG, Ph.D students, industry professionals, researchers and also students preparing for various competitive exams. The book is accompanied with a good collection of multiple choice, fill in the blank, true-false, short answer and long answer type of questions for self-evaluation. The answers of MCQ, fill in the blank and true-false questions have also been given which are useful for preparation of various competitive exams including GPAT. I

have thoroughly gone through the book, page to page and found it to be written in simple and easy to understand language and covering all the points.

This book consists of four chapters. The first chapter deals with the basic concepts, objectives, functions of Quality Assurance and Quality Control. It also discusses the tools, history, elements, philosophy, benefits of total quality management and a brief about benefits, scope & steps of NABL accreditation.

Second chapter consists of concepts and philosophy of GMP as an important requirement in pharmaceutical industry. It also discusses the guidelines as per Schedule M of Drugs & Cosmetics Act, 1940. WHO-GMP guidelines for personnel involved in manufacturing of pharmaceuticals products, API's, sterile products are explained with brief notes. IPQC tests for solid, semi-solid, sterile and non-sterile dosage forms, USFDA-cGMP guidelines, and standard operating procedures with formats are also included. Section on Packaging and labelling control explains about the suitable process, quality control tests for containers and closures with procedures for glass, plastic, metal, rubber containers has been discussed for injectable preparations and eye ointments. Section on Good Warehousing Practices describes the design & construction and maintenance & sanitation of warehouses. Materials management discusses, in brief, the functions, stages, finished product release and quality review for solid, liquid & sterile products. Complaints and recalls are explained with types, stages of products, waste product and scrap generation, methods, and steps of disposal by category with brief discussion about how to segregate the waste and scrap disposal.

Third chapter, Good Laboratory Practices (GLP), focuses on latest concepts, study protocol, resources and philosophy of GLP. GLP Indian guidelines for manufacturing units have been mentioned as per Schedule L1 of Drugs and Cosmetic Rules, 1945. Responsibilities of Quality Control (QC) unit, GLP guidelines for non-clinical testing with terminology, study plan, quality audit topics cover the types and steps involved in pharmaceutical manufacturing industry.

Fourth Chapter, Validation and Calibration, explains about the basic concepts of validation, benefits, phases, validation protocol, process

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validation, analytical method validation and validation parameters. Calibration of equipments as per WHO, ICH and cGMP guidelines are also included.

Overall the book provides wonderful compilation of an interesting and useful reading material, different from other books on the subject. I recommend this book to all Pharmacy students, research scholars, faculty members, industry persons and libraries. I congratulate the authors for coming up with such a valuable collection covering all the aspects of Quality Assurance, GMP, GLP and Validation.

Reviewed by

Dr. J. Swaminathan

Delhi Pharmaceutical Sciences and Research University
New Delhi

APTI Members are invited to contribute for the collectors Album and the Continuing Education sections of the APTI Bulletin. Kindly send your write ups and the collection to be shared by all the Members at aptienquiry@gmail.com, or dangraman2000@yahoo.co.in.

