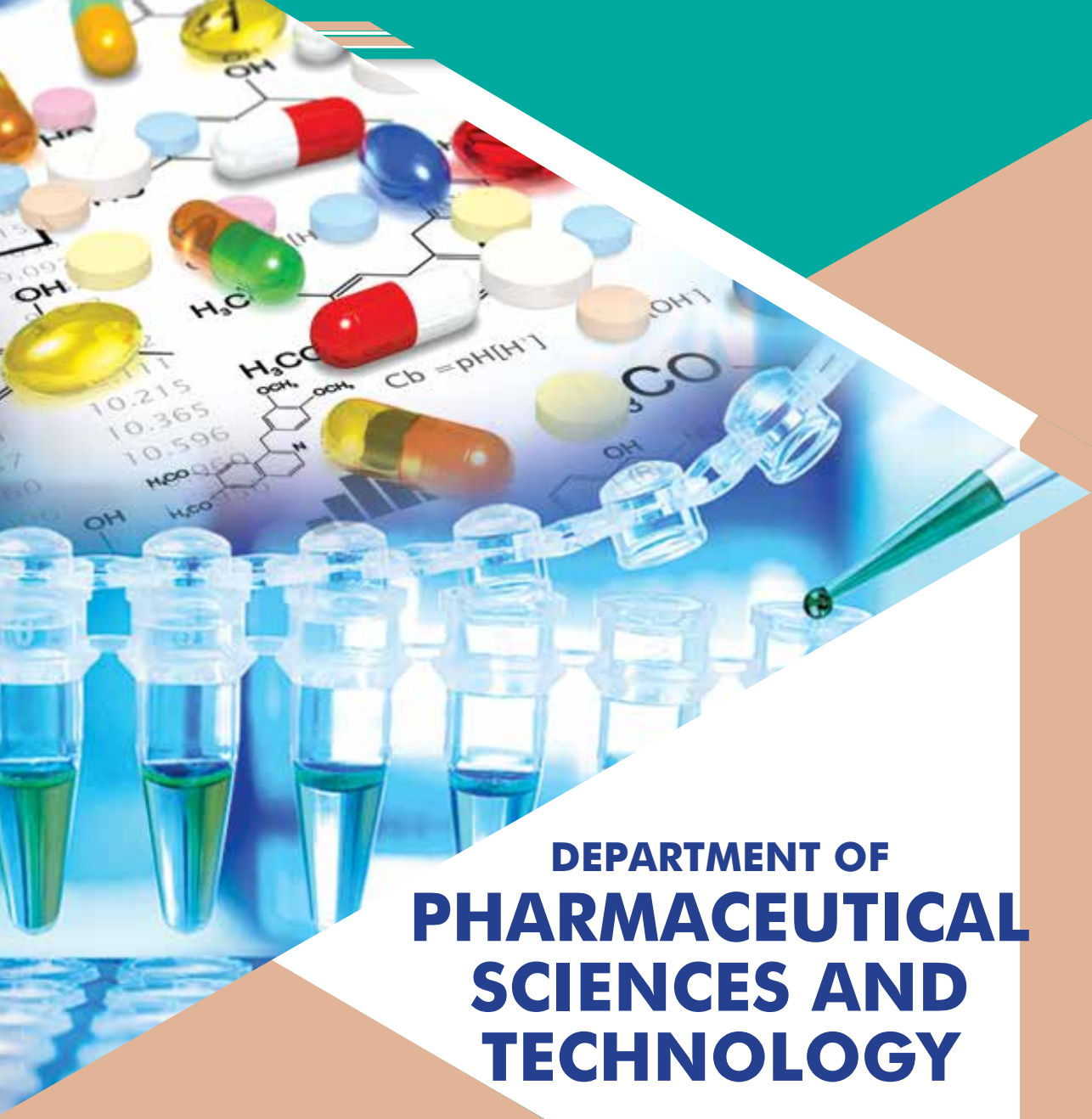


DEPARTMENT OF PHARMACEUTICAL SCIENCES AND TECHNOLOGY

ABOUT THE DEPARTMENT

PROFESSOR DR. (MRS.) MARIAM S. DEGANI

B.Pharm, M.Pharm, PhD (Tech)

Head of Department and Professor in Pharmaceutical Chemistry

MISSION:

To achieve the best in pedagogy and research, through creation of a dedicated team of faculty and state of art research facility, to develop skilled manpower and innovative cost effective technology to support national healthcare programmes

VISION:

To be a globally recognized premier educational and research centre with world class facilities, adopting international best practices, focused on the integration of science and technology in the areas of Drug Discovery, Drug Delivery, Organic Process Research and Herbal Healthcare Products

A BRIEF OVERVIEW OF 2016-17:

The year 2016-17 began on a good note, with continued excellence in research as well as new initiatives in teaching, in the Department of Pharmaceutical Sciences and Technology (DPST). The department students opting for career with industry had good campus placement with national and multinational companies, while several B. Tech. & B. Pharm students opting for higher education got admission with good universities both international and national. It is heartening to note that some of the industries have been coming to ICT year after year to recruit our graduates and post graduates including Ph.D. students. The training imparted to our students by DPST faculty is thus well appreciated by industry and is a matter of great pride and satisfaction.

Our Bachelors, Masters as well as PhD programs continue to attract students of high calibre. One new initiative is the interdisciplinary Master's program in M. Tech. (Pharmaceutical Biotechnology) coursewhich has been approved by DBT with a substantial funding, has commenced from July 2016. The animal house has being completely renovated, in keeping with CPCSEA norms. Both undergraduate courses viz. B. Tech and B. Pharm have been restructured to keep up with present times.

DPST continues to be supported by various government grants, and research in collaboration with industries, both Indian and International. We thank our alumni and well-wishers for their continued support by way of donations.

MAJOR RESEARCH AREAS:

- **Pharmaceutics and Formulation:** Design of Drug delivery systems for oral, parenteral, transdermal, nasal, buccal and sublingual, ocular and vaginal drug delivery including Nano Drug Delivery systems.
- **Pharmaceutical Chemistry:** Drug design and discovery, Computer Aided Drug Discovery, Design & Synthesis of drugs drug intermediates and NCE's, Process optimization and synthesis of intermediates used in APIs, Green Chemistry
- **Medicinal Natural Products including pharmacology and pharmacognosy:** Evaluation of indigenous plants for various pharmacological activities(In-Vitro/In-Vivo),Enzyme mediated assays, Drug metabolism and Pharmacokinetic studies including bio distribution, optimisation of protocols for Pharmacodynamic activities with appropriate biomarkers,Extraction and isolation of phytoconstituents, Standardization and stability of herbal drug products, Modification of herbal constituents for synthesis of useful compounds
- **Biotechnology:** Bioanalytical method development, Nanotechnology in drug delivery, Protein and nucleic acid delivery, pharmaceutical biotechnology.

MAJOR INSTRUMENTAL / PROCESSING FACILITIES:

- 400 MHz NMR, GC-MS, LC-MS, FT-IRs, HPTLC, several HPLCs, GC, UV, DSC, Fluorimeter, Polarimeter, Parallel Plate Synthesizer and other chemistry related instruments, CADD lab with sophisticated hardware and software for docking, homology modelling, 3D-QSAR and other modules, hydrogenator.
- Particle size analyzers, Zeta Sizer, Film coater, Extrusion spheroniser unit, Transdermal permeation apparatus, Freeze driers, High Pressure Homogenizers, Tablet machines, Dissolution apparatus, Sonicators, Fluidised bed coater cum processors, Dryers, Multipurpose processors for solid and liquid formulations, Facilities for wet and dry granulations, Facilities for bioadhesion testing, facilities for size reduction, Liquid filling machines, Facilities for processing of semi-solid dosage forms, ICH stability testing facilities,
- BIOPAC, Elisa readers, Aggregometer, Non-invasive blood pressure measuring instrument, microbiology facility and cell culture facility, incubator shaker, CO2 incubator, inverted microscope, fluorescence microscope, high speed cold centrifuges, freezers, and other basic equipments and instruments.

COURSES OFFERED

Name of the course	Intake
B. Pharm B. Tech (Pharmaceutical Technology)	30 18
M. Pharm (Pharmaceutics, Pharmaceutical Chemistry, Medicinal Natural Products) M. Tech (Pharmaceutical Technology) M. Tech (Pharmaceutical Biotechnology)	18 8 10
Ph.D. (Tech) and Ph.D. (Sci.)	Variable

*We also support M. Tech (Bioprocess Technology), M. Tech (Perfumery) and M.Tech (Green Technology)

MAJOR GRANTS

TEQIP, DST-FIST, DBT, AICTE, DAE, UGC-CAS, CCRH, DST, ICMR, CSIR, AYUSH and various industry sponsored projects

PROFESSOR DR. (MRS.) MARIAM S. DEGANI
B.Pharm, M.Pharm, PhD (Tech)
Head of Department and Professor in Pharmaceutical Chemistry

RESEARCH INTERESTS:

Drug design including ligand, structure and fragment based drug design. Synthesis of focused libraries of potential bioactive molecules for infectious and Alzheimer's diseases, based on rational drug design, using modern techniques including parallel synthesis and microwave assisted synthesis. Exploration of natural products as therapeutic leads. Fluorine chemistry, process development of drug and drug intermediates, green chemistry using ionic liquids and newer catalytic system development.

FELLOWSHIPS/ MEMBERSHIPS OF PROFESSIONAL BODIES:

- Fellow of Maharashtra Academy of Sciences
- Life member of Indian Pharmaceutical Association.
- Life member of Indian Women Scientists Association (AWSA)
- Member of Third World Organization of Women's Association in Science.
- Life member of APTI.
- Life member UDCT alumni association.
- Member of American Chemical Society

PUBLICATIONS (PEER REVIEWED) SO FAR: 63

PATENTS: 08

CONFERENCE PROCEEDINGS/PAPERS:75

SEMINARS/LECTURES/ ORATIONS DELIVERED: 23

PH.D.S AWARDED AS SINGLE/ CO-GUIDE: 14

MASTERS AWARDED AS SINGLE/ CO-GUIDE: 48

AWARDS/HONORS:

National -1

H-INDEX: 14

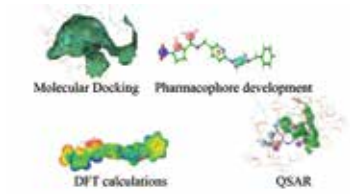
CITATIONS: 685

HIGHLIGHTS OF RESEARCH CARRIED OUT:

Drug Discovery Chemistry

a) **Rational drug design** including computer assisted design of potential anti-infective and other agents. (Techniques used include Homology modeling, molecular Docking, Pharmacophore mapping, 3D QSAR, Molecular dynamics, stereo electronic feature analysis.

b)



c) **Synthesis of small focused, compound libraries** using classical and novel reactions and catalysts, multi-component reactions for hit and lead generation and optimization and their in vitro evaluation including enzyme based and whole cell based activity and toxicity.

d) Our library of **synthetic molecules (more than 500)** is being screened by collaborators both in India and abroad for various biological activities including anti-infective (Tuberculosis, MAC and other opportunistic infections, Filaria), some CNS (Alzheimer's disease) and cancer targets.

e) Exploration of **plant based products** for biological activity including anticancer, anti-infective and cytoprotective activities has recently been initiated in our laboratory.

Process chemistry research

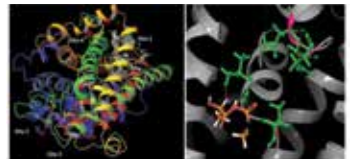
a) **Fluorine chemistry:** This includes design of Novel Fluorinating agents which are economic, safe, stable and easy to handle, development of Fluorination methods for Selective fluorination and catalysis and synthesis of 18F labeled ligands for PET scanning

b) **Use of Ionic Liquids (ILs) in synthesis and separation technologies:** This includes design of ILs using computational approach and synthesis of library of tailored ILs. The applications include extraction of natural products, as catalysts & solvents in synthesis and for CO_2 capture in industrial processes.

c) **Development of innovative processes for pharmaceuticals** including drugs, intermediates and metabolites, using techniques such as Microwave assisted organic synthesis, continuous reactions (Flow chemistry), sonochemistry, parallel synthesis, newer catalysts and biocatalytic reactions.

Use of computational methods for formulation development

a) Studies on absorption of organoferrous compounds using in silico methods: The effect of organic acid component of ferrous complexes on the binding and iron absorption was studied usinghomology modelling, molecular docking and dynamics studies of a divalent metal ion transporter.



Binding sites on the human divalent metal transporter and binding of ferrous gluconate on receptor.

b) Taste masking of drugs: The human taste receptor was modelled and the binding of various bitter drugs to the receptor was

Modelled human taste receptor TAS2R10 with its binding site

SUBJECTS TAUGHT:

Pharmaceutical and Medicinal Chemistry IV and V, Advanced Medicinal Chemistry I and II, Drug discovery process and Drug design

RESEARCH INTERESTS:

Drug design including ligand, structure and fragment based drug design. Synthesis of focused libraries of potential bioactive molecules for infectious and Alzheimer's diseases, based on rational drug design, using modern techniques including parallel synthesis and microwave assisted synthesis. Exploration of natural products as therapeutic leads, Fluorine chemistry, process development of drug and drug intermediates, green chemistry using ionic liquids and newer catalytic system development.

RESEARCH STUDENTS:

Ph.D (Tech.)-12, Ph. D. (Sc.)-02, M. Pharm- 01, M. Tech- 02

RESEARCH PUBLICATIONS:

International-6

Indian- 08

SPONSORED PROJECTS:

Government- 04
Private- 04

PROFESSIONAL ACTIVITIES :

- Fellow of Maharashtra Academy of Sciences
- Life member of Indian Pharmaceutical Association.
- Life member of Indian Women Scientists Association (AWSA)
- Member of Third World Organization of Women's Association in Science.
- Life member of APTI.
- Life member UDCT alumni association.
- Member of American Chemical Society Academy of Sciences

PROFESSOR K. G. AKAMANCHI
B.Sc., B. Sc. (Tech.), Ph.D. (Tech.)
Professor of Pharmaceutical Technology

RESEARCH INTEREST AND EXPERTISE:

- Process Chemistry & Technology
- Synthetic Methodologies and novel transformations
- Hypervalent Iodine Reagent Chemistry
- Cell Surface Protein Isolation and Characterization
- Impurity: Synthesis, Characterization and Mechanism of Formation
- Design ,Synthesis and applications of novel dendritic lipids and novel heterolipids
- Protein isolation and stabilization by novel excipients

FELLOWSHIPS/ MEMBERSHIPS OF PROFESSIONAL BODIES:

- Recipient of National Open Merit Scholarships(1969 and 1973)
- Recipient of research fellowship from UGC (1978)
- Recipient of Indian National Science Academy Science Visiting Fellowship.
- Recipient of Dadasaheb Abyankar Visiting Fellowship
- Fellow of Maharashtra Academy of Science, Pune.
- Chairman, Ad-hoc Board of Studies in Pharmacy, University of Mumbai
- Academic Council Mumbai University
- Member, Board of studies Gulbarga University
- Member, Board of studies in Pharmacy SNDT University (for three years)
- Member Academic Council University of Mumbai
- Member Board of studies Karnataka Women's University Bijapur
- Member Board of studies in Pharmacy North Maharashtra University, Jalgaon
- Member, Board of Management ICT
- Member, Senate ICT
- Board of Studies in Pharmaceutical Sciences Gujarat Forensic Sciences University.
- Ex.Dean Research and Consultancy,ICT
- As AICTE expert member
- DSIR expert member
- NAB Accreditation Expert Committee
- Member IPA
- Member of Editorial Board of Indian Drugs
- Member of Editorial Board of Indian Journal of Pharmaceutical Sciences
- Member Indian Society for Mass Spectroscopy
- Member of Association of Carbohydrate Chemists and Technologist, India
- Member Indian Chemical Society
- Member Chemical Research Society of India
- Independent Director on the Board of Aarti Drugs Ltd. Mumbai

PUBLICATIONS (PEER REVIEWED) SO FAR: 110

PATENTS: 10

CONFERENCE PROCEEDINGS/PAPERS: 78

SEMINARS/LECTURES/ ORATIONS DELIVERED: 52

Ph.D.S AWARDED AS SINGLE/ CO-GUIDE: 53

MASTERS AWARDED AS SINGLE/ CO-GUIDE: 84

CITATIONS: 1534

H-INDEX: 23

HIGHLIGHTS OF RESEARCH WORK DONE AND ITS IMPART:

Development of New Methodologies:

Molecules are objects of chemistry provided by nature or created by human imagination. One of the prime activities of chemistry is to synthesise these molecules with an objective, be it for structure confirmation, sufficient materials for establishing the applications, or simply establish synthesis as an intellectual exercise. For making these molecules at different scales depending on the requirements, synthetic methodologies are needed and this need is ever-increasing with advent of complex molecules and specific industrial needs under the grab of utilisation of renewable resources, sustainability, environmental and safety concerns.

Our research group, over the years, has focused on development of new synthetic methodologies and succeeded in development of many oxidative transformations using hypervalent iodine(V) reagents prominent among them being o-iodoxybenzoic acid (IBX), Dess-Martin periodinane (DMP) and iodic acid. The methods developed are impressive and are quite useful for medicinal chemistry, contract synthesis activity, and to some extent for large scale synthesis. Hypervalent iodine regents are very mild, work at neutral pH and in most cases at room temperatures except a few which require higher temperatures. Mechanistically basic feature of these reagents for oxidative transformation is a mandatory ligand exchange step before the ligand under goes oxidative transformation. This feature with relative nucleophilicity of ligands forms the basis for development of new methodologies. New methodologies have been developed using combination of hypervalent iodine reagents and nucelophiles either as activator for subsequent transformations or getting oxidized by themselves leading to the desired transformations. Our group has developed a combination of IBX/TBAB(tetrabutyl ammonium bromide) as a new reaction system where Br (-) as a nucleophile adds on to the central iodine facilitating ligand exchange leading to acceleration of many reactions. In other cases oxidation of Br(-) leading to generation of Br(+) triggers many transformations. Using this combination and activation, we have converted organic sulphides exclusively into sulfoxides without any further oxidation to sulphone. Sulfoxide containing molecules are an important class of drugs and therefore this methodology would find wide applications in medicinal chemistry. The bromine activation has been further exploited for one carbon oxidative dehomologation of amides to nitriles similar to Hoffmann rearrangement but under neutral conditions with no added base. This oxidative dehomologation reaction has been further developed into a new method for transformation of α,α-disubstituted amides into one carbon shorter ketones and disubstituted glycine amides into cyanamides. Similarly olefins have been converted directly into α-bromoketones and so on. This is one range of new methodologies that have been developed. Other nucleophiles used were substituted thioureas. The thioureas underwent oxidative desulfurisation forming carbodiimides. In another methodology the cardodiimides thus generated as intermediates from substituted thioureas have been trapped intramolecularly to form several azoles. This was possible because of mild reaction conditions and highly selective transformations due to preferential interaction of IBX with highly nucleophilic sulfur in presence of other nucleophilic sites such as oxygen and amines. One more interesting transformation, visualised while investigating mechanism of dehomologation reactions, was fast and quantitative conversion of aldehydes to nitriles in ammonia solution of IBX. Epoxides have been fragmented

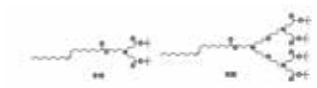
in aqueous ammonia solution of IBX where initial opening of epoxides to form amino-alcohols has been exploited for further oxidative cleavage without affecting other functionalities. This fragmentation process could prove to be a valuable alternative for direct oxidative cleavage of olefins where many a times stronger oxidising agents are needed. Earlier methodologies developed in our laboratory using hypervalent iodine reagents were oxidative deoximation to generate ketones or aldehydes. Recently, on similar lines we reacted aryl hydrazines with IBX expecting to generate aryl free radicals through oxidative expelling of nitrogen. Indeed aryl free radical were formed, as demonstrated by trapping experiments. Further aryl radicals were generated in presence of reactive naphthoquinones leading to C-arylation. This is a new way of generation of aryl free radicals under mild conditions. Apart from those described above many more simple methodologies including oxidative rearrangements, bromination, α-sulfoxylations of ketones have been developed.

American Chemical Society Green Chemistry Institute Pharmaceutical Roundtable has found that amide formation avoiding poor atom economy reagents is the priority of research and as many as 65% drugs molecules prepared by leading pharmaceutical companies contain an amide unit indicating its importance and prevalence in synthetic organic chemistry. Another key area of research is the activation of hydroxide group. Present methods that makes use of strong acidic reagents lead to formation of many by products or requires an additional step of activation through formation of good leaving group.

We initiated the work to solve these problems by developing a new acid catalyst with the hypothesis that a catalyst with oxophilic sites and acidity strong enough to activate hydroxyl group but not strong enough to deactivate amino group could do the trick and with an added feature of heterogeneous nature for easy separation to recycle. We made for the first time "sulfated tungstate" by reacting sodium tungstate with chlorosulfonic acid in an organic solvent. To our satisfaction sulfated tungstate turned out to have the features as we desired and proved to be a very good catalyst for amidation using carboxylic acid and amines. Our publications have triggered interest in development of many more catalysts for amidation. Having oxophilicity and mild acidity sulfated tungstate was found to activate hydroxy groups of alcohols for displacement without elimination to form olefinic by products. One such example is Ritter reaction a industrially useful 100% atom economy reaction between alcohol and nitrile to form amides. Since acid catalysed reactions are basic transformations in chemistry we are exploring sulfated tungstate for many more useful transformations. So far successful ones are transamidation, mono alkylation of amines, epoxide opening using amines. Another interesting observation was that sulfated tungstate was compatible with sulfur and found suitable for Kindler and Willgerodt reactions for making thioamides which required sulfur in just stoichiometric amounts, giving high yields. Otherwise these reactions are quite messy under conventional conditions due to polymerisation of sulfur and posing problems in product isolation. In addition several new methodologies have been introduced by our group.

New materials for Pharmaceutical Applications

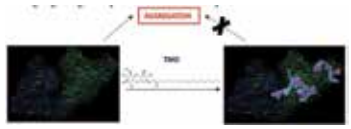
Many recently introduced, approximately 40%, new chemical entities as drugs are water insoluble and have bioavailability problem when administered through oral route. Currently these issues are addressed through different approaches including development of NDDS (New Drug Delivery Systems), prodrug and use of cyclodextrins . Many of these NDDS employ oil phase and surfactants for solublisation. However the major problem is limited options among available of oil phases. We understood this limitations and the need and initiated research activity towards development of new materials (oil phases and surfactants). Our design concept was based on a lipid with long fatty acid chain preferably oleic acid because oleic acid is known to interact readily with cell membrane and therefore in addition to solubilisation may also facilitate absorption of drug molecule thus solving both solubility and bioavailability problems. The lipid structure envisaged has oleic acid as tail and branched head group linked through bio-labile ester functionality. The branched head group provides scope for manipulation of property through different functionalities and their number. More over by selecting tertiary amine as branching element additional features of basicity and hydrogen binding site are incorporated. With all these features the following structure has been considered and successfully synthesised.



All these new materials have shown excellent solubilisation properties which has been demonstrated by developing NDDS such SMEDDS(self micro emulsifying drug delivery systems), SLNs(solid lipid nanoparticles), SNEDDS (self nano emulsifying drug delivery systems), and other formulations. This material has been proven biocompatible and safe by using in vitro, ex-vivo and animal studies. This new lipid material, with basic nature, was found to be a good solubiliser and bioavailability enhancer, as demonstrated by animal studies for Curcummin a water insoluble natural product with varieties of promising activities. This work was presented recently (19th to 20th April 2014) at international conference themed "Clinical Pharmacology - Translational Research: Patient to Public Health" held in Mumbai. The work was well appreciated and won the third prize. We are further modifying the structures to develop additives for stabilization of proteins in protein formulations, and by trying to introduce amino functionalities at the terminal end of the head groups to facilitate for siRNA and gene delivery. To conquer the problem of low solubility , low bioavailability and low dermal penetration our lab recently synthesized novel dendritic lipids with variable head and tail functionalities with potentially better properties than existed materials. Synthesized lipoidal biomaterial then used to formulate gel, SMEDDS,NLC and other lipid based formulations.

New excipients (As antiaggregation agent) for stabilization of proteins:

Protein aggregation is a major problem of therapeutic proteins because aggregation decreases their therapeutic activity and shelf life and induces immunogenicity. Stabilization against aggregation is commonly attained by addition of different excipients like sugars, surfactants, buffers, salts, amino acids, polymers, etc. Generally these excipients are required in combination for stabilization. Sugars are required at a higher concentration, and commonly used surfactants like polysorbates have shortcomings due to oxidative degradation. With a view to have a multipurpose excipients to be effective at a lower concentration, we designed antiaggregation agents (AAAs) that would encompass the functionalities of two or more conventional excipients and would curtail the number of excipients to be added for stabilization. Our first designed AAA (In Figure), trehalose monooleate (TMO), is a sugar-fatty acid derivative. It has been evaluated in silico by docking on aggregation prone regions of model protein bovine serum albumin (BSA), and experimentally its effectiveness has been validated as stabilizer against agitation and thermal stress. Wide verities of experimental studies by us provided vital insights into conformational stability rendered by TMO. Overall, it can be said that TMO has good antiaggregation property. The present work is a preliminary attempt toward understanding protein excipients interactions and chemistry to provide rational basis for designing a single excipients for stabilization of protein formulations.



SUBJECTS TAUGHT:

Advance Organic Chemistry, Pharmaceutical Chemistry, Medicinal Chemistry, Pharmaceutical Technology

RESEARCH STUDENTS:

Ph.D (Tech.) - 04,
Ph. D.(Sci.) - 03

M. Pharm- 01 M. Tech- 01
Undergraduate Summer Fellows: 02

RESEARCH PUBLICATIONS:
International-09 (Peer-reviewed) : 9

CONFERENCE PROCEEDING : 2

SPONSORED PROJECTS:
Private- 01

PROFESSIONAL ACTIVITIES:

- R C member dept of chem.
- Co-ordinator TEQIP R & D committee
- Admission committee for PG Pharma Dept
- Fellowship enhancement committees
- Research Assistants selection committee.
- Membership of Editorial Boards with name of journal namely: Indian drugs And Indian Journal of Pharmaceutical Sciences

PROFESSOR (MRS.) PURNIMA D. AMIN
B.Pharm, M. Pharm, Ph.D. (Tech.)
Professor in Pharmacy

RESEARCH INTEREST AND EXPERTISE :

- Developing Novel drug delivery systems using Hot Melt Extrusion (HME) and spray drying techniques.
- Developing Novel neutraceutical and Personal care dosage forms
- Solubility enhancement of poorly soluble drug using several excipients by solid dispersion techniques.
- Exploring newer applications for excipients
- Developing R & D models of pharmaceutical machinery.

FELLOWSHIPS OF NATIONAL AND INTERNATIONAL ACADEMIES OF SCIENCE OR ENGINEERING:

- Fellow of Maharashtra Academy of science.
- Referee, Indian Journal of Pharmaceutical Science, and Drug Dev Industrial Pharmacy
- Referee, Journal of Nanotechnology
- Referee, Journal of Controlled Release
- Referee, Journal of Pharmaceutical Sciences

FELLOWSHIPS/ MEMBERSHIPS OF PROFESSIONAL BODIES:

- Life Member, Indian Pharmaceutical Association, Maharashtra State Branch.
- Life Member, I.C.T. Alumni Association
- Member, Controlled Release Society, Indian Local Chapter
- Life member APTI

PUBLICATIONS (PEER REVIEWED) SO FAR: 84

PATENTS: 14

CONFERENCE PROCEEDINGS/PAPERS: 95

SEMINARS/LECTURES/ ORATIONS DELIVERED: 9

PH.D.S AWARDED AS SINGLE/ CO-GUIDE: 23

MASTERS AWARDED AS SINGLE/ CO-GUIDE: 73

H-INDEX: 13

CITATIONS: 590

HIGHLIGHTS OF RESEARCH WORK DONE AND ITS IMPART

Focus of the research work is on solubility enhancement of poorly soluble drugs, mainly drug belonging to BCS class II and IV.

Several technologies, viz, liquisolid compact technology, solid dispersion, using spray drying and hot melt technology, using porous carrier such as mesoporous silica and porous starch. All the technology used for solubility enhancement has given encouraging results and several pharma industries Evonik, Dow have supported these projects. Excipients are a must for developing pharma. These have classic role to play in drug delivery. Some of these Excipient are co processed to enhance their physical properties and their role in drug delivery is enhanced. Work is focused on new application for approved excipients.

Fixed dose combination of drugs are the need for the day, for treating TB, malaria, diabetics, and hypertension. Several immediate and controlled releases FDC are being developed using HME technology.

Improving stability of poorly stable nutraceuticals by microencapsulation and converting liquid into free flowing solid powder.

The above research work has resulted in several international publications and also patent filing. Research work has been appreciated, which has resulted in several pharma industries sponsoring research proposals.

SUBJECT TAUGHT:
Lectures: Pharmaceutics, Pharmaceutical Technology, Dispensing Pharmacy, Hospital Pharmacy, Advanced Pharmaceutics
Practical: Biochemistry, Pharmaceutics- II, Dispensing Pharmacy

RESEARCH STUDENTS:
Ph.D (Tech.)-09,
M. Tech. -01,
M. Pharm Sci- 02
Undergraduate Summer Fellows- 04

RESEARCH PUBLICATIONS:
International- 08,
Peer- reviewed- 06,
Conference proceeding- 05

PATENTS:
Indian-02

SPONSORED PROJECTS:
Government- 01,
Private- 03

SPECIAL AWARDS/ HONOURS / ACCOLADES:

- Fellow of Maharashtra Academy of Science.
- Best Teacher Award 2016-17 from S. Y. B. Pharm Class

DR.GANESH U. CHATURBHUJ
B.Pharm, M.Pharm Sc., Ph.D (Tech), Post. Doc.
Associate Professor in Pharmaceutical Chemistry

RESEARCH INTERESTS:
Organic synthesis, Catalysis and synthesis , Analytical method development.

FELLOWSHIPS/ MEMBERSHIPS OF PROFESSIONAL BODIES:
- APTI
- ICSB
- UAA ICT

PUBLICATIONS (PEER REVIEWED) SO FAR: 11

SEMINARS/LECTURES/ ORATIONS DELIVERED:
05

MASTERS AWARDED AS SINGLE GUIDE/ CO-GUIDE: 01

HIGHLIGHTS OF RESEARCH WORK DONE AND ITS IMPART

Medicinal chemistry:
Our research group is involved in three major fields of medicinal chemistry for the development of new chemical entities for treating type-2 diabetes mellitus, cancer and inflammation/pain; herein we are using currently trending and updated computer aided drug design software for high throughput screening in search of novel scaffold; which includes site mapping, homology modeling, 2D/3D-QSAR study, pharmacophore development and molecular docking. Best predictive candidates are chosen for the synthesis using advanced synthetic methodologies. Biological evaluation of series of synthesized molecules performed using in-vitro and in-vivo models for their corresponding activities.

Process chemistry of drugs and drug intermediates:
Our research team involved in the development of novel synthetic routes of various active pharmaceutical ingredients and their intermediates using various industrially applicable and beneficial parameters; majorly safer/less hazardous chemicals, cost and labor efficient, environment friendly, green and reproducible, among other considerations.

We are working for scale up of pharmaceutically important reactions from milligram to kilogram scale with kinetic study using pilot size vessels with the intention of maintaining similar characteristics to industry reactors.

Quality assurance of active pharmaceutical ingredients:
Our research team is involved in synthesis, purification, characterization of impurity standards, Metabolites and degradation products of API's. We are also involved in the analytical method development and method validation of various drugs / API's.

RESEARCH STUDENTS:
Ph.D (Tech.)- 07,
Ph.D. (Sci.)- 01
M. Pharm- 02,
M. Tech.-01

RESEARCH PUBLICATIONS:
International-11

PATENTS:
Indian-01

SPONSORED PROJECTS:
Government- 02

PROFESSIONAL ACTIVITIES:
- APTI
- ICSB
- UAA ICT

DR. HEMCHANDRA K. CHAUDHARI
M.Pharm Sci, PhD(Tech) in Pharmaceutical Chemistry
Assistant Professor in Pharmacy

PUBLICATIONS (PEER REVIEWED) SO FAR: 06

SUBJECTS TAUGHT:
- Pharmaceutical and Medicinal chemistry-I,Pharmaceutical and Medicinal chemistry-II,
- Pharmaceutical and Medicinal chemistry-III, Medicinal Chemistry-II

RESEARCH

PUBLICATIONS:
International- 01

SPONSORED PROJECTS:
Government- 01

PROFESSOR DR. (MRS.) PADMA V DEVARAJAN
B. Pharm, M.Pharm, PhD(Tech.), FMAS
Institute TEQIP Coordinator, Coordinator- M.Tech Pharmaceutical Biotechnology,
Professor in Pharmacy

RESEARCH INTERESTS:
- Engineering of nanoparticulate (polymer/ lipid/gold) drug delivery systems for targeted delivery in cancer and infectious diseases (tuberculosis) including scale up and commercialization, and screening for new targeting ligands
- Hepatic targeting, Brain targetting and Pulmonary targetting

- Non-invasive (nasal and sublingual) delivery systems for peptides, proteins and nucleic acids
- Vaccines
- Nano Diagnostics
- Veterinary Drug delivery Systems and Diagnostics
- Controlled Release and Bioenhanced Drug Delivery Systems (NDA and ANDA)

FELLOWSHIPS/ MEMBERSHIPS OF PROFESSIONAL BODIES:

- Nominated Fellow Maharashtra Academy of Sciences
- Chair- Scientific Programs-Society for Pharmaceutical Dissolution Science(SPDS)
- Vice President and Life member, Board of Governors UDCT Alumni Association(UAA)
- Ex-Treasurer, Ex-Secretary and Patron Member Controlled Release Society-Indian Chapter
- Life Member Indian Pharmaceutical Association
- Life Member Indian Women Scientists Association.
- Member Indian Society of Surface Scientists and Technologists.
- Member Third World Organization of Women in Science
- Registered Pharmacist, Maharastra Pharmacy Council

PUBLICATIONS (PEER REVIEWED) SO FAR: 74

PATENTS (FILED/ GRANTED): 21/7

CONFERENCE PROCEEDINGS/PAPERS: 240

SEMINARS/LECTURES/ ORATIONS DELIVERED: 56

PHD AWARED AS SINGALE/ CO-GUIDE: 39

MASTERS AWARED AS SINGALE/ CO-GUIDE: 68

H-INDEX: 19

CITATIONS: 1290

HIGHLIGHTS OF RESEARCH WORK DONE AND ITS IMPART

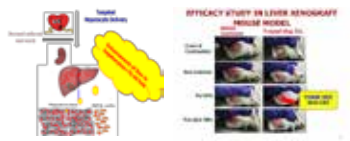
Innovations in Nanomedicine are in nationally relevant areas of healthcare, namely infectious diseases (Tuberculosis, AIDS, veterinary infections), cancer and diabetes with a focus on the design of practical and relevant interventions, to enable translation of nanomedicine from bench to clinic. Innovative oral DDS is yet another major area of research. Important contributions are highlighted below:

LIPOMER - Nanoparticle Shape and Drug Targeting

LIPOMER an innovative nanocarrier for veterinary infections, is the first ever application of nanomedicine in veterinary infections. We have for the first time reported the role of nanoparticles of irregular geometry in targeting drug loaded nanoparticles to the spleen (Journal of Biomedical Nanotechnology, 2008, 4(3, 359-369); J Pharm Sci.; 99(6):2576-81, 2010). This paper was cited in the US based magazine The Scientist April 2010 pg 69, under cutting edge research in Nanoparticles in drug development. Clinical success in E.Canis infection in dogs is demonstrated. More importantly, the scalability of this Lipomer has been successfully demonstrated (Am. J. PharmTech Res. 2013; 3(4)).