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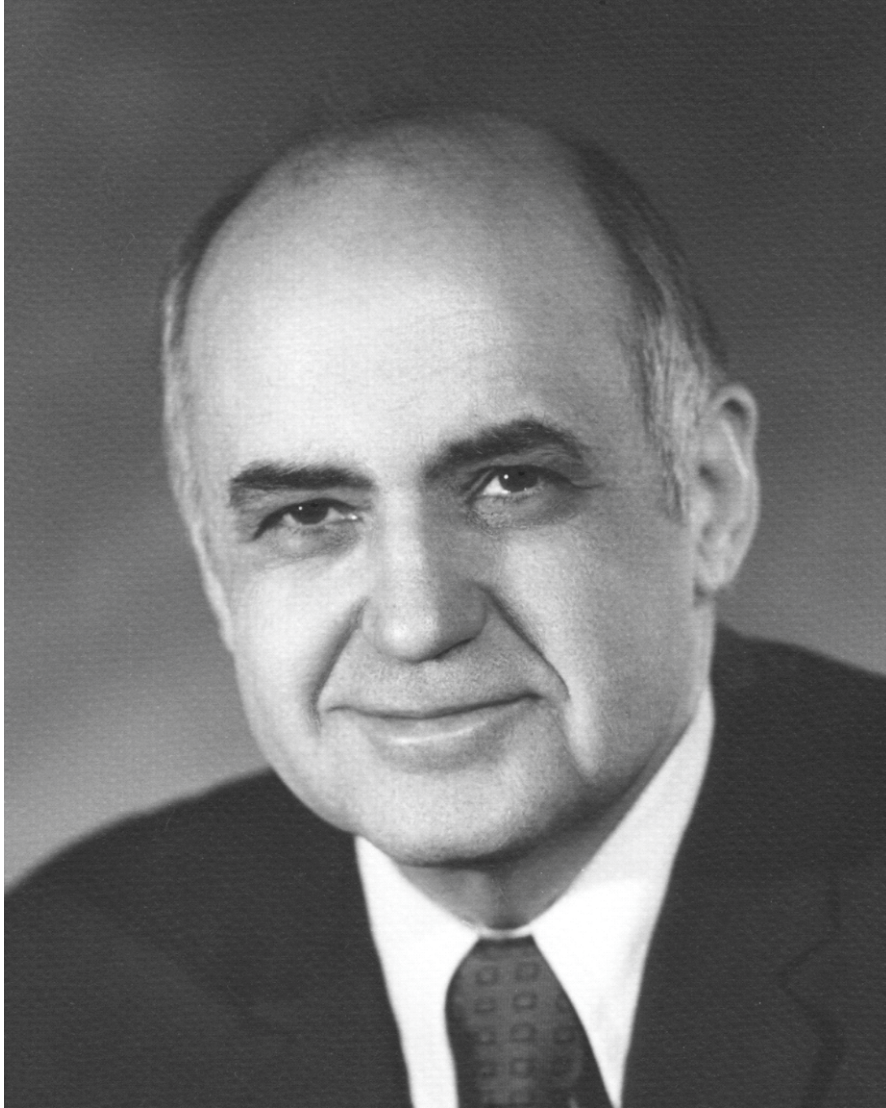


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COLLECTOR'S ALBUM



Maurice Ralph Hilleman

(August 30, 1919 – April 11, 2005)

was an American microbiologist who specialized in vaccinology and developed over 40 vaccines, an unparalleled record of productivity.

Contributed by
Prof. Kuntal Das
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Hairy Cell Leukaemia: Its Diagnosis and Treatment

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Abstract

Leukaemia is a cancer of bone marrow due to damage of DNA of immature blood cells. Generally the condition is fatal and occurs in any age groups of people. There are several types of leukaemia in that hairy cell leukaemia is the one that a rare form of hematologic cancer, in which the bone marrow produces an excessive amount of a type of white blood cell called B cells, cause by a mutation known as V600E in a specific gene. There are several methods diagnosis in addition natural methods for the treatments of hairy cell leukaemia.

Key words: Leukaemia, Hairy cell leukaemia, chemotherapy, Complications, natural treatments.

Introduction

In general leukaemia is a cancer of blood or bone marrow. Bone marrow produces blood cells. When there is a problem in production of blood cells especially white blood cells then leukaemia can happen. This condition can happen in any age group people due to damage of DNA of immature blood cells, mainly white cells¹. Leukemia can be fatal but there are ways of treating and controlling its symptoms. Some of the early signs and symptoms are like weight loss, having fever, tiredness, frequent infections etc. There are 4 main types of leukemia, based on whether they are acute or chronic, and myeloid or lymphocytic (Fig-1):

- Acute myeloid leukemia (AML): It involves the rapid growth of myeloid cells.
- Chronic myeloid leukemia (CML): It is primarily affects in adults.

- Acute lymphocytic leukemia (ALL): It is very common in children where immature lymphoid cells grow rapidly in the blood.
- Chronic lymphocytic leukemia (CLL): It is slow growing cancer of lymphoid cells.

It is mainly occurs in elderly people.

Risk factors²

Some factors increase the risk of developing leukemia like:

- Artificial ionizing radiation
- Viruses, such as the human T-lymphotropic virus (HTLV-1) and HIV
- Benzene and some petrochemicals
- Alkylating chemotherapy agents used in previous cancers