HepaTarg Dox for Hepatic Targeting

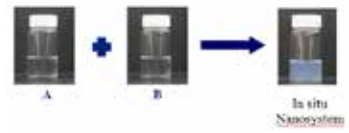
We have successfully developed Dox nanoparticlesanchored with the carbohydrate ligands (Hepa Targ), for improved therapy of hepatic cancer. High hepatocyte accumulation was confirmed in the rat model. Good efficacy with decreased toxicity was observed in the PLC/PRF/5 Liver Tumor mouse model.Suggesting great promise of HepaTarg Dox in the therapy of hepatic cancer. (Drug Delivery, 2016, DOI:



Self Nanoprecipitating Preconcentrates (SNP):

A simple idea which completely overcomes the technology gap in the development of nano drug delivery systems. SNP involves generation of a mixed nanosystem, comprising lipid/ polymeric nanoparticles and micelles, **IN SITU** by the patient or doctor by simply mixing two liquids (A &B) prior to administration.

It has been successfully developed for anticancer drugs (doxorubicin, tamoxifen) and Anti HIV(Nevirapine), the technology appears too simple to be true! (Int J Pharm 2012, 429(1-2):104-12, 3053/ MUM/2010)



Sublingual Nano Delivery System of insulin

We have a granted Indian Patent based on microemulsion compositions for sublingual administration of insulin. This non injectable insulin delivery system exhibits great potential. This system can be readily scaled up for commercialization. (Granted Indian Patent 233413, Drug Delivery2015, 23 (2), pp429-436, Drug Delivery & Translational Research 2014, Vol-4, pp 429-438)

Gastroretentive Floating Drug Delivery Systems

Air^{0}Matrix Technology

Air^{0}Matrix technology is an innovative approach wherein matrix tablets are compressed with a central air cavity by a compression coating process. When dropped in an aqueous medium expansion of tablet due tothe entrapped air enabled floatation. This Air^{0}Matrix tablets remained floating for >12h and presents an innovative gastro retentive DDS.

Floating multiparticulates by Holt Melt Extrusion (HME)

HME a densification technology was successfully exploited for design of low density floating multiparticulates of metoprolol succinate. Floating was achieved by an intelligent combination of polymers and effervescent agent. A controlled release formulation with floating lag time of <3 min and total floating time of >12h with controlled release upto 12h was optimized. (International Journal of Pharmaceutics, 2015, 491(1-2): 345-351)[Received the **Eudragit Award 2015**, awarded by Evonik India Pvt. Ltd., on 21st September 2016]

Curcumin SMEC Solid Dispersion for Arthritis

Bioenhanced increased surface area **Curcumin SMEC** solid dispersions as films, were developed by a simple technology as depicted below. High drug loading and high stability were important hallmarks.Approximately 400% bioenhancement and good anti-arthritic efficacy compared to indomethacinin theComplete Freund's Adjuvant (CFA) arthritis model in rats prove the great potential of this new DDS for therapy of rheumatoid arthritis (Pharm Res. 2016 Aug;33(8):1972-87)

SUBJECTS TAUGHT:

Targeted Drug Delivery, Drug Delivery Systems I, Drug Delivery Systems I, Targeted Drug Delivery, Pharmaceutics IV, Technology of solid dosage forms, Technology of sterile dosage forms

RESEARCH STUDENTS:

Ph.D. (Tech.) -15,
M. Pharm-2, RA-1,
M. Tech. (Pharma. Biotech.)- 2
Undergraduate Summer Fellows-04

RESEARCH PUBLICATIONS:

International- 07
Peer-reviewed-07
Conference proceeding- 10

PATENTS:

Indian- 03

SPONSORED PROJECTS:

Government- 05
Private-03

PROFESSIONAL ACTIVITIES:

- Member, Research Recognition Committee, S.N.D.T. University
- Referee for International J. Pharmaceutics, Journal of Pharmaceutical Sciences, AAPS Pharma Sci Tech, Journal of Pharmaceutical and Biomedical Analysis, Indian Journal of Pharmaceutical Sciences, J. of Nanomedicine, J. Biomedical Nanotechnology
- Editorial Board Member, the Asian Journal of Pharmaceutical Sciences an Elsevier Publication. European Journal of Drug Metabolism and Pharmacokinetics, a Springer Publication. Indian Drugs(IDMA publication), Indian Journal of Pharmaceutical

Sciences(IPA publication)

- Advisory Committee member, SVKM's Dr. Bhanuben Nanavati College of Pharmacy, Mumbai
- Member Board of Studies, Shobhaben Pratapbhai Patel School of Pharmacy & Technology Management, SVKM's Narsee Monjee Institute of Management Studies (NMIMS).
- Chair of the Outstanding Paper Award Committee of the Drug Development and Translational Research 2015&2016, the Controlled Release Society Inc., USA.
- Chairperson Scientific Programme Committee - Society for Pharmaceutical Dissolution Science (SPDS) (2015-2018)
- Programme Chair for 'A Professional Development Certification Course Series arranged in five modules' entitled 'Pharmaceutical drug development process-Role of Dissolution Testing' by ICT and Society for Pharmaceutical Dissolution Science
- Vice President of UDCT Alumni Association, Institute of Chemical Technology Mumbai (2015-2017).
- Inducted as Member of the Editorial Board of European Journal of Drug Metabolism and Pharmacokinetics, a Springer Publication.

SPECIAL AWARDS/ HONOURS:

RESEARCH AWARDS

PUBLICATIONS

- The paper titled "Controlled release floating multiparticulates of metoprolol succinate by hot melt extrusion" Vilas N. Malode & Padma V. Devarajan, International Journal of Pharmaceutics, 2015, Vol-491 (1-2), pp 345-351 **(IF:4.24)**, received the **Eudragit Award 2015**, awarded by Evonik India Pvt. Ltd., on 21st September 2016.

AWARD FOR SUPERVISED RESEARCH

- BIRAC-SRISTI Gandhian Young Technologist Innovation (GYTI) Award for SteriFreez-Flash Freeze Sterilizer, Saugandha Das, Archit Devarajan, & Padma V. Devarjan, March 2017.
- Dr. Bal G. Joshi Endowment for Recognition of Innovative Thinking, Creativity and Performance Award for Year 2016-2017 to Parth N Kadakia* for UG summer internship project Titled, "Ophthalmic ATIS Gel of Curcumin" in Annual Day Celebration of ICT, 8th April 2017. The project was mentored by Amit S. Lokhande* (PhD Tech Student) & guided by Prof. Padma V. Devarajan

RESEARCH PRESENTATIONS

- 2nd Best Poster Prize for the poster titled "In Vitro Release Testing of Microparticles Co-encapsulated with Anti-Tubercular Three Drug Combination", presented by Amit S. Lokhande*, Padma V. Devarajan, at Disso India Mumbai- an International Annual Symposium on Dissolution Science, Organized by SPDS (Society for Pharmaceutical Dissolution Science) in association with SOTAX AG, on 8th & 9th June 2017, at The Leela, Mumbai, India.
- Dr. K.G. Nair award as 1stprize for Poster titled "Nanocurcumin Mediated Autophagy Modulation in M.tuberculosis infected Murine Macrophages", presented by Priyanka Jahagirdar*, Pramod Kumar Gupta, Savita Kulkarni and Padma V. Devarajan, at South Asian College an Affiliate of American College of Clinical Pharmacology (SAC-ACCP) 10th Annual International Conference on "Clinical Pharmacology for healthy ageing" on 30th April-1st May 2017, held at Nehru Centre, Worli, Mumbai, India.
- 2nd prize for Oral presentation titled "Rifampicin Nanoparticles for Oral to Lung Delivery", presented by Sagar Bachhav*, Vikas Dighe and Padma V. Devarajan, at South Asian College an Affiliate of American College of Clinical Pharmacology (SAC-ACCP) 10th Annual International Conference on "Clinical Pharmacology for healthy ageing" on 30th April-1st May 2017, held at Nehru Centre, Worli, Mumbai, India.
- ISVIB-IVRI-Mukteshwar Albert Linghard Memorial Award-2016 for Contribution in commercialization of the Technology titled as "Solid lipid Nanocarriers a Revolutionary Approach for targeted therapy in Theileriosis", presented by Heena V. Maithania*, Abdul Samad, and Padma V. Devarajan, at XXIII Annual Convention of Indian Society for Veterinary Immunology & Biotechnology National conference on Challenges in Livestock and Poultry Production-solutions with Biotechnology, on 19th April 2017, held at Krantisinh Nana Patil College of Veterinary Sciences, Shirval, Pune, India.
- 1st Best Poster Prize for the Poster titled "Role of Oils on Enhanced Solubility of Curcumin in Microemulsion", presented by Suraj K. More*, Amit S. Lokhande, Padma V. Devarajan, at Savitribai Phule sponsored two days National Conference on "Opportunities and Challenges in Development of Herbal Formulation", organized by Amrutvahini College of pharmacy, Sangamner, Ahmednagar, Maharashtra, India from 10th to 11th February 2017.
- 1st Best Poster Prize for the Poster titled "Insulin Dissociation: Strategy for Enhanced Sublingual Permeation from Microemulsion", presented by Amit S. Lokhande*, Padma V. Devarajan, at 2nd National Conference of Institute of pharmacy, NCIP 2017, on "Emerging Trends in Drug Delivery, Development and Molecular Targets for Cancer Research" Organized by Nirma University, Ahemdabad & supported by SERB, DRDO and ICMR, India, from 24th to 25th January 2017 at Nirma University, Ahemdabad, Gujarat, India.
- Best Research Poster & Travel award for the poster titled "Simultaneous Incorporation of Multiple Drugs in Polymeric Microparticles by Precipitation in a Single Step" Presented by Amit S. Lokhande*, Padma V. Devarajan, at "Nanobioteck-2016 - 1st Annual Meeting of Indian Society of Nanomedicine" organized jointly by DBT, Govt. of India & AIIMS, New Delhi, from 24th to 26th November, 2016 at AIIMS, New Delhi.

PROFESSOR (MRS.) ARCHANA R. JUVEKAR
B.Pharm, M.Pharm, PhD (Tech)
Professor in Pharmacology and Physiology

RESEARCH INTERESTS:

- Drug discovery and development from natural products and traditional medicines. Presently active in the areas of inflammation (TNF-α, IL-1β), life style diseases (obesity, hyperlipidemia and diabetes), anxiety, depression, alzheimer.
- Screening of plant extracts and their isolates (using bioassay-directed fractionation) for inflammation, diabetics, alzheimer, cancer, anxiety and depression activity which may be helpful as the leads for development of safer drugs with minimum side effects
- Standardization of herbal drugs and formulations.

- Bioassay-guided isolation and structure elucidation of biologically active compounds from medicinal plants in therapeutic areas of cancer, alzheimer and diabetics.
- Evaluation of Pharmacological Interventions Targeting Pathophysiological Cascades (Oxidative stress, ER stress, Inflammation, apoptosis) involved in depression, anxiety, Diabetes, Diabetic Complications (neuropathy, encephalopathy & cardiomyopathy), Cognitive impairment (associated with Parkinson's and Alzheimer disease).
- Elucidation of Pharmacological Potential of NCEs in Disease Models for Efficacy Studies
- Safety Pharmacological Studies of NCEs.

FELLOWSHIPS/ MEMBERSHIPS OF PROFESSIONAL BODIES:

- Member of Board of Studies in Pharmacy under the faculty of pharmaceutical Sciences, Bharati Vidyapeeth Deemed University, Pune (India).
- Life member of Indian Pharmaceutical Association
- Life member of Indian Pharmacological Society
- Member of Gesellschaft für Arzneipflanzenforschung (GA) Society for Medicinal Plant Research, Germany
- Member of society for neuroscience
- Member of Ethnopharmacology society

PUBLICATIONS (PEER REVIEWED) SO FAR: 104

CONFERENCE PROCEEDINGS/PAPERS: 26

SEMINARS/LECTURES/ ORATIONS DELIVERED: 29

PH.D.S AWARDED AS SINGLE/ CO-GUIDE: 20

MASTERS AWARDED AS SINGLE/ CO-GUIDE: 61

H-INDEX: 07

CITATIONS: 325

HIGHLIGHTS OF RESEARCH WORK DONE AND ITS IMPART

The current areas of research in the lab has been on neuropharmacology (stress, depression, Alzheimer's disease), inflammation, wound healing and metabolic disorders such as obesity, type 2 diabetes mellitus, nonalcoholic fatty liver disease and diabetic nephropathy. The research work has resulted in several publications and presentations at national and international conferences such as Society for Neurosciences, USA, Alzheimer's Association International Conference (2017 and 2018), European Congress on Obesity, Austria and World Congress on Prevention of Diabetes and and Complications, 2018, Edinburgh.

SUBJECT TAUGHT:

- B.Pharm: Pharmacology-I, Pharmacology-II and Clinical Pharmacy
- M.Pharm: Pharmacology, Toxicology and Therapeutics; Topics in Pharmacology; Models in Drug Delivery Systems
- Practicals: Physiopharmacology (B.Tech Pharma); Pharmacology Lab-1; Pharmacology Lab-2 (B.Pharm)

REGULATORY TOXICITY

Evaluation of acute, repeated dose toxicity testing as per different regulatory guidelines.

Evaluation of genotoxicity (CA, MN, COMET) for different NCEs as per regulatory requirement.

Execution of principles of Good Laboratory Practices (GLPs) for regulatory compliance.

RESEARCH STUDENTS:

Ph.D (Tech.)-04,

M. Pharm- 02

RESEARCH PUBLICATIONS:

International – 56,
National- 48,
Conference proceeding- 26,
Books-1

PROFESSIONAL ACTIVITIES:

- Member of the Editorial Board of Indian Practitioner
- Member of Radiopharmaceuticals committee (RPC) under Board of Radiation and Isotope Technology
- Member of Research and Recognition Committee in the faculty of admission of Ph. D. of North Maharashtra University, Jalgaon.

SPECIAL AWARDS/ HONOURS:

- U.I.C.T Golden Jubilee Research Fund Endowment of Rs.70,000/- for the research proposal entitled "Neuroprotective effect of polyphenols against β-amyloid induced toxicity in PC-12 cells" in 2015.
- Awarded Financial Assistance of amount Rs. 80,000/- from ICT Golden Jubilee Travel Grant scheme for attending 3rd World Parkinson Congress (WPC 2013), October 1- 4, 2013 in the Palais des congres Montreal, Québec, Canada.
- Received best Research Paper sponsored by the Al-Ameen College of Pharmacy Award for Best Paper published in IJPER 2011 in the subject of Pharmacognosy, entitled as "Antidiabetic and Antihyperlipidemic Effect of Alstonia Scholaris Linn Bark in Streptozotocin Induced Diabetic Rats" at APTI-17th annual National Convention, Manipal, India. 12th-14th October 2012.
- Awarded Financial Assistance of amount Rs. 43,673/- from AICTE, Govt. of India, New Delhi under Travel Grant scheme for attending 7th Joint Meeting of AFERP, ASP, GA, PSE & SIF Athens, Greece ". August 3-8, 2008 by AICTE, New Delhi.
- Best Appreciated paper Award for paper entitled as "Anti-Leukemic and anti-HIV activity of alkaloidal extract of Phyllanthus niruri" at the 34th Annual Conference on Indian Pharmacological Society; 21st – 23rd Jan. 2002, Abstract -24.
- U.D.C.T Golden Jubilee Research Fund Endowment of Rs. 25,000/- in 2005.
- U.D.C.T Golden Jubilee Research Fund Endowment of Rs. 35,000/- in 2001.
- U.D.C.T Golden Jubilee Research Fund Endowment of Rs.25, 000/- in 1996.

DR. PRAJAKTA DANDEKAR JAIN

Ph. D. (Tech.) in Bioprocess Technology
UGC Assistant Professor in Engineering Sciences

RESEARCH INTERESTS:

Nanocarriers for delivery of therapeutic nucleic acids and proteins, 2D and 3D cell cultures for preclinical investigations, tissue engineering, processing biopolymers for biomedical applications

FELLOWSHIPS/ MEMBERSHIPS OF PROFESSIONAL BODIES:

- Young Associate of Maharashtra Academy of Sciences
- Fellow of European Respiratory Society
- Member, Standing Evaluation Committee for the review of proposals, European Respiratory Society, Switzerland
- Member, European Respiratory Society, Switzerland
- Member, Volunteer Recruitment Committee, Controlled Release Society, USA
- Mentor, Mentor-Protégé Program, Member, Controlled Release Society, USA
- Executive Committee Member, Controlled Release Society- Indian Chapter
- Member, Controlled Release Society- USA and Indian Chapter
- Member, Outreach

Committee, American College of Clinical Pharmacology, USA

- Member, UDCT Alumni Association

PUBLICATIONS (PEER REVIEWED) SO FAR: 39
PATENTS: 08

CONFERENCE PROCEEDINGS/PAPERS:89

SEMINARS/ LECTURES/ORATIONS DELIVERED:08

MASTERS AWARDED AS SINGLE/ CO-GUIDE: 11

H-INDEX: 13
CITATIONS: 567

HIGHLIGHTS OF RESEARCH WORK DONE AND ITS IMPART:

The larger goal of my research has been development of safe and efficacious nanomedicines for alleviating cancer and infectious diseases. To achieve this goal I have integrated various principles of Pharmaceutical Sciences, Bioprocess Technology and Molecular biology as I progressed through a decade of my advanced studies. My early research was focused on development of polymeric nanoparticles of herbal anti-cancer agents like curcumin and ellagic acid using commercially available and established polymers. When encapsulated within the nanoparticle systems, these agents exhibited better efficacy and bioavailability in animal models of inflammatory disorders like ulcerative colitis and infectious diseases like malaria. During my postdoctoral tenure, I explored potential of newer polymers like hydrophobic derivative of starch for delivering synthetic anticancer agent, docetaxel. Again, the drug-loaded nanoparticles exhibited better efficacy than the un-encapsulated drug by the virtue of their enhanced cellular uptake and retention within the cells. During the same time, I also explored the potential of cationic cyclodextrin based polymer-polyrotaxane for intracellular delivery of nucleic acid (siRNA) against a protein important for intra-macrophage survival of mycobacteria responsible for tuberculosis (TB). This application bears significance especially due to the extensive number of TB-afflicted patients worldwide and the fact that India bears the highest TB burden in the world. This work has recently featured on the coverpage of Journals of Materials Chemistry B as it was well received by the reviewers and the editorial office. However although many of the commercial polymers are effective for drug delivery, they exhibit long-term toxicological implications. Further most of the common processes employed for nanoparticle synthesis involve the use of organic solvents, which reduce the commercial feasibility of the processes and result in solvent-associated toxicity. Thus as an independent researcher at ICT, my research group focuses on use of biopolymers and green processes for generating nanocarriers for therapeutic and diagnostic applications.

We focus on development of nanocarriers of derivatives of chitosanfor delivering siRNA to alleviate TB. Apart from its suitable characteristics like water-solubility, biodegradability and non-toxic and non-allergenic nature, all of which are desirable for developing a safe and effective nanomedicine, we hypothesize this cationic polymer to chelate the metal ions in the inner mycobacterial envelope leading to increased cell fluidity and bacterial death. This hypothesis was tested in virulent strain of mycobacteria (H37Rv), wherein the polymer was found to completely inhibit the infectious agent. This was confirmed to be due to the chelating action of polymer for the metal ions present in the inner envelope of mycobacterial cell wall. COS nanoparticles were prepared by ionotropic gelation method using a crosslinking agent. This is a 'green' technique based on electrostatic interaction between the cationic polymer and anionic crosslinker. When mycobacterial inhibition assay was conducted using the nanoparticles, they were found to inhibit the bacteria at a much lower concentration of than polymer, which may be due to better cellular interaction of nanocarriers owing to their small size.

Cellular assays proved safety of the nanoparticles and their potential for enhanced uptake bymacropinocytosis.

The biological efficacy of the nanoparticles was confirmed by evaluating their ability to deliver siRNA against model gene, where the nanoparticles were found to almost completely silence this protein. Further cellular studies to silence protein relevant for intra-macrophage survival of mycobacteria are currently in progress. Success in these studies may provide an effective and specific therapy for one of the deadliest diseases affecting humans.

An additional area of focus of our research group is green synthesis of chitosan derivatives that has been explored in development of nanomedicines. We are focusing on green catalysts for synthesizing low molecular weight polymers which are water soluble. With success in preliminary studies, further investigations are in progress to optimize reaction parameters using a combination of both the catalysts and microwave energy. A comparison will be made between both the catalysts with regards to the efficiency and economy of the process. The ultimate goal is to establish a set of parameters enabling synthesis of range of COS, with varying molecular weights, for application in nanomedicines and other biomedical applications. Apart from spherical nanocarriers, our group has also initiated fabrication of therapeutic nanofibers of biopolymers, using the commercially feasible electrospinning method, for wound healing applications. We are fabricating nanofibers based on combination of biopolymers and anti-bacterial inorganic nanocarriers for healing applications. Our group also focuses on the employment of these inorganic nanocarriers for development of non-enzymatic biosensors to measure glucose levels in various biological fluids like saliva, urine, blood etc with high sensitivity.

Thus overall, my research efforts are directed towards development of safe, effective nanocarriers, which may be translated to the society to alleviate grave disease conditions affecting the Indian and global population.

SUBJECT TAUGHT:

- PHT 1601 Pharmaceutical Biotechnology VII (Final Year B. Pharm.)
- PHT 1061 Pharmaceutical Biotechnology-BT V T.Y.B. Tech. (Pharma)
- BSP 1202 Molecular Biology and Biotechnology Laboratory V (T.Y.B.Pharm.)
- PHP1016 Nanotechnology and Medicinal Chemistry Laboratory VIII (Final Year B. Tech. (Pharma)
- PHT 1107 Hospital Pharmacy and Drug Store Management (Shared with Prof. Amin)VI (T.Y.B. Pharm)
- PBT 2101 Pharmaceutical Biotechnology-II (M.Tech. Pharmaceutical Biotechnology)
- PHP 1061 Biotechnology LaboratoryV (T.Y.B. Tech. (Pharma)

RESEARCH STUDENTS:

Ph.D. (Tech.) – 08
Ph.D.(Sc) – 03
M.Tech. - 05
Others (if any)- 2 SRF

RESEARCH PUBLICATIONS:

International- 20
National: 01
Conference proceeding- 25

PATENTS:

International- 01, Indian-03

SPONSORED PROJECTS:

Government- 06
Private-01

PROFESSIONAL ACTIVITIES:

- Member, Editorial Board, Asian Journal of Pharmaceutical Sciences (AJPS, ISSN 1818-0876)
- Invited Member, Executive Committee, Controlled Release Society-Indian Chapter
- Member, Standing Evaluation Committee for the review of proposals, European Respiratory Society, Switzerland
- Member, European Respiratory Society, Switzerland
- Member, 'Chapter Engagement Task Force', Controlled Release Society, USA
- Mentor, Mentor-Protégé Program, Member, Controlled Release Society, USA
- Member, Outreach Committee, American College of Clinical Pharmacology, USA
- Member, Controlled Release Society- USA and Indian Chapter
- Member, Indian Pharmaceutical Association (IPA)

SPECIAL AWARDS/ HONOURS:

- M.V. Deshpande Young Scientist Award at the 11th Asia Pacific Chitin and Chitosan Symposium, 2016
- Galenus-Privatstiftung Award, Austria, 2016 to attend the 43rd Annual Meeting and Exposition of the Controlled Release Society, Seattle, USA, July 2016

PROFESSOR SHREERANG V. JOSHI

B. Sc., B.Sc.(Tech.), Ph.D., D.I.M.
Professor of Pharmaceutical Chemistry

SUBJECTS TAUGHT:

Pharmaceutical Chemistry, Chemistry of natural products & Spectroscopy

RESERACH INTEREST:

- Process Development of Phospholipids
- Process Development of Artificial Sweeteners
- Synthesis of Natural Products of Biological Importance
- New methodologies in Organic Synthesis
- Process Development of API Intermediates
- Synthesis of Drug- Polymer Conjugates

TOTAL RESEARCH PUBLICATIONS

International: 04

RESEARCH STUDENTS:

M.Pharm- 02

PATENTS: 31

PROFESSOR K. S. LADDHA

D. Pharm., B.Pharm, Sci., M.Pharm. Sci., PhD (Tech)
Professor of Pharmacognosy

RESEARCH INTERESTS:

- Technology for extraction and isolation of phytoconstituents:
- Process development for Aloe vera gel, drink, juice, cosmetics, etc.
- Standardization and stability of herbal drug products.
- Technological development for the extraction of herbal drugs.
- Utilization of herbal constituents as an intermediate for synthesis of useful compounds.
- Effect of plant growth regulator on medicinal plants.
- Enhancement of gum output from trees.
- Thaumatin formulation.

PROFILE AND ACCOMPLISHMENTS:

The laboratory is involved in various aspects associated with herbal sector. So far following technologies developed in the laboratory was successfully commercialized.

- Develelopment of Alove vera juice
- Development of aloe vera gel
- Extraction and isolation of forskolin
- Development of chlorophyll liquid
- Development of natural pesticide.
- Extraction and isolation of ursolic acid and ellagic acid.

The laboratory is also involved in the preparation of monograph of Indian Medicinal Plants which are being published by ICMR (Indian Council of Medical research), Govt. of India, India.

FELLOWSHIPS/ MEMBERSHIPS OF PROFESSIONAL BODIES:

- Life Member, Indian Pharmaceutical Association
- Life Member, Indian Society of Pharmacognosy.

PUBLICATIONS (PEER REVIEWED) SO FAR: 96

PATENTS: 01

CONFERENCE PROCEEDINGS/PAPERS:39

SEMINARS/LECTURES/ ORATIONS DELIVERED: 15

PH.D.S AWARDED AS SINGLE/ CO-GUIDE: 15

MASTERS AWARDED AS SINGLE/ CO-GUIDE: 58

H-INDEX: 4

HIGHLIGHTS OF RESEARCH WORK DONE AND ITS IMPART:

Medicinal natural Products Research Laboratory is dedicated to the research and development in the area of herbal drug technology. The projects which have been worked have helped the industry constructively. The major focus of the laboratory is to develop technology for the extraction and isolation of phytoconstituents. Accordingly some of the projects like extraction and isolation of Andrographolide, Ecdysone, Ellagic acid, Embelin, Forskolin, Ursolic acid, are taken up commercially. To augment the development of herbal drug industry/ Ayurvedic drug industry lab is consistently working towards the development of analytical profile for raw material, polyherbal formulations and with stability data for herbal drug formulations. Other major contribution is in the field of Aloe vera juice industry. The lab is instrumental in setting up aloe Vera processing unit for four independent manufacturers with technological know-how for the products. Recently lab is also recognized by ICMR (Indian Council for Medical Research, Govt. of India, Delhi) to create monographs for the herbal raw materials. The laboratory has been able to attract good number of projects both form private as well as govt. organizations.

SUBJECTS TAUGHT:

Lecture: Pharmacognosy, Advanced Pharmacognosy and Medicinal Natural Product
Practical: Pharmacognosy

RESEARCH STUDENTS:

RA -01 M.Tech. -04,
M.Pharm - 03

RESEARCH PUBLICATIONS:

International- 31
National- 64
Peer-reviewed- 95
Conference proceeding- 03
Books Chapters)– 13

PATENTS:

Indian– 01 (applied)

SPONSORED PROJECTS:

Government- 04
Private- 03

PROFESSIONAL ACTIVITIES:

- Life Member, Indian Pharmaceutical Association
- Life Member, Indian Society of Pharmacognosy

SPECIAL AWARDS/ HONOURS:

- 'Golden Jubilee Research Fund Endowment' of Rs. 15000/- has been awarded from University of Mumbai institute of Chemical Technology, Matunga, Mumbai –19, for the research project entitled "Standardization of Plant Drugs", 1993.
- 'Senior Research Fellowship' from University Grants Commission, Ministry Of
- Education, New Delhi, Nov. 1989.
- 'Golden Jubilee Research Fund Endowment' of Rs. 25000/- has been awarded from University of Mumbai

institute of Chemical Technology, Matunga, Mumbai –19, for the research project entitled "Evaluation of Herbal Drugs", 1993.

- 'Alumnus of the Year', Award in recognition of the achievements attained, from Principal K. M. Kundnani College of Pharmacy, Mumbai – 18, 2003.
- 'Indian Drug Best Paper Award 2008' for research paper entitled "A HPTLC densitometric determination of antioxidant constituents from chyawanprash" Indian Drugs, 45 (7), July 2008, pp. 536-541.

PROFESSOR (MRS.) VANDANA B. PATRAVALE
B.Pharm, M.Pharm, PhD (Tech)
Professor of Pharmaceutics

RESEARCH INTERESTS:

- Nanotechnology based drug and gene delivery systems (lipid, polymeric, micellarnanocarriers, nanosuspensions, micro/ nanoemulsions and self-micro/nano emulsifying systems)
- Vaccines and adjuvants
- Nanodiagnostics
- Tissue engineering and scaffolds
- Medical devices viz. coronary stents, intrauterine devices etc.
- Novel carriers for solubilization and formulation development thereof
- Cosmeceuticals
- New polymer and lipid conjugates, surfactant synthesis
- Exploring potential of indigenous excipients
- Modified release dosage forms for all routes of administration

FELLOWSHIPS/ MEMBERSHIPS OF PROFESSIONAL BODIES:

- Member, Academic Planning and Development Committee (APDC) NIPER, India
- Fellow, Maharashtra Academy of Sciences, India
- Vice President, Controlled Release Society, Indian Chapter
- Convener, Association of Pharmaceutical Teachers of India- Women Forum
- Life Member, American Association of Pharmaceutical Scientists, USA
- Life Member, Association of Pharmaceutical Teachers of India
- Life Member, Indian Cosmetic Technologists Association
- Member, Indian society for Surface Science and Technology
- Life Member, IPA, Maharashtra State Branch
- Life Member, Indian Women Scientists Association
- Life Member, U.D.C.T. Alumni Association
- Patron Member, Controlled Release Society, Indian Chapter

PUBLICATIONS (PEER REVIEWED) SO FAR:

Research articles – International: 72, National:11

Review articles- International: 34 National:3

PATENTS:

Granted- 10, Applied- 26

CONFERENCE PROCEEDINGS/PAPERS:

323

SEMINARS/LECTURES/ ORATIONS DELIVERED:

118

PH.D.S AWARDED AS SINGLE/ CO-GUIDE: 21

MASTERS AWARDED AS SINGLE/ CO-GUIDE: 61

H-INDEX: 38

CITATIONS: 5242

HIGHLIGHTS OF RESEARCH WORK DONE AND ITS IMPACT

Her research in area of malaria therapy is very extensive and has seen significant success in terms of one granted patent, high impact international research publications and scalable technologies ready for transfer. Nanodelivery approaches have been successfully explored by her for targeted drug delivery to infected RBCs in malaria patients along with potential dose reduction (safety enhancement) of antimalarial drugs. Salient features of malaria therapy research are listed below:

Targeted drug delivery to malaria infected RBCs

The key finding of the research indicated that Blank Lipid Nanocarriers developed for antimalarial studies showed selective uptake by malaria infected RBCs as compared to non-infected RBCs and were observed to co-localize with the parasite mitochondria. Thus, prove the development of infected RBC targeted therapy.

Her noteworthy research in this area also includes development of promising malaria therapy for pregnant women and for cerebral malaria

VACCINE ADJUVANTS

- Blank lipid nanocarriers developed for antimalarial studies boosted antibody levels for the antigens tested thushave potential as vaccine adjuvants.
- Nanocarries were fabricated using a green technology and utilized successfully for nasal immunization for Brucellosis. The challenge test for the developed vaccine is ongoing in USA (Bill and Melinda Gates Sponsored project)

Diagnostics

- A nanocarrier based non-invasive and point-of-care diagnostic kit is ready for Brucellosis and the platform is being studied for Parasitic diseases.

Targeted drug delivery approaches

- Nanostructured lipid carriers of anticancer drugs and gene delivery modules for lymphatic system targeted breast cancer therapeutics via nuclear co-localization.
- Micellarnanocarriers are successfully developed for targeted brain delivery via intranasal and transdermal route.

Efficacy enhanced formulation approaches

- Bioenhancement Poorly bioavailable actives from natural as well as synthetic origin using plethora of technologies viz. Hot melt extrusion, high pressure homogenization, supercritical fluid extraction, nanoformulation approaches [Commercial success: Products developed with CadilaPharmaceuticsl Ltd: Cadisome (Amphotericin B liposomes), Zillion (Taste masked ondansetron tablets), O-lit (Mouth dissolving tablets), Immuvac (Immunomodulator), Ranx (Ranolazine tablets), ACELOX (Ranitidine Oral Suspension and Syrup), Paclitaxel/tacrolimus soft gelatin capsules, Curcumin soft gelatin capsules, Zolpidem, Nebivilol injection]
- Modified release dosage forms for all routes of administration

Tissue Engineering and Scaffolds

- Engineering of polysaccharide based tissue scaffolds using cost effectives techniques for wound healing
- Exploring scaffold of water soluble derivative of chitosan, chitosan complexes for wound healing

New polymer and lipid conjugates, surfactant synthesis

- Cationic lipids for gene delivery
- Lipid conjugates and novel surfactant synthesis for targeted drug delivery across blood brain barrier

Exploring potential of indigenous excipients

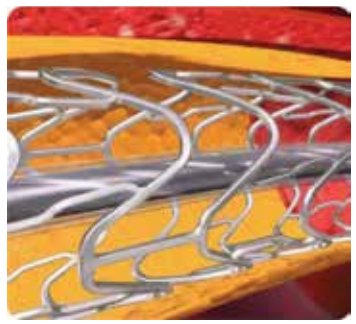
- Various polymers of natural

origin are being explored for their pharmaceutical and cosmeceutical application viz. tamarind seed polysaccharides, mango kernel fat etc.

- Extraction of actives from natural sources viz. Hippophaerhamnoides (seed and berry oil), Coleus forskohlii , Anogeissuslatifolia, Punicagranatum, Myristicafragrans, Brassica Junceaand applications thereof

Drug eluting coronary stents

A platform technology based on biodegradable polymers for coronary stents was successfully developed and transferred to Sahajanand Medical Technologies Pvt. Ltd. Based on this, for the first time coronary stent using biodegradable polymer was introduced in market and received CE mark. Currently, such 35 coronary stents are being marketed in India and abroad under the trade namesInfinniumTM, SupralimusTM, SupralimuscoreTM, S-link and SupraflexTM(More than 3 lakh stents have been implanted). Drug coated balloons and other stents are under development.



Intrauterine contraceptive device

Designed to release 20µg of API per day over a period of 5 years (equivalent to Mirena®). This was a generic product development and technology successfully transferred to Famy Care Ltd. for WHO market.