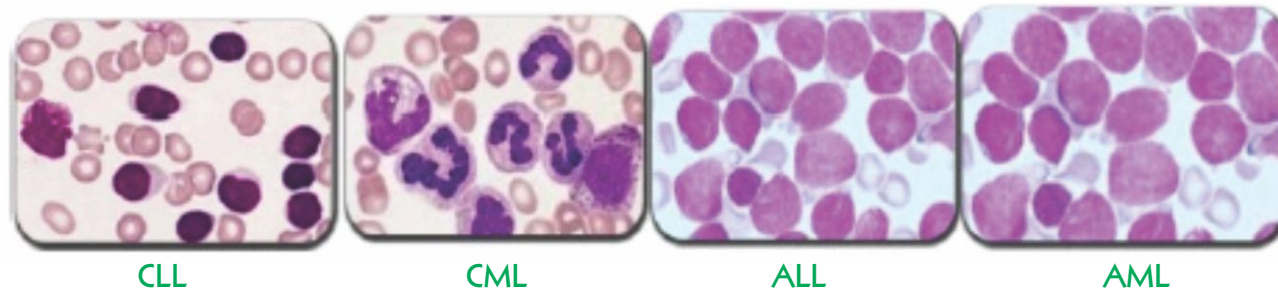


Figure- 1: Types of leukaemia

- Hair dyes
- Smoking

There are another type of leukaemia which is identified by the researchers is hairy cell leukaemia. The name "hairy" comes from the way the leukemia cells look under a microscope — they resemble hair. It is a rare form of hematologic cancer, in which the bone marrow produces an excessive amount of a type of white blood cell called B cells. These abnormal B cells do not develop into healthy cells but instead become harmful cells known as leukemia cells³. It is more common in men than in women, and is also more frequent in older people (Figure-2). It is a chronic disease because it may never completely disappear, although treatment can lead to a remission for years.

Symptoms

Some people have no signs or symptoms of hairy cell leukemia, but a blood test may inadvertently reveal hairy cell leukemia. Some signs and symptoms are like:

- A feeling of abdomen fullness that may make it uncomfortable to eat more than a little at a time
- Fatigue
- Easy bruising
- Recurring infections
- Weakness
- Weight loss

Complications⁴

Hairy cell leukemia progresses very slowly and sometimes remains stable for many years. There are few complications of the disease such as:

- Infections: Low white blood cell counts put risk of infections.
- Bleeding: Low platelet counts make non stop bleeding once it starts and also can cause spontaneous bleeding from the nose or gums.
- Anemia: A low red blood cell count means fewer cells are available to carry oxygen throughout body and it causes fatigue.

Causes

The causes of hairy cell leukemia are not fully understood but doctors think that a mutation known as V600E in a specific gene is responsible for most cases of hairy cell leukemia. This gene is the BRAF gene (human gene that encodes a protein called B-Raf).

Diagnosis^{5,6}

A doctor may make a diagnosis of hairy cell leukemia based on physical exams, medical questions, and blood tests.

Physical examination: It includes searching for lumps or swelling that could be enlarged lymph nodes or signal an enlarged spleen or liver.

Medical history: Collecting information about the person's health habits, past illnesses, and treatments.

Complete blood count (CBC): Examination to measure a variety of amounts of red blood cells, white blood cells, and platelets, the amount of hemoglobin attached to red blood cells, the hematocrit, which is the