SUBJECT TAUGHT:

Pharmaceutics, Cosmeticology, Validation and regulatory affairs, Nanoscience and technology, Pharmaceutics laboratory – I, Pharmaceutics laboratory – II,Pharmaceutical Formulation Technology Lab I, Cosmeticology laboratory, Technology of liquids and topical laboratory, Solid dosage form laboratory,Drug delivery system I,Drug delivery system II, Advance pharmaceutics,Targeted drug delivery systems

RESEARCH STUDENTS:

Ph.D (Tech.)-19,

Ph.D.(Sci.)- 01,

M. Pharm-02, M. Tech- 02

RESEARCH PUBLICATIONS:

International-
Research articles: 04
Review articles: 01
Peer-reviewed-
Research articles: 04
Review articles: 01
Conference proceeding- 25,
Books and Book chapter- 05

PATENTS:

Indian-04

SPONSORED PROJECTS:

Government- 01
Private- 03

PROFESSIONAL ACTIVITIES:

- Expert member, DSIR
- Fellow, Maharashtra Academy of sciences, India
- Advisor and Life Member, American Association of Pharmaceutical Scientists, USA
- Vice President, Controlled Release Society, Indian Chapter
- Covener, Association of Pharmaceutical Teachers of India- Women Forum
- Life Member, Association of Pharmaceutical Teachers of India
- Life Member, Indian Cosmetics Technologist Association
- Member, Indian society for Surface Science and Technology
- Life Member, Indian Pharmaceutical Association, Maharashtra State Branch
- Life Member, Indian Women Scientists Association
- Life Member, U.D.C.T. Alumni Association

SPECIAL AWARDS/ HONOURS:

Vice-President, CRS-IC, Controlled Release Society (2016)

AWARDS RECEIVED BY STUDENTS

- Best poster presentation award at Global conference on Pharmaceutics and Drug Delivery System for poster entitled “Polyphenols Loaded Vaginal Microbicide: A Novel Strategy for Prevention of HIV Transmission" at Valencia, Spain, 2017 (Mirani A.)
- Second prize for oral presentation at 'National Conference on neurodegenerative diseases: Strategies of drug discovery and delivery to the brain' for presentation entitled “Molecular modelling of Nattokinase: Implications in the treatment of Alzheimer's disease” at BNCP, Mumbai, 2017. (Naik S.)
- Best oral presentation award at SELECTBIO 2017 on ‘Novel Formulation Strategies’ in session ‘Academic Innovation Oral Presentations: Novel and Nanostructured Dug Delivery Systems’ for presentation on topic ‘Lymphatic system Targeted Lipid Nanocarriers: A Promising Approach for Oral Treatment of Breast Cancer’ at Hyderabad, India 2017 (Prabhu R.)
- Best poster presentation award at Controlled Release Society Indian Chapter 2017 on ‘Topical Dermatological dosage forms’ for poster entitled “Green Technology assisted nanocarriers of Genistein for Topical Delivery” at SciTech Centre, Mumbai, India, January 2017 (Bhuptani R.)
- Second prize for poster presentation award at 6th Indo-Japanese International Symposium on 'Overcoming intractable infectious diseases prevalent in asian countries' for poster entitled “Anti-malarial efficacy of lipid nanoparticles: Combination of Curcumin-ArteetherVsEllagic acid-Arteether” at Goa, India, September, 2016 (Pawar R.)
- Third prize for poster presentation award at 6th Indo-Japanese International Symposium on 'Overcoming intractable infectious diseases prevalent in asian countries' for poster entitled “Novel Metallodendrimer hydrogel for wound care” at Goa, India, September, 2016 (Bhuptani R.)

PROFESSOR SADHANA SATHAYE
B.Pharm, M.Pharm, PhD (Tech)
Professor of Pharmacy

RESEARCH INTERESTS :

- Research on Metabolic disorders and related complications on cellular and molecular level.
- Study of neurodegenerative and neurological disorders for effective therapy of Parkinson’s disease, Alzheimer’s disease and Epilepsy.
- Standardization of protocols for in-vitro and in-vivo pharmacological evaluation of herbal substances for immunomodulatory, hepatoprotective, aphrodisiac, appetite stimulant, anti-diabetic, anti-convulsant and anti-osteoporotic activity.
- Biotechnological isolation, production and purification of enzymes and phytoactives of pharmacological and nutraceutical importance, using fermentation technology.
- Pharmacological evaluation of various herbal substances including safety, efficacy and pharmacokinetics profiling of new drug delivery

systems and new chemical entities, Ayurvedic and homeopathic formulations.

- Evaluation of biocompatible materials as per international norms and requirements.
- Study of heavy metal toxicity in Ayurvedic formulations and alternative medicines using modern research methodology.
- Toxicity evaluation as per international norms and requirements. Evaluation of acute, sub-acute and chronic toxicity according to OECD guidelines. Evaluation of Dermal toxicity and hypersensitivity reactions according to OECD guidelines.
- Studies on herb-drug interactions.
- Pharmacokinetic studies.
- Screening anti-tubercular activities of isolated phytoconstituents.

FELLOWSHIPS/ MEMBERSHIPS OF PROFESSIONAL BODIES:

- Fellow Maharashtra Academy of Sciences
- Registered pharmacist with Maharashtra State Pharmacy Council
- Chairperson, Institutional Animal Ethics Committee, ICT
- Nominee of CPCSEA
- Expert pharmacologist at The Advertising Standards Council of India
- Consultant, Pharmaceutical Industry in India for API selection and evaluation of drug delivery systems
- Life Member of University Department of Chemical Technology (U.D.C.T) Alumni Association
- Life Member of Indian Pharmaceutical Association (I.P.A), Maharashtra.
- Life Member of Association of Pharmaceutical Teachers of India (A.P.T.I)
- Life Member of Indian Pharmacological Society (I.P.S)
- Life Member of Indian Women Scientists' Association
- Life member of Society of Toxicology
- Member independent ethics committee for conduct of clinical studies
- Member of editorial board of International Research Journal of Pharmaceutical Sciences
- Member of editorial board of International Journal of Biological and Chemical Sciences (IJBCS)

PUBLICATIONS (PEER REVIEWED) SO FAR: 64

PATENTS: 1 (APPLED)

CONFERENCE PROCEEDINGS/PAPERS: 02

SEMINARS/LECTURES/ ORATIONS DELIVERED: 02

H-INDEX: 09

CITATIONS: 300

HIGHLIGHTS OF RESEARCH WORK DONE AND ITS IMPART

- Research is focused on role of inflammation in pathogenesis of neurological/ neurodegenerative disorders like epilepsy, Parkinson's disease and Alzheimer's disease.
- Advanced glycation end (AGEs) products and related inflammation in Diabetes mellitus leading to diabetic complications is important focus as well.
- Herbal extracts, isolated phytoconstituents are studied extensively as a promising therapy of disorders as discussed above.
- The objective is to prevent the disorders and/or relieve the symptoms to provide good quality life to the patients.
- The studied molecules can be translated into probable therapeutics or nutraceuticals with specific activity and reduced side effects. This will have a social impact as well as important research contribution.

SUBJECTS TAUGHT:

Anatomy, Physiology, Pathophysiology, (Theory/ Practicals) Pharmacology (Theory/Practicals), Models for Drug Delivery system (Theory), Pharmacology, Toxicology & Therapeutics (Theory), Physiopharmacology (Theory).

RESEARCH STUDENTS:

Ph.D. (Tech.) – 07
M.Tech. – 07

RESEARCH

PUBLICATIONS:

International- 07
Peer-reviewed -07

PATENTS:

Indian- 01 (applied)

SPONSORED PROJECTS:

Private-02

PROFESSIONAL ACTIVITIES:

- Chairperson, Institutional Animal Ethics Committee, ICT.
- Nominee of CPCSEA
- Expert pharmacologist at The Advertising Standards Council of India.
- Consultant, Pharmaceutical Industry in India for API selection and evaluation of drug delivery systems.
- Life Member of University Department of Chemical Technology (U.D.C.T) Alumni Association .
- Life Member of Indian Pharmaceutical Association (I.P.A), Maharashtra.
- Life Member of Association of Pharmaceutical Teachers of India (A.P.T.I).
- Life Member of Indian Pharmacological Society (I.P.S).
- Life Member of Indian Women Scientists' Association.
- Life member of Society of Toxicology.
- Member of Society of Neuroscience, Washington DC, USA.
- Member independent ethics committee for conduct of clinical studies

SPECIAL AWARDS/ HONOURS:

- Third Prize for poster presentation on 'Thymol exhibits potent anti-glycation properties in vitro and in vivo' at Indian Council of Medical Research sponsored 2 days National Symposium on ' Current Scenario of Pharmacological Experiments and Interpretations' organized by Principal K.M. Kundanani College of Pharmacy, Mumbai in September 2016
- First Prize for oral presentation on 'Diosgenin, a steroidal saponin, ameliorates diabetes induced early kidney injury in rats' at South Asian College an affiliate of American College of Clinical Pharmacology 10th Annual conference on Clinical Pharmacology on healthy ageing, Mumbai

DR. V. N. TELVEKAR
B. Sc, B. Sc (Tech.); M. Sc (Tech); Ph D. (Tech.)
Associate Professor in Pharmaceutical Chemistry

RESEARCH INTERESTS:

- Invention of New Reaction and Reaction System.
- Design of Novel Bioactive Molecules Using Computed Aided Drug Design.
- Total synthesis Bioactive Natural Products.
- Process Development.

PUBLICATIONS (PEER REVIEWED) SO FAR : 59

PATENTS: 09

CONFERENCE PROCEEDINGS/PAPERS: 30

SEMINARS/LECTURES/ ORATIONS DELIVERED: 02

PH.D.S AWARDED AS SINGLE/ CO-GUIDE: 10

MASTERS AWARDED AS SINGLE/ CO-GUIDE: 40

H-INDEX: 12

CITATIONS: 549

HIGHLIGHTS OF RESEARCH WORK DONE

AND ITS IMPART

Invention of New Reactions and Reaction System:
The principles of green chemistry also motivate me to create new synthetic methods. Here I have been focusing on the employment of novel application of exiting reagents as well as novel reagent system developed for chemical transformations.

Design and Synthesis of Novel Bioactive Molecules using Computer Aided Drug Design:
I am exploring my knowledge in the area of medicinal chemistry. Currently I am working on novel bioactive molecules which are designed by technique like pharmacophore and structure based drug design using various software. These designed molecules are synthesized and evaluated.

Total Synthesis of Bioactive Natural Products:
The unifying thesis behind all of our methodological and mechanistic studies is that the chemistry to emerge from such studies should be applicable to real synthetic problems. I view target synthesis as the best proof of this concept.

Process Development:
In our globally-linked economy, process development capabilities are the basis for successful competition. Successful process development requires fundamentally improved approaches to reducing waste, innovation, scale-up, technology transfer and optimization of manufacturing processes. My interest is to accomplishment of these objectives.

SUBJECTS TAUGHT:
Advanced Pharmaceutical Chemistry (M. Pharm & M. Tech.)

RESEARCH STUDENTS:
Ph.D. (Tech.)– 09
Ph.D.(Sc)- 01
M.Tech.- 02
M.Pharma- 02

RESEARCH PUBLICATIONS:
International- 03

PROFESSOR P. R. VAVIA
B. Pharm., M.Pharm., Ph.D. (Tech), FIPA, FMASc
Dean (AP), Professor of Pharmaceutics

RESEARCH INTERESTS:
- Cyclodextrins based drug delivery systems
- Nanosponge based drug delivery system
- Transdermal drug delivery systems
- Nanosuspension, Bioencapsulation, Multiparticulate drug delivery system
- Lipid based colloidal formulations
- Modified release films
- Polymer synthesis for drug delivery
- Melt Extrusion Technology
- Oral liquid dosage forms
- Techniques in solubilization
- Liposome based Drug Delivery Systems
- Protein and peptide drug delivery systems

FELLOWSHIPS/ MEMBERSHIPS OF PROFESSIONAL BODIES:
- Memberships & Honorary positions:
- Life member, Indian Pharmaceutical Association
- President, Indian Pharmaceutical Association (2002-2004) (Maharashtra State Branch)
- Member, Association of Pharmacy Teachers of India (APTI)
- Member, Royal Pharmaceutical Society of Great Britain (Hon. Membership)
- Inspector appointed by Pharmacy Council of India for Inspection of Institutions
- Inspector appointed by AICTE for Inspection of Institution
- Member, Editorial board of Indian Journal of Pharmaceutical sciences.
- Editorial Board of Pharma Times
- Expert Member, DSIR for inspection of industrial R & D facility
- Nominee of Vice-chancellor for appointment of teachers of Mumbai University
- Academic Dean, Institute of Chemical Technology, (2012 to till date)
- Member, International Advisory board, Asian Oceanic Cyclodextrin League
- Scientific Convener, Indian Pharmaceutical Congress Association, 2006-2009.
- Member of Italian Cyclodextrin League.
- Convener, 5th Young Innovative Choice Competition (YICC) and Young Research Competition (YRC), 2010-2011
- IDMA Technical Sub-Committee
- Governing Body Bombay college of pharmacy
- Western Region Subcommittee of AICTE

Reviewer of
- AAPS Pharm Sci-Tech
- International Journal of Pharmaceutics
- Nanomedicine: Nanotechnology, Biology, and Medicine
- Indian Journal Pharmaceutical Sciences
- Pharmaceutical research
- Journal of pharmacy and Pharmacology
- AIChE Journal
- Journal of Controlled Release
- Nanoscale
- Drug Delivery and Translational Research

PUBLICATIONS (PEER REVIEWED) SO FAR:
144

PATENTS: 10 (3 PCT and 7 Indian)

CONFERENCE PROCEEDINGS/PAPERS:
42

SEMINARS/LECTURES/ ORATIONS DELIVERED:
252

PH.D.S AWARDED AS SINGLE/ CO-GUIDE: 41 (Single)

MASTERS AWARDED AS SINGLE/ CO-GUIDE: 53 (Single)

H-INDEX: 22
CITATIONS: >1556

HIGHLIGHTS OF RESEARCH WORK DONE AND ITS IMPART:

Going with the pace of growing pharmaceutical sector, Prof. P.R. Vavia and his research group is involved in fundamental as well as industrial research allied to interdisciplinary areas of pharmaceutical science. The principal objective of research is always set to surmount constraints for efficient delivery of potential drug candidates and fabrication of value added non-infringing drug formulations. Research work based on cyclodextrin and their derivatives, nanosponge based drug delivery systems, transdermal drug delivery systems, synthesis and development of nanocarriers and polymer conjugates for active tumor targeting, techniques in solubilization of poorly water soluble drugs, hot melt extrusion, nanoemulsion, microemulsion, nanosuspensions, Bioencapsulation of poorly soluble actives, modified release multiparticulate drug delivery systems, application of particle engineering strategies, protein and peptide based drug delivery systems, synthesis and application of novel polymers and excipients is going on with expected outcomes of industrial applicability and scalability.

To the date more than 25 technologies are successfully commercialized. To name a few, Fentanyl Transdermal Patch (FENSTUD), Rusan Pvt Ltd, Self microemulsifying drug delivery system of Cyclosporin (PROMUNER) by by Mega

Lifesciences, Cyclodextrin based formulations of poorly water soluble drugs like Nimesulide and Rofecoxib (ROFF-BCD-50) by Unichem Pvt Ltd, Novel tablet formulation of Itraconazole (ESZOLE) by Kusum Healthcare Ltd, Extended release matrix, bilayer, film coated tablet of Furosemide (ROSEMIDE) by Kusum Healthcare Ltd, Combination drug product of Metformine Acarbose Tablet (GLUCOBAY M 25 & GLUCOBAY M 50) by Bayer Pvt Ltd, etc.

Manpower Development in formulation technology, validation of analytical methods, In-vivo studies of developed formulations and preparation of Common Technical Document (CTD) as per regulatory requirements of international markets has given equal importance to meet the international standards.

SUBJECT TAUGHT:

B.Pharm, B.Tech (Pharma), M.Pharm.Sci., M.Tech. (Pharma), (Pharmaceutics, Drug Delivery System I & II, Advanced Pharmaceutics, Biopharmaceutics)

RESEARCH STUDENTS:

Ph.D. (Tech.) - 17
M.Pharm. – 03

RESEARCH PUBLICATIONS:

International- 123
National- 21
Peer-reviewed- 128
Conference proceeding- 42

PATENTS:

PCT – 3 (Published)

Indian – 7 (Granted) and > 30 (Complete specification)

SPONSORED PROJECTS:

Government- 1
Private- 3 ongoing

PROFESSIONAL ACTIVITIES:

Memberships & Honorary positions

- Life member, Indian Pharmaceutical Association
- President, Indian Pharmaceutical Association (2002-2004) (Maharashtra State Branch)
- Member, Association of Pharmacy Teachers of India (APTI)
- Member, Royal Pharmaceutical Society of Great Britain (Hon. Membership)
- Inspector appointed by Pharmacy Council of India for Inspection of Institutions
- Inspector appointed by AICTE for Inspection of Institution
- Member, Editorial board of Indian Journal of Pharmaceutical sciences.
- Editorial Board of Pharma Times
- Expert Member, DSIR for inspection of industrial R & D facility
- Nominee of Vice-chancellor for appointment of teachers of Mumbai University
- Academic Dean, Institute of Chemical Technology, (2012 to till date)
- Member, International Advisory board, Asian Oceanic Cyclodextrin League
- Scientific Convener, Indian Pharmaceutical Congress Association, 2006-2009.
- Member of Italian Cyclodextrin League.
- Convener, 5th Young Innovative Choice Competition (YICC) and Young Research Competition (YRC), 2010-2011
- IDMA Technical Sub-Committee
- Governing Body Bombay college of pharmacy
- Western Region Subcommittee of AICTE

Reviewer of

- AAPS Pharm Sci-Tech
- International Journal of Pharmaceutics
- Nanomedicine: Nanotechnology, Biology, and Medicine
- Indian Journal Pharmaceutical Sciences
- Pharmaceutical research
- Journal of pharmacy and Pharmacology
- AIChE Journal
- Journal of Controlled Release
- Nanoscale
- Drug Delivery and Translational Research

SPECIAL AWARDS/ HONOURS:

- Research Fellow of Human Resources Development
- Junior Research Fellow of Department of Atomic Energy
- Senior Research Fellow of Department of Atomic Energy
- Fellow, Indian Pharmaceutical Association, 2003 awarded at Indian Pharmaceutical Congress, Chennai, Dec. 21st -23rd, 2003
- Johnson and Johnson, USA, Research Award (US$ 20,000), 2001.
- U.P.Government National Award for an outstanding work done in the area of interaction with Industries, 2005.
- Maharashtra Fellow for Medical Sciences, 2006.
- Best Teacher's Award, University Institute of Chemical Technology at undergraduate level, 2007.
- Distinguish Teacher Award, Maharashtra Pharmacy Association, 2009.
- "Incentives to Meritorious Teachers", Dr. K. H. Gharda Reward, Board of Governers, Institute of Chemical Technology, 2009.
- Best Teacher's Award, University Institute of Chemical Technology at undergraduate level, 2010.
- Best Teacher's Award, Institute of Chemical Technology at undergraduate level, 2012.
- Best Teacher's Award, Institute of Chemical Technology at undergraduate level, 2014.
- Prof. P. R. Vavia awarded VASVIK Award in the category of Biological Sciences & Technology, for developing the Novel Drug Delivery Systems, Synthesis and application of novel polymers and excipients and targeted drug delivery in cancer treatment, January 2015
- Best Teacher's Award, Institute of Chemical Technology at undergraduate level, 2016.

SUPPORT STAFF

Dr. Ravindra V. Sawant
Technical Assistant

Sunil N. Jadhav
Lab Assistant

Hemanta Kumar G. Sahoo
Lab Assistant

Anita V. Bankar
Lab Assistant

Mithila M. Sardar
Lab Assistant

Mahendra T. Kudekar
(Animal House Assistant)

Rekha Khatal
Lab Attendant

Santosh D. Chile
Lab Attendant

Kiran T. Chaudhari
Lab Attendant

Krishna B. Dhengale
Lab Attendant

UNDER GRADUATE STUDENT SEMINAR/ PROJECT

FINAL YEAR B. TECH. PROJECT 2016-17

Prof. Mariam S. Degani		
13PHT1004	GulshaMotihar	Development of novel therapeutic deep eutectic solvents
13PHT1007	Neha Shah	Synthesis of Novel API Ionic liquid
Prof. K. G. Akamanchi		
13PHT1003	Pranita Kane	Optical Resolution of (RS) 1-(1-naphthylethyl)amine: a key intermediate in synthesis of cinacalcet
13PHT1014	HardikRathod	Synthesis of (RS) 1-(1-naphthylethyl)amine: a key intermediate in synthesis of cinacalcet
Prof. P. D. Amin		
13PHT1005	ShubhranshMisra	Synthesis of sustained release tablets of Metformin HCl
Dr. G. U. Chaturbhuj		
13PHT1013	Chirag Mudaliar	Synthesis of Edaravone: A teneligliptin intermediate
Dr. H. K. Chaudhari		
13PHT1017	ShivamNaik	Synthesis of 6-nitrobenimidazole from benzimidazole using calcium nitrate
Prof .P. V. Devarajan		
13PHT1010	UrmiChheda	In Situ Solid Lipid Nanoparticles of Curcumin
Dr. P. D. Jain		
13PHT1006	Pihu Mehrotra	Evaluating potential of metal nanoparticles for biomedical applications through studying their interaction with proteins
13PHT1016	OmkarMhatre	Green Method of synthesis of ZnO nanoparticles by Citrus sinensis and Chitosan- ZnO Composite films
Prof. S. V. Joshi		
13PHT1019	AmeyaShejale	Synthesis of isopropyl 4-chlorobutyrate from Gamma butyrolactone: an intermediate to produce cyclopropyl amine
*** Prof . A. R. Juvekar**		
13PHT1018	PradnyataPabale	Extraction and formulation of anti-ageing gel from fruits of Paneer Doda
11PHT1017	Mahesh Thombare	Extraction, isolation and Characterization of Hesperidin from dried orange peels using soxhlet extractor
Prof. K. S. Laddha		
13PHT1012	Krutika Kale	Extraction and isolation of Lawsone from Henna leaves
Prof. V. B. Patravale		
13PHT1008	SrushtiSodha	Development of Novel anti-fungal nanogel for vaginal candidiasis
13PHT1015	SanyatMapara	Novel co-crystals of Atovaquone synthesized using sustainable RESS technology
Prof. S. Sathaye		

13PHT1001	AiswaryaRath	Under-eye cream and make-up remover formulation and evaluation
Dr. V. N. Telvekar		
12PHT1019	PushkarPawar	Synthesis of Phenylazide using sodium nitrite and Hydrazine Hydrate
Prof. P. R. Vavia		
13PHT1002	MrunalSakharkar	Development of cyclodextrin based LurasidoneHCl Nasal Spray
13PHT1009	Sanchi Jain	Development of Coenzyme Q10 Microemulsion face spray

FINAL YEAR B. TECH. SEMINAR 2016-17

Prof. Mariam S. Degani		
13PHT1004	GulshaMotihar	Basics of molecular dynamics and applications in protein folding
13PHT1007	Neha Shah	Soft drugs development
Prof. K. G. Akamanchi		
13PHT1003	Pranita Kane	Applications of OSN in membrane cascade for purification of the API amoxicillin
13PHT1014	HardikRathod	Flow Chemistry
Prof. P. D. Amin		
13PHT1005	ShubhranshMisra	Neusilin and its properties as common excipients like veegum
Dr. G. U. Chaturbhuj		
13PHT1013	Chirag Mudaliar	Review of the route of synthesis of tenegliptin
Dr. H. K. Chaudhari		
13PHT1017	ShivamNaik	Anti-alzheimers agents
Prof .P. V. Devarajan		
13PHT1010	UrmiChheda	Nanocochleates for Drug Delivery
Dr. P. D. Jain		
13PHT1006	Pihu Mehrotra	Development of stable cell lines for the production of recombinant monoclonal antibodies
13PHT1016	OmkarMhatre	Biosensors for anemia
Prof. S. V. Joshi		
13PHT1019	AmeyaShejale	Introduction to scale up of API and the various parameters affecting scale up
Prof . A. R. Juvekar		
13PHT1018	PradnyataPabale	Pharmacological properties of paneer doda
11PHT1017	Mahesh Thombare	
Prof. K.S. Laddha		
13PHT1012	Krutika Kale	Sesame lignan
Prof. V. B. Patravale		
13PHT1008	SrushtiSodha	Feedback based transdermal drug delivery

13PHT1015	SanyatMapara	Evolution of micro-bots: A deep insight into advancements in capsule micro-bots for diagnostics and drug delivery
Prof. S. Sathaye		
13PHT1001	AiswaryaRath	Under eye cream and make up remover formulations
Dr. V. N. Telvekar		
12PHT1019	PushkarPawar	Schiff base and their metal complexes
Prof. P. R. Vavia		
13PHT1002	MrunalSakharkar	Theronotic modified liposomes for targeting tumours in brain
13PHT1009	Sanchi Jain	Quality by design of transdermal patches

FINAL YEAR B. PHARM HOME PAPER 2016-17

Prof. Mariam S. Degani		
13PHA1002	Malavika Muralidharan	Prodrugs and salts for Taste Masking
Prof. K. G. Akamanchi		
13PHA1015	Juili Sali	Design and Molecular Docking Study of triazole-based inhibitors targetting InhA
Prof. P. D. Amin		
13PHA1011	Aakash Daple	Development of Anti-oxidant Nutraceutical Formulations
13PHA1026	Priyanka Kulkarni	Bioavailability Enhancement of Vitamin B12
Dr. G. U. Chaturbhuj		
13PHA1019	Zumi Mehta	Applications of Wooden Tip Electrospray Ionization Mass Spectrometry
13PHA1031	Krishna Todi	Epidemiology of stroke patients in India
Dr. H. K. Chaudhari		
13PHA1012	Apurva Tayade	A New Method for the Synthesis of Procainamide via Ugi Reaction
13PHA1023	Reshma Parmar	A new approch for synthesizing olopatadine
Prof . P. V. Devarajan		
13PHA1016	Purva Khare	In Situ Gelling Nasal Microemulsion of Curcumin and Memantine
13PHA1017	Shubham Pai	An innovative Bidegradable Implant for Spinal Cord
Dr. P. D. Jain		
13PHA1005	Vidhi Murarka	A strategy for vector optimization for monoclonal antibody production
13PHA1020	Shweta Naik	Cyclodextrin based polyrotaxanes in gene delivery
Prof. S. V. Joshi		
13PHA1001	Suchitra Sankaranarayan	Improving the Synthesis of Trimetazidine Dihydrochloride
13PHA1030	Madhura Kale	Process Development for Propofol Synthesis

Prof . A. R. Juvekar		
13PHA1013	Shivani Mitkari	Targeting Mycolic Acid Synthesis For The Treatment Of MDR TB
13PHA1022	Archana Panchal	Targeting Avanced Glycation End Products For The Therapy Of Diabetic Nephropathy
Prof. K.S. Laddha		
13PHA1018	MayuriPatwardhan	Anthocyanins as Nutraceutical Ingredients
13PHA1027	Ashutosh Ramaswamy	Natural gums and their chemical modifications
Prof. V. B. Patravale		
13PHA1003	Tanvi Shah	MicroPep: Innovative Platform Technology for the Oral Delivery of Peptides
13PHA1004	Stuti Desai	Development of a Novel Anti-microbial Formulation for the Treatment of Burns
Prof. S. Sathaye		
13PHA1009	Nupur Chaphekar	Glutamate Signaling in Alzheimer's Disease
13PHA1028	Neha Chitre	Establishing relationship and links between the pathophysiological hallmarks of Alzheimer's Disease
Dr. V. N. Telvekar		
13PHA1014	Anuja Vagal	Formulation Design Of BCS class II drugs
13PHA1032	Devashree Deshpande	Stability of amorphous solid dispersion of BCS class II drugs
Prof. P. R. Vavia		
13PHA1008	Jay Shroff	Intrascleral delivery of Ranibizumab using Microneedles for Posterior Segment Diseases
13PHA1024	Rohan Kulkarni	Nasal gelling microemulsion: An alternative approach to the delivery of Tacrolimus

T. Y. B. PHARM SEMINAR 2016-17

Prof. Mariam S. Degani	
Ankita Kshatriya	Drug Repurposing in TB and Malaria
Rupam Singh	Modification of Drugs to Overcome Metabolic Toxicity
Prof. K. G. Akamanchi	
Umang Amrutkar	Molecular Rotatory Motor-Concepts
Ajay Gawali	Molecular Rotatory Motor - Applications
Prof. P. D. Amin	
Akanksha Kale	Sutures
Saina Prabhu	Membrane Technology and Applications
Dr. G. U. Chaturbhuj	
Sanjana More	Arthritis
Deepti Mataghare	Alzheimers Disease

Dr. H. K. Chaudhari	
Vaibhav Singh	AntiParkinson Agents
Keyur Rane	Anti Diabetic Drugs
Prof .P. V. Devarajan	
Parth Kadakia	Electrospinning of Nanofibres
Bilva Burkule	Quality by Design for Dissolution Testing
Dr. P. D. Jain	
Revathi Reddy	Micro Fluidic Organ-on-a-chip
Aditya Kamat	Strategies for protein decoration on nanoparticle surface
Prof. S. V. Joshi	
Saili Phulpagar	Synthesis of Clopidogrel Bisulfate
Sanjay Malge	Review on Synthesis of Silodosin
Prof . A. R. Juvekar	
Swaraj Pawar	Parkinson's Disease
Amol Gare	NSAIDs
Prof. K.S. Laddha	
Shruti Awari	The Iboga Alkaloids
Jesal Makwana	Hoodia Gordoni
Prof. V. B. Patravale	
Neha Pai	Quantum Dots: A path forward in biomedical applications
Tanishka Saraf	Drug Delivery System for Huntington's disease
Prof. S. Sathaye	
Sonali Vaidya	Implication of Gut Microbiome in Parkinson's Disease
Kalyani Desale	Gut Microbiome: An important Target in Therapeutics
Dr. V. N. Telvekar	
Pradnya Ingle	Biocolours: A New Generation Additives for Industries
Samruddhi Subhane	Fluoroscence Tracing in Process Control
Prof. P. R. Vavia	
Monil Shah	Blood Cells Based System Drug Delivery
Snehal Daware	Bioengineered and Biohybrid Bacteria Based System for Drug Delivery

MASTERS SEMINAR

M. Pharm. Pharmaceutics			
Roll No.	**Name**	**Topic**	**Guide**
12PHP206	Shivam Swarnkar	Penetration and permeation enhancers for topical and oral delivery	Prof. P. D. Amin
12PHP201	Aparna Dogra	Scaffolds in bone tissue engineering	Prof. P. V. Devarajan
12PHP202	Chaitali Bora	Lymphatic delivery: concept, challenges and applications	Prof. V. B. Patravale
12PHP205	Sheetal Oholkar	Emerging stimuli responsive theranostics	Prof. V. B. Patravale
12PHP203	Devendra Meena	Challenges and Solutions for delivery of Peptides	Prof. P. R. Vavia
12PHP204	Sagar Chandane	Advanced nano- and bio-materials: A pharmaceutical approach	Prof. P. R. Vavia
M. Pharm. Chemistry			
Roll No.	**Name**	**Topic**	**Guide**
12PHC201	Akash Madhwani	Transporters as Targets for Drug Discovery	Dr. H. K. Chaudhari
12PHC202	Nitin Ahuja	Recent developments in drugs used for treating Neuropathic pain	Dr. G. U. Chaturbhuj
12PHC203	Priti Verma	Physicochemical properties for CNS Drug design	Prof. M. S. Degani
12PHC205	Shahnawaz	Theranostic For Alzheimer Diseases	Prof. M. S. Degani
12PHC206	Vishal Bansode	Solvent Use and Waste Issues in Pharmaceutical Industry	Prof. S. V. Joshi
12PHC204	R. Carvelho	Click chemistry	Dr. V. N. Telvekar
M. Pharm. Medicinal Natural products			
Roll No.	**Name**	**Topic**	**Guide**
12PHM202	Limbraj Rakh	neuroinflammatory phenotypes and their roles in alzheimer's disease	Prof. A. R. Juvekar
12PHM204	Vishu Jain	Alzheimer's disease from genes to novel therapeutics	Prof. A. R. Juvekar
12PHM205	Shubham Mulange	Separation technologies for phosphatidyl choline from soya lecithin and its applications.	Prof. K. S. Laddha
12PHM201	Jyoti Batgire	Targetting Nrf2 for treatment of mitochondrial dysfunction in diabetes mellitus.	Prof. S. Sathaye
12PHM203	Shilpee Chanda	Role of nitric oxide as a signalling molecule in various disorders.	Prof. S. Sathaye
M. Tech. Pharma			
Roll No.	**Name**	**Topic**	**Guide**
12PHT202	Gajanan Indurkar	Dental implants	Prof. P. D. Amin
12PHT205	Prarthana Mistry	Solar Photochemical Synthesis	Dr. H. K. Chaudhari
12PHT206	Satish Wagh	Recent developments in application of Flow chemistry to API synthesis	Dr. G. U. Chaturbhuj
12PHT207	Sonali Agarkar	3D printing technology: Application to drug delivery systems	Prof. P. V. Devarajan
12PHT201	Arkashubhro chattergy	Chitosan derivatives for biomedical applications	Dr. P. D. Jain
12PHT203	Manisha Sannake	Design of experiments as QbD tool	Prof. V. B. Patravale
12PHT208	Suraj Kapale	Organocatalyst in continous flow reacter	Dr. V. N. Telvekar
12PHT204	Neha Pawar	Small is beautiful: Surprising nanoparticles	Prof. P. R. Vavia
M. Tech Pharm Biotech			
Roll No.	**Name**	**Topic**	**Guide**
16PBHT202	Safala Malvankar	Biocatalysts for amide bond formation	Dr. H. K. Chaudhari
16PBHT203	Pritam Bagwe	Choline acetyl transferase review	Prof. M. S. Degani
16PBHT207	Revati Dhayfule	Drug affinity response targets for identification of drug targets	Prof. M. S. Degani
16PBHT208	Nikita A. Aware	Nanoparticles as adjuvants for vaccines	Prof. P. V. Devarajan
16PBHT201	Anjana P.Menon	Multiplex PCR principles and applications	Prof. P. V. Devarajan
16PBHT206	Hiral M. Vegad	Microcarriers for cell culture	Dr. P. D. Jain
16PBHT209	Pramod Jadhav	Spray-drying of monoclonal antibodies	Dr. P. D. Jain
16PBHT210	Paramita Batabyal	Biopharmaceuticals from Plants	Prof. S. V. Joshi

16PBHT204	Nagendra P	Rabies vaccine : Prospects and Challenges	Prof. V. B. Patravale
16PBHT205	KM Nazima	Biosimilars	Prof. S. Sathaye

RESEARCH TOPICS (THESIS WORK)

PH. D. (TECH.)

No.	Research Scholar	Previous Institute	Project	Supervisor
1.	Bochare Machhindra	NDMVP College of Pharmacy, Nashik	Development of synthetic methods for organofluorine compounds	Professor M. S. Degani
2.	Lonkar Sachin	Dr. D. Y. Patil College of Pharmacy, Pune	Synthesis of Phase-II metabolites by Green methods	Professor M. S. Degani
3.	Shelke Rupesh	Govt. College of Pharmacy, Aurangabad	Design and synthesis of novel multi-targeting anti-infectives	Professor M. S. Degani
4.	Kundaikar Harish	UICT	Design and synthesis of molecules for Alzheimer's disease	Professor M. S. Degani
5.	Bhusari Arun	ICT	Design, synthesis and evaluation of fluorinated molecules for Alzheimer's disease	Professor M. S. Degani
6.	Mali Hemlata	NDMVP College of Pharmacy, Nashik	Design, synthesis and evaluation of Nitrogen containing heterocycle as antimycobacterial agents	Professor M. S. Degani
7.	Khambete Mihir	ICT	Design and Synthesis of Molecular libraries for Alzheimer's disease	Professor M. S. Degani
8.	Patel Sagar	ICT	Newer techniques for synthesis of organofluorine compounds	Professor M. S. Degani
9.	Anantram Aarti	KMK College of Pharmacy, Mumbai	Targetting cellular pathways for the design and synthesis of novel anticancer compounds	Professor M. S. Degani
10.	Agre Neha	ICT	Design, synthesis and biological evaluation of antituberculosis agents	Professor M. S. Degani
11.	De Suparna	SCOP, Vadgaon, Pune	Lead optimization of molecules for Tuberculosis	Professor M. S. Degani
12.	Chatale Bandoo	NIPER, Mohali	Taste Masking by inhibition of taste receptors	Professor M. S. Degani
13.	Chaudhari Kapil S.	UDCT, Jalgaon	Design, Synthesis and Applications of novel dendritic lipids	Professor K. G. Akamanchi
14.	Dhumal Dinesh	R. C. Patel Shirpur	Design and Synthesis of Heterolipids for Pharmaceutical Application	Professor K. G. Akamanchi
15.	Dhiraj Patil	University of Hyderabad	High pressure assisted extraction of phytoconstituent	Professor K. G. Akamanchi
16.	Snehalata Autade	ICT	Transition metal catalyzed transformation for synthesis of drug(s) and intimidate(s)	Professor K. G. Akamanchi
17.	Javeer Sharadchandra	ICT	Innovative formulation development using hot melt extrusion	Professor P. D. Amin
18.	Gangurde Avinash	ICT	Stabilization and formulation of Nutraceuticals	Professor P. D. Amin
19.	Jaiswar Divakar	ICT	Development of Fixed dose combinations for tuberculosis by HME	Professor P. D. Amin
20.	Wani Rucha	-	Topic Aproval Awaited	Dr. H. K. Chaudhari
21.	Joshi Bhagyashri	Mumbai Education Trust Institute of Pharmacy	Drug Adsorption Models for predicting Bioenhancement Strategies for Poorly Permeable Drugs	Professor P.V. Devarajan
22.	Dawre Shilpa	ICT	Colloidal Drug Delivery Systems	Professor P.V. Devarajan
23.	Bacchav Sagar	R C Patel Institute of Pharmaceutical Education and Research	Development and Preclinical evaluation of Drug Delivery Systems for Targeted Delivery to the Brain	Professor P.V. Devarajan
24.	Chawla Shweta	ICT	Inorganic Nanocarriers in drug delivery and diagnosis	Professor P.V. Devarajan
25.	Jahagirdar Priyanka	ICT	Nano drug delivery systems for targeted delivery of anti-tubercular agents	Professor P.V. Devarajan
26.	Das Saugandha	JSS, Mysore	Nanocarriers for targeted drug delivery to the RES	Professor P.V. Devarajan
27.	More Krantisagar	Sinhagad College of Pharmacy, Vadgaon	Nanotechnology approaches for bioenhanced delivery of nutraceuticals and nutraceutical drug combinations	Professor P.V. Devarajan
28.	Maithania Heena	KMKCP	Nanoparticulate drug delivery systems for targeted therapy of infectious diseases	Professor P.V. Devarajan

29.	Kotak Darsheen	Ramanbhai Patel Institute of Pharmacy, Charotar University	Nanocarriers for Bioenhanced and Targeted Delivery in Osteoporosis.	Professor P.V. Devarajan
30.	Joshi Harsh	Shri Sarvajanik Pharmacy College	Formulation of Controlled and Novel Drug Delivery systems	Professor P.V. Devarajan
31.	John Rijo	Amrita institute of medical science and research centre	Formulation Development of In Situ Nanosuspension	Professor P.V. Devarajan
32.	Wavhule Pradip	SGRS college of Pharmacy, Pune	Microwave assisted Drug Delivery Systems	Professor P.V. Devarajan
33.	Vinod Ipar	UICT,Jalgaon	Bioenhanced Nutraceutical Delivery System	Professor P.V. Devarajan
34.	Lokhande Amit	ICT, Mumbai	Inhalable Nanocarrier based Drug Delivery System for Lung Targeting	Professor P. V. Devarajan
35.	Shevade Sukhada	Bombay College of Pharmacy	Long Acting Parenteral Depot Systems for Alzheimer's Disease Mumbai	Professor P. V. Devarajan
36.	Attar Sabir	Nagpur University	Study of Toxicology and Genotoxicity of L-DOPA and Hyoscine in combination therapy	Professor A. R. Juvekar
37.	Bulani Vipin	D Y P IPSR, Pune	Evaluation of bioactive complex for their anti-inflammatory activity	Professor A. R. Juvekar
38.	Kothavade Pankaj	D Y P IPSR, Pune	Pharmacological investigation of Achyranthes aspera linn. and Celastrus peniculatus willd. for anti-inflammatory and anti-arthritis activity	Professor A. R. Juvekar
39.	Khatri Dharmendra	ICT, Mumbai	Investigations on Natural Bio-active Compounds for their Anti-Parkinson Potential	Professor A. R. Juvekar
40.	Gawali Nitin	U.D.P.S. Nagpur	Neuropharmacological effect of Agmatine, a neuropeptide, on anxiety and related disorders"	Professor A. R. Juvekar
41.	Chowdhury Amrita	ICT, Mumbai	Evaluation of neuropharmacological profile of naturally occurring compounds in neurodegenerative disorders	Professor A. R. Juvekar
42.	Gursahani Malvika	BVP, Mumbai	Evaluation of biologically active compounds in neurodegenerative disorders	Professor A. R. Juvekar
43.	Pai Sarayu	BCP, Mumbai	Evaluation of phytoconstituents in obesity and it's complications	Professor A. R. Juvekar
44.	Yadav Vijay	Dr. L.H. Hiranandani College of Pharmacy	Green synthesis and study of metal nanostructures for biomedical applications	Dr. Prajakta Dandekar Jain
45.	Chhabra Rohan	Jaypee Institute of Information Tchnology, Delhi	Bioprocessing Of Scaffolds For Tissue Engineering	Dr. Prajakta Dandekar Jain
46.	Krishnan Akhil	Sastra University	Green processes for producing low molecular weight polysaccharide polymer and fabricating their nanocarriers for biomedical applications	Dr. Prajakta Dandekar Jain
47.	Bangde Prachi	ICT	In Process	Dr. Prajakta Dandekar Jain
48.	Dobhal Anurag	IIIT	In Process	Dr. Prajakta Dandekar Jain
49.	LalitKhare	ICT	In Process	Dr. Prajakta Dandekar Jain
50.	Aditya Narvekar	University of Mumbai	In Process	Dr. Prajakta Dandekar Jain
51.	Prashant Shinde			-
52.	Snehal Bhandare	MGV's Pharmacy College	Natural Flavonoids: Their extraction, isolation and its chemical modification	Professor K. S. Laddha
53.	Poonam Agrawal	ICT	Studies on Proto alkaloids	Professor K. S. Laddha
54.	Meenakshi Akhade	ICT	Studies on Quinazoline and Pyridine alkaloids	Professor K. S. Laddha
55.	Sapna Patil	Bhartiya Vidyapeeth College of Pharmacy, Pune	Studies on Iridoids- Its isolation, Extraction and chemistry	Professor K. S. Laddha
56.	Subodh Gangurde	NDMVP Nasik	Extraction,isolation and chemical modification of anthraquinones from senna and aloe	Professor K. S. Laddha
57.	Shefali Thakkar	Maliba pharmacy college	Chemical investigation and establishing quality control standards of asphaltum.	Professor K. S. Laddha
58.	Swami Megha	AISSMS College of Pharmacy, Pune	Nanoengineered particulate carriers of antimalarials using novel techniques	Professor V. B. Patravale

59.	Mohurle Swapnil	IIT, Bombay	Anti-amyloid agents loaded nanocarriers via intranasal route for alzheimer's disease treatment	Professor V. B. Patravale
60.	PrabhuRashmi	ICT, Mumbai	Functionalized non-viral vectors for breast cancer therapy	Professor V. B. Patravale
61.	Vyas Swati	ICT, Mumbai	Nanotechnology based diagnostic module for detection and prevention of brucellosis	Professor V. B. Patravale
62.	GiteSandip	UDCT, Aurangabad	Development and scale up of novel controlled release dosage forms	Professor V. B. Patravale
63.	Kadwadkar Namrata	Bombay college of Pharmacy, Mumbai	Novel drug delivery for targeting Hemoglobinopthies	Professor V. B. Patravale
64.	Mirani Amit	BharatiVidyapeeth College of Pharmacy, Navi Mumbai	Microbicidalnanotherapeutics for HIV/AIDS	Professor V. B. Patravale
65.	Bhuptani Ronak	Bombay college of Pharmacy, Mumbai	Novel carrier systems for improved topical delivery	Professor V. B. Patravale
66.	Agrawal Ankit	ICT, Mumbai	Development of innovative micromachined macrostructures for enhanced drug delivery	Professor V. B. Patravale
67.	Kharkar Prachi	ICT, Mumbai	Nanoengineered systems for oncotherapy	Professor V. B. Patravale
68.	Sane Mangesh	UDCT, Aurangabad	Development and evaluation of vascular scaffolds	Professor V. B. Patravale
69.	Naik Shivraj	North Maharashtra University, Jalgaon	Development of Novel Drug Delivery Systems for neurodegenerative diseases	Professor V. B. Patravale
70.	Chogale Manasi	SVC college of Pharmacy, Mumbai	Novel Formulations for the Therapy of Tuberculosis	Professor V. B. Patravale
71.	GhodakeVinod	Sinhgad Institute, Pune	Dry Powder Inhaler for Cystic Fibrosis Infections	Professor V. B. Patravale
72.	Dhoble Sagar	Bombay college of Pharmacy, Mumbai	Dry Powder Inhaler for Pulmonary Hypertension	Professor V. B. Patravale
73.	Pawar Rohit	NMIMS University, Mumbai	Development of novel diagnostic and treatment modules for dengue	Professor V. B. Patravale
74.	Dhage Shrikant	BharatiVidyapeeth College of Pharmacy, Navi Mumbai	Nutraceutical delivery using novel excipients	Professor V. B. Patravale
75.	UpadhayaPrashant	AISSMS college of pharmacy, Pune	Intranasal colloidal formulations for diagnostic and therapeutic applications	Professor V. B. Patravale
76.	Kakade Pratik	TatyasahebKore college of pharmacy, Warnanagar	Smart lipidic nanocarrier system for topical delivery	Professor V. B. Patravale
77.	Pherwani Pooja	Grant Medical College, Mumbai	Pharmacology of coumarin derivative and plant part containing the same in osteoporosis	Prof. Sadhana Sathaye
78.	Ghumatkar Priya	SPPSPTM, NMIMS, Mumbai	Screening of New therapeutic entities in Alzheimer's disease.	Prof. Sadhana Sathaye
79.	Sarvaiya Devang	Bombay College of Pharmacy, Mumbai	Pharmacokinetic and pharmacodynamic evaluation of therapeutic moieties as an adjunct immunotherapy in tuberculosis	Prof. Sadhana Sathaye
80.	Peshattiwar Vaibhavi	Bombay College of Pharmacy, Mumbai	Evaluation of phytoconstituents for its antiparkinson's activity	Prof. Sadhana Sathaye
81.	Muke Suraj	MVPs college of Pharmacy, Nashik	Isolation and purification of wedelolactone from herbal source for its potential anti-epileptic activity	Prof. Sadhana Sathaye
82.	Kaikini Aakruti	Bharati Vidyapeeth's College of Pharmacy, Mumbai	Investigation of Potential therapeutic moieties in diabetic complications	Prof. Sadhana Sathaye
83.	Bagle Sneha	Principal K. M. Kundanani College of Pharmacy, Mumbai	Pharmacological evaluation of Potential therapeutic entities for anti-Alzheimer activity	Prof. Sadhana Sathaye
84.	WavikarPreeti	ICT, Mumbai	Lipid based nanocarrier for brain delivery	Professor Pradeep Vavia
85.	VoraLalit	ICT, Mumbai	Polymeric particulate system for biomolecule delivery	Professor Pradeep Vavia
86.	Jadhav Nitin	ICT, Mumbai	Novel carrier based drug delivery system	Professor Pradeep Vavia
87.	Ingle Subhash	NIPER, Mohali	Silica based drug delivery system	Professor Pradeep Vavia
88.	Mahajan Ketan	UDCT, NMU Jalgaon	Polyelectrolyte multilayered systems for the treatment of infectious diseases	Professor Pradeep Vavia
89.	Patel Mayank	BharatiVidyapeeth's College Of Pharmacy	Modified Cyclic oligosaccharides based drug delivery system for anticancer drug	Professor Pradeep Vavia

90.	Jadhav Pankaj	ICT, Mumbai	Studies on application of amorphisation approaches for designing efficient	Professor Pradeep Vavia
91.	Monpara Jasmin	ICT, Mumbai	Advanced nanocarrier system for targeted delivery of antineoplastic agent	Professor Pradeep Vavia
92.	Shevalkar Ganesh	UDCT, NMU Jalgaon	Lipid based nanocarrier system for poorly bioavailable drugs	Professor Pradeep Vavia
93	Yadav Nisha	C.U. Shah College of Pharmacy, Mumbai	Development of nanocarrier for enhanced brain delivery	Professor Pradeep Vavia
94.	Prajapati Mahendra	NIPER, Mohali	Surface modified targeted nanocarrier for anticancer drug delivery	Professor Pradeep Vavia
95.	Patil Mrunal	R. C. Patel College Of Pharmacy, Shirpur	Formulation and evaluation of nanocarriers for infectious diseases	Professor Pradeep Vavia
96.	Pai Rohan	Bombay College of Pharmacy, Mumbai	Surface modified nanocarriers as drug delivery systems	Professor Pradeep Vavia
97.	Ganapati Sita	VES's College of Pharmacy, Mumbai	Lipidic nanocarriers as drug delivery systems	Professor Pradeep Vavia
98.	Jadhav Dhananjay	UDCT, NMU, Jalgaon	Cyclodextrin based drug delivery systems for Rheumatoid Arthritis	Professor Pradeep Vavia
99.	Rojekar Satish	ICT, Mumbai	Nano drug delivery system for antiretroviral drugs	Professor Pradeep Vavia
100.	Pawar Manoj Ashok	ICT, Mumbai	Development of Controlled Release (CR) formulation of Natural Highly Purified Human Chorionic Gonadotropin (hCG)	Professor Pradeep Vavia

INTEGRATED PH. D. (TECH.)

No.	Research Scholar	Previous Institute	Project	Supervisor
1.	Mestry Snehal	ICT, Mumbai	Phytochemical and Pharmacological investigations of Punica Granatum Linn. In Diabetic Nephropathy	Professor A. R. Juvekar
2.	Gore Manish	ICT	In Process	Dr. Prajakta Dandekar Jain

PH. D. (SCI.)

No.	Research Scholar	Previous Institute	Project	Supervisor
1.	Sabale Sandip	AbasahebGaraware College of Arts & Science, Pune	Green approach towards synthesis of pharmaceutically important compounds	Professor M. S. Degani
2.	Janmanchi Harikesh	Birla College, Mumbai	A study of antitubercular and anticancer properties of aquatic plants	Professor M. S. Degani
3.	Wagh Ganesh	Pune University	New reaction systems for synthesis of drugs and intermediates	Professor K. G. Akamanchi
4.	Sachin Veer	Pune University	New transformation for synthesis of drugs and intermediate	Professor K. G. Akamanchi
5.	Ghorpade Archana	Pune University	Nito and nitro group activation driven synthesis of drugs and intermediate	Professor K. G. Akamanchi
6.	Koli Uday	SIES College of Arts, Science & Commerce	Nucleic acid Loaded Nanoplexes for Biomedical Applications	Dr. Prajakta Dandekar Jain
7.	Talkar Swapnil	Ruia College, Mumbai	Gene Delivery for Cancer Therapeutics	Prof. V.B. Patravale

M. PHARM RESEARCH PROJECTS

No.	Research Scholar	Previous Institute	Project	Supervisor
1.	Reyniel Ben Carvalho	-	Mechanochemical Synthesis of Pharmaceutically Important Compounds	Professor S. V. Joshi
2.	Pritam V. Bagwe	-	Synthesis and Process optimization of Alpha Glycerylphosphorylcholine - (Alpha -GPC)	Professor S. V. Joshi
1.	Yadav Krishna	St.John Insttiute of pharmacy,Mumbai	Design, synthesis and evaluation of DAP antimetamolites	Professor K. G. Akamanchi
2.	Rajput Ashish	Dr. Harisingh Gour University, Sagar. MP	Preformulation and Solubilization of Novel New Chemical Entity	Professor Purnima Amin
3.	Jha Durgesh	Rajiv Gandhi University of Health Sciences. Bangalore	Exploring Scalable Innovative Technologies for Solubility enhancement of poorly water soluble drugs	Professor Purnima Amin

4.	Oholkar Sheetal M	Government College of Pharmacy, Aurangabad	Pulmonary Drug Delivery by Nebulization	Professor P.V. Devarajan
5.	More Suraj	Amrutvahini College of Pharmacy, Ahemadnagar	Brain Targeted Drug Delivery Systems	Professor P.V. Devarajan
6.	Choudhary Dinesh	MET, Mumbai	Evaluation of hepatoprotective activity of Mitragyna parvifolia leaves extract	Professor A. R. Juvekar
7.	Singh Yogesh	Dr. Hari Singh Gour Central University, Sagar, M.P.	To study the effect of Gmelina arborea bark in animal mouse model of Alzheimer's disease	Professor A. R. Juvekar
8.	Bainwad Manik	S.S.S College of Pharmacy ,Nanded	Not yet decided	Professor A. R. Juvekar
9.	Choudhary Lal Mohan	Rajasthan University of Health Science	Not yet decided	Professor A. R. Juvekar
10.	Rakh Limbraj	DCOP Latur	Extraction &isolation of Azadirachtin from seeds of Azadirachta Indica	Professor K. S. Laddha
11.	Tayade Apurva	ICT	Isolation of bixin	Professor K. S. Laddha
12.	Dukane Ajinkya	Govt.college Karad	Modification of starch	Professor K. S. Laddha
13.	DograAparana	Government College of Pharmacy, Shimla	Novel Lipid Based Oral Delivery System of Rivastigmine	Professor V.B. Patravale
14.	Gautam Aparna	People's Institute of Pharmacy and Research Centre, Bhopal	Enzymatic extraction and purification of rosmarinic acid	Dr. Sadhana Sathaye
15.	Pawar Swati	Pt. Bhagwat Dayal Sharma Post Graduate Institute of Medical Sciences, Rohtak	Immunomodulatory activity of Naringenin in Streptozotocin induced diabetic rats	Dr. Sadhana Sathaye
16.	Mali Aditya	Bombay College of Pharmacy, Mumbai	Eye drop formulation of ethyl acetate fraction of Saraca indica	Dr. Sadhana Sathaye
17.	Datta Sirsat	SVERIS college of pharmacy, Pandharpur	Mitochondrial dysfunction in Alzheimer disease	Dr. Sadhana Sathaye
18.	Afroj Shaikh	Allana College of Pharmacy, Pune	Evaluation of phytoconstituents on STZ induced diabetic retinopathy	Dr. Sadhana Sathaye
19.	Bora Chaitali	S.V.P.M. College of Pharmacy, Maigaon (BK)	Formulation and Evaluation of Microemulsion based emulgel of Griseofulvin	Prof. Pradeep Vavia
20.	Swarnkar Shivam	Shri Govindram Seksaria Institute of Technology and Science (SGSITS)	"Formulation strategies to enhance the solubility and dissolution of anti-hypertensive agent"	Prof. Pradeep Vavia

M. TECH. RESEARCH PROJECTS

No.	Research Scholar	Previous Institute	Project	Supervisor
1.	Pawar R. Goraksh		Extraction, Separation, Purification and Testing of Anti-cancerous compound from Guava	Prof. M. S. Degani
2.	KM Nazima	Lovely Professional University, Phagwara, University, Punjab	Isolation and Purification of DHFR enzyme from Recombinat	Prof. M. S. Degani
3.	Chate Abhijit	UDCT, Aurangabad	Design, synthesis and evaluation of DAP antimetamolites	Professor K. G. Akamanchi
4.	Pahelkar Akshata		Desing & Synthesis of antimicro—agents	Dr. H. K. Chaudhari
5.	Sannake Manisha M	ICT, Mumbai	Brain Targeted Drug Delivery Systems	Professor P. V. Devarajan
6.	Prarthana Mistry	UDCT Aurangabad	Fabrication and characterization of starch-TPU based nanofibers for wound healing applications	Dr. Prajakta Dandekar Jain
7.	Eram Sheikh	Rizvi college of engineering	Hydrophobic deep eutectic solvent as a green technique for extracting ergosterol from mushroom	Dr. Prajakta Dandekar Jain
8.	Sagar Ingle	Government college of pharmacy Amaravati	HMF production using solid acid as catalyst	Dr. Prajakta Dandekar Jain
9.	Varhade Amruta	MGM Kalamboli	Separation of volatile oil from mammia suriga	Professor K. S. Laddha

10.	Dharmadhikari R.K.	Food technology Parbhani	Saparation,Isolation and charactarisation of essential oils and caumarins	Professor K. S. Laddha
11.	Ambure Saurabh	MIT college Pune	saparation of volatile oil and its components from piper cubeba	Professor K. S. Laddha
12.	Bhumbe Govind	Food technology Parbhani	Separation of gingerol form ginger	Professor K. S. Laddha
13.	Chatterjee Arkoshubro	Institute of Chemical Technology, Mumbai	Ethyl cellulose aqueous dispersion for pharmaceutical applications	Professor V. B. Patravale
14.	Somnath Patil	Bharti vidyapeeth's college of pharmacy, Kolhapur	Enzymatic extraction of Psoralen from plant source	Dr. Sadhana Sathaye
15.	Indurkar Gajanan	University Department of Chemical Technology, Aurangabad	Formulation and Evaluation of Microemulsion based nasal spray of Anti-psychotic agent	Professor Pradeep Vavia

BPT

No.	Research Scholar	Previous Institute	Project	Supervisor
1.	Sagar Kharote	Amrutvahini College of Pharmacy, Sangamner, Ahmednagar	Isolation and purification of DHFR from suitable non-pathogenic source	Professor M. S. Degani

M. TECH (PHARMACEUTICAL BIOTECHNOLOGY)

No.	Research Scholar (Beginning with Last name)	Previous Institution	Project	Supervisor
1.	Jadhav Pramod M	Tatyasaheb Kore Institute of Engineering & Technology, Warnanagar, Kolhapur	Point of Care Test Kit for Pregnancy Detection in Cattle	Prof. P. V. Devarajan
2.	Vegad Hiral M	Sinhagad Institute of Technology, Pune	Nanoparticles as Immune Adjuvants	Prof. P. V. Devarajan
3.	NagendraGowada	M.S. Ramaiah institute of technology	Optimization of cell culture process by DOE for the production of monoclonal antibody	Dr. Prajakta Dandekar Jain
4.	Nikita Aware	ICT	Exploring polymethylmethacrylate copolymer for developing microcarrier scaffold for mammalian cell culture	Dr. Prajakta Dandekar Jain
5.	MenonAnjana	SreeChitraThirunal College of engineering, Kerala University	Studies on Lauryl derivative as an HIV-1 entry inhibitor	Professor V. B. Patravale

SPONSORED PROJECTS

GOVERNMENT PROJECT

1	**Sponsor**	**BRNS**
	Title	Design, synthesis and evaluation of 18F ligands for diagnosis of Alzheimer's disease
	Duration	2015 - Ongoing
	Total amount	18,72,265/-
	Principal Investigator	Prof. Mariam Degani
	Research Fellows	Harish Kundaikar, ArunBhusari
2	**Sponsor**	**TEQIP**
	Title	Microwave assisted Halogenation reactions using flow reactor
	Duration	2013 - Ongoing
	Total amount	27,00,000/-
	Principal Investigator	Mariam Degani
	Research Fellows	Macchindra Bochare, Sagar Patel
3	**Sponsor**	**UDCT Golden Jubilee**
	Title	Fabrication of Dry Glove Box for Medicinal Chemistry Lab
	Duration	2014 - Ongoing
	Total amount	75,000/-
	Principal Investigator	Mariam Degani
	Research Fellows	Macchindra Bochare
4	**Sponsor**	**UGC**
	Title	Continuous process for the production of solid lipid nanoparticles (SLN) as drug-carrier systems via hot-melt extrusion (HME)
	Duration	Apr-15 to Mar-17
	Total amount	7.0 lakhs
	Principle Investigator	Prof. P. D. Amin
	Research Fellows	Santosh Maruti Gejage (M.Pharm.)
5	**Sponsor**	**Government**
	Title	Scientific validation of traditional knowledge

	Duration	One year
	Total amount	9,00,000/- (Sanctioned)
	Principal Investigator	Dr H K Chaudhari
	Research Fellows	Mr. Yogesh Borse
6	**Sponsor**	**DST Prime Ministers Fellowship with Zim Laboratories, Nagpur**
	Title	Design and Development of Non-invasive Drug Delivery System for Large Molecules.
	Duration	2015-2018 (3 yrs)
	Total amount	Rs.24 Lakhs
	Principal Investigator	Prof. Padma V. Devarajan
	Research Fellows	Mr. Darsheen J Kotak
7	**Sponsor**	**Department of Biotechnology (DBT), Govt. of India.**
	Title	Early Translational study of orally administered nanoparticulate carriers for pulmonary targeting of antitubercular drug combinations
	Duration	2013-2017
	Total amount	Rs. 1,01,49000
	Principal Investigator	Prof. Padma V. Devarajan
	Research Fellows	Mr. Sagar Sudhakar Bachhav
8	**Sponsor**	**Indian Council of medical Research (ICMR), Govt. of India.**
	Title	Preclinical testing for the safety of synthetic peptide 1 of 80kDa HAS for the development of Anti-fertility vaccine
	Duration	2015-2018 (3yrs)
	Total amount	Rs. 12 Lakhs
	Principal Investigator	Prof. Padma V. Devarajan
	Research Fellows	Ms. Vrushali Pathak
9	**Sponsor**	**Department of Science and Technology (DST-RFBR), Govt. of India.**
	Title	Artificial Sensory systems for optimizing palatability of paediatric formulations. Taste masking enabled by Computer aided modelling and use of artificial sensory system.
	Duration	2015-2018 (2 yrs)
	Total amount	Rs. 25.27 Lakhs
	Principal Investigator	Prof. Padma V. Devarajan
10	**Sponsor**	**Department of Atomic Energy (DAE)-Board of Research in Nuclear Sciences (BRNS), Govt. of India.**
	Title	Innovative formulations of Radioprotectors and Immunomodulators developed in BARC
	Duration	2015-2018 (3 yrs)
	Total amount	Rs. 32.52 Lakhs
	Principal Investigator	Prof. Padma V. Devarajan
	Research Fellows	Mr. Tanmayee Machiraju
11	**Sponsor**	**Indian Council of Medical Research**
	Title	Quality Standards of Indian Medicinal plants and Preparation of Monographs thereon
	Duration	Three years (2012-2015)
	Total amount	Rs.31,51,539/-
	Principal Investigator	Prof. K. S. Laddha
	Research Fellows	Mr. Awdhut Pimple
12	**Sponsor**	**Rajiv Gandhi Science and Technology Commission**
	Title	Developing technology for extraction and isolation of Anti-Arthritic drugs from plants indigenous to Maharashtra.
	Duration	Two years (2013-2015)
	Total amount	Rs. 55,16,999/-
	Principal Investigator	Prof. K. S. Laddha
	Research Fellows	Miss Pooja Bowlekar
13	**Sponsor**	**Rajiv Gandhi Science and Technology Commission**
	Title	Extraction of Volatile oil from Orange Peels, Separation of Limonene from it and its Industrial Applications
	Duration	One and half year (2015-2017)
	Total amount	Rs. 19,49,250/-
	Principal Investigator	Prof. K. S. Laddha
	Research Fellows	To be appointed
	Duration	Two years (2013-2015)
14	**Sponsor**	**Board of Research in Nuclear Sciences (BRNS)**
	Title	Intranasal colloidal formulations for diagnostic and therapeutic Applications
	Duration	2016-2019
	Total amount	24,40,400/-
	Principal Investigator	Prof. V. B. Patravale
	Research Fellows	PrashantUpadhaya
15	**Sponsor**	**Department of Scientific and Industrial Research (DSIR)**
	Title	Development of Controlled Release (CR) formulation of Natural Highly Purified Human Chorionic Gonadotropin (hCG)
	Duration	36 months
	Total amount	159.55 lakhs (INR)
	Principal Investigator	Prof. P. R. Vavia
	Research Fellows	Pawar Manoj Ashok

INDUSTRIES:

1	**Sponsor**	**Gattefosse India Pvt. Ltd**
	Duration	12 months
	Total amount	Rs. 5.45 lac
	Principle Investigator	Prof. P.D. Amin
2	**Sponsor**	**Merck India Pvt. Ltd**
	Duration	1 months
	Total amount	Rs. 19.69
	Principle Investigator	Prof. P.D. Amin
3	**Sponsor**	**BASF India Ltd**
	Duration	12 months
	Total amount	Rs. 5 Lac
	Principle Investigator	Prof. P.D. Amin
4	**Sponsor**	**Evonik Industries AG**
	Duration	6 months
	Total amount	Rs. 4.08
	Principle Investigator	Prof. P.D. Amin
5	**Sponsor**	**Phoenix Pharmeceuticals, LA, USA**
	Title	Formulation of controlled and novel drug delivery systems
	Duration	2013-2017 (4 yrs)
	Total amount	US $ 34,000
	Principal Investigator	Prof. Padma V. Devarajan
	Research Fellows	Mr. Harsh Joshi
6	**Sponsor**	**Phoenix Pharmeceuticals, LA, USA**
	Title	Controlled Drug Delivery systems
	Duration	2014-2017 (3 yrs)
	Total amount	US $ 34,000
	Principal Investigator	Prof. Padma V. Devarajan
	Research Fellows	Mr. Rijo John
7	**Sponsor**	**M/s. Total Herb Solutions Pvt. Ltd.**
	Title	Development of analytical method for Herbal drugs and formulations
	Duration	2015 - Ongoing
	Total amount	Rs. 50,000/
	Principal Investigator	Prof. K. S. Laddha
	Research Fellows	-
8	**Sponsor**	**M/s Sheekharr Starch Private Limited**
	Title	Development of modified starch.
	Duration	One year (2015 - 2016)
	Total amount	Rs. 3,20,000/
	Principal Investigator	Prof. K. S. Laddha
	Research Fellows	-
9	**Sponsor**	**M/s, Avenir Industries FZE**
	Title	Studies on Thaumatin, its formulation and stability studies."
	Duration	One year (2015 - 2016)
	Total amount	10,000 USD
	Principal Investigator	Prof. K. S. Laddha
	Research Fellow	Ms. Archana Variyar
10	**Sponsor**	**Sulphur Mills Ltd.**
	Title	Formulation and Characterization of Agro Based Products
	Duration	2016-2017
	Total amount	8,05,000/-
	Principal Investigator	Prof. V. B. Patravale
	Research Fellows	NA
11	**Sponsor**	**Neon Pharma**
	Title	Development of dissolution method for ophthalmic suspension using USP IV apparatus.
	Duration	2016-2017
	Total amount	6,72,719/-
	Principal Investigator	Prof. V. B. Patravale
	Research Fellows	NA
12	**Sponsor**	**Synthite Industries Ltd.**
	Title	In vivo and In vitro characterization of Vextrano curcumin with the curcumin Oleoresin
	Duration	2016-2017
	Total amount	5,31,250/-
	Principal Investigator	Prof. V. B. Patravale
	Research Fellows	NA
13	**Sponsor**	**Zeus Hygia life sciences Pvt. Ltd.**
	Title	Pharmacokinetic study of beta carotene test formulation
	Duration	3 months
	Total amount	44869.50
	Principal Investigator	Prof. Sadhana Sathaye
	Research Fellows	Sneha Bagle
14	**Sponsor**	**Y Cube Technology Pvt. Ltd.**
	Title	Acute toxicity of Ethoxylated fatty alcohol in zebrafish
	Duration	2 months
	Total amount	25000/-
	Principal Investigator	Prof. Sadhana Sathaye
	Research Fellows	Afroj Shaikh M.Pharm (MNP-Pharmacology) Dattatreya Sirsat M.Pharm (MNP-Pharmacology) Somnath Patil M.Tech (BPT) Suraj Muke Ph.D (Tech)
15	**Sponsor**	**Johnson and Johnson Pvt. Ltd**
	Title	Development of Novel stimuli responsive delivery system
	Duration	15 Months

	Total amount	INR 33,13,125.
	Principal Investigator	Prof. P. R. Vavia
	Research Fellows	-
16	**Sponsor**	**Nippon Synthetic Chemicals Ltd. Japan**
	Title	Testing and evaluation of performance of NSC's proprietary materials
	Duration	-
	Total amount	30,000 $
	Principal Investigator	Prof. Pradeep R. Vavia
	Research Fellows	Pankaj Hanumantrao Jadhav

DETAILS OF NATIONAL AND INTERNATIONAL COLLABORATIONS

NATIONAL COLLABORATIONS

1. Tata Institute of Fundamental Research, Mumbai
2. National Institute for Research in Reproductive Health, Parel, Mumbai
3. National Institute of Immunohaematology, Mumbai
4. Radiation Medicine Centre, Tata Hospital, Parel, Mumbai
5. National JALMA Institute of Leprosy & Other Mycobacterial Diseases, Agra
6. Advanced Centre for Treatment, Research & Education in Cancer (ACTREC), Navi Mumbai
7. Post graduate Institute of Veterinary and Animal Sciences, Akola
8. Bombay Veterinary College, Mumbai
9. Govt. Dental College, Mumbai
10. Bhabha Atomic Research Centre (BARC), Mumbai
11. IIT, Delhi
12. CDRI, Lucknow
13. National Burns Centre, Navi-mumbai
14. National Institute of Mental Health and NeuroSciences, Bangalore.
15. Department of Biosciences and Bioengineering, IIT Mumbai.
16. G.S. Medical College, Mumbai.
17. KEM Hospital, Mumbai.
18. National AIDS research Institute, Pune.
19. Nanobios lab, IIT Bombay
20. Department of Biochemistry and Jamunalal Bajaj Tropical Disease Research centre, Mahatma Gandhi institute of Medical Sciences, Sevagram, Wardha-442102, Maharashtra, India
21. Amity University, Noida

INTERNATIONAL UNIVERSITY/ INSTITUTE

1. National Facility for Biopharmaceutical. Evaluation of Topical formulation for the treatment of Psoriasis.
2. St. Petersburg ITMO University, Russia
3. University of Bradford, UK
4. Berlin, Germany
5. University of Geneva, Switzerland
6. University of Tokyo, Japan
7. Hoshi University, Japan
8. Discipline of Pharmaceutical Sciences, School of Health Sciences, University of KwaZulu-Natal, Durban, KwaZulu-Natal, South Africa.
9. Aix-Marseille University, CNRS, Interdisciplinary Center of Nanoscience of Marseille, UMR 7325, 13288 Marseille, France.
10. University of Delaware, USA.
11. Miami University, USA.
12. Atlanta Georgia, USA.
13. Neopharma Limited, UK
14. Birbeck University of London.
15. Open Innovation Drug Discovery, Eli Lilly and Company, Lilly Corporate Center, Indianapolis, IN 46285, USA
16. King's College London.
17. Newton-Bhabha Placement program with UK universities:
    i. Strathclyde University, Glasgow, UK
    ii. The Sheffield university: Prof. Gillian Tozer and Dr. ChrysoKanthou of The tumor microcirculation group and medical school
    iii. Queen's University, Belfast, UK: Prof Ryan Donnelly of School of Pharmacy
    iv. University of Turine, Italy: Francesco Trotta, Michele Trotta, Roberta Cavalli.

BOOK

Author(s)	Title	Publisher	Place	Year
V. Patravale, M. Rustomjee, J. Disouza	Pharmaceutical Product Development: Insights into Pharmaceutical Processes, Management and Regulatory Affairs	CRS Press Taylor & Francis Group, Boca Raton, London, New York	Boca Raton, London, New York	2016

BOOK CHAPTERS

No.	Author(s)	Title	Editor	Publisher	Place	Year	Page
1	Nanda Rohra, Manish Gore, Sathish Dyawanapelly, Mahesh Tambe, Ankit Gautam, Meghna Suvarna, Ratnesh Jain, and Prajakta Dandekar.	Emerging Trends in Nanotechnology for Diagnosis and Therapy of Lung Cancer in Nanobiotechnology: Human Health and the Environment	Alok Dhawan, Sanjay Singh, Ashutosh Kumarand Rishi Shanker	CRC Press, Taylor and Francis Group	New York, USA	Apr. 2018	105-170
2	Anurag Dobhal, Prachi Bangde, Anomitra Dey, Prajakta Dandekar and Ratnesh Jain,	Chitosan-Based Nanoparticulate Systems: Implication Towards Therapeutics Application in Particulate Technology for Delivery of Therapeutic	Sougata Jana and Subrata Jana. Ltd	Springer International Publishing AG, Springer Nature	Singapore	Oct. 2017	167-225
3	K.S.Laddha	Quality Standards of Indian Medicinal Plants" A)Artemisia absinthium