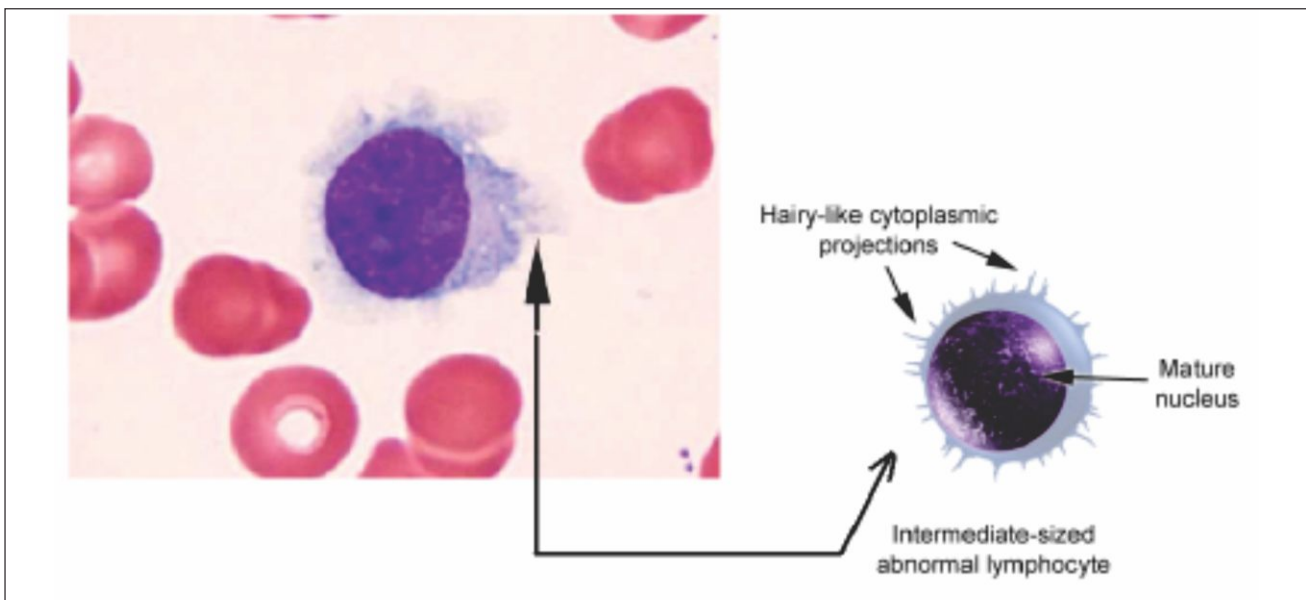


Figure-2: Hairy cell Leukaemia

proportion of the sample that is made up of red blood cells.

Blood chemistry tests: Analysis of a blood sample to measure the levels of certain substances that are released by organs and tissues into the bloodstream.

Peripheral blood smear: Checking a person's blood sample under the microscope to look for changes in the shape of blood cells and the appearance of a "hairy" look.

Bone marrow aspiration or biopsy: Collection of a small sample of the person's bone marrow and then examined under the microscope to look for "hairy" leukemia cells, and to track healthy blood cells.

Cytogenetic analysis: Analysis of tissue cells under the microscope to look for genetic abnormalities.

Immunophenotyping: Analysis of markers on the surface of blood or bone marrow cells by compared with healthy cells of the immune system to determine the type of cells.

Computed tomography (CT) scan: Several X-ray images are taken from different angles of specific body areas. A CT scan of the chest, abdomen, or pelvis were carried out to look for swollen lymph nodes or a swollen spleen.

Treatment^{4,7}

Some of important treatments are currently used as:

1. Watchful waiting: Careful monitoring of the person's condition to watch for new signs or symptoms.

2. Surgery: A surgical procedure, known as splenectomy, to remove the spleen. It may be used to treat pregnant women to delay the use of chemotherapy.

3. Chemotherapy: A type of therapy that stops the progression of cancer by killing cancer cells. Depending on the type and stage of the cancer, chemotherapy can be given orally or injected. Drugs like cladribine and pentostatin are the first-line treatments for hairy cell leukemia. Bendamustine is another chemotherapy drug that can be used in people who get worse after the initial treatment.

4. Biologic therapy: It is a type of treatment that uses the body's own immune system to fight cancer. Alpha-interferon is one type of biologic agent used to treat hairy cell leukemia.

5. Targeted therapy: A form of treatment that recognizes and attacks cancer cells without harming healthy cells. Targeted therapy includes the use of genetically modified monoclonal antibodies that identify and attach to substances on cancer cells to reduce the cancer cells grow.

In hairy cell leukemia, rituximab is a commonly used monoclonal antibody. Others, such as obinutuzumab and of atumumab, are being studied. Sometimes doctors are uses for people with mutations in the BRAF gene

are ibrutinib and vemurafenib.

Natural treatment⁸:

Natural treatment options cannot cure hairy cell leukemia but help people deal with the side effects of treatment. Like: Acupuncture: a procedure where fine needles are inserted in specific body points to relieve nausea and vomiting caused by chemotherapy. Massage: therapeutic manipulation and application of pressure to body tissues and muscles are use to reduce anxiety and fatigue. Mind-body therapies: Meditation and relaxation techniques are use to help relax and relieve pain.

Aromatherapy: It is the practice by the use of fragrant oils to give a sense of wellbeing and relieve stress by directly massaged into the skin or added to bath water or heated to release their aroma.

Conclusion

Hairy cell leukaemia is a rare type of leukaemia which may be caused by mutation of V600E in a specific gene. In spite of several complications, there are few treatments which can reduce the cancer cell growth are like surgery, chemotherapy, biological and targeted therapies. In addition natural treatments are also useful for relieve of pain.

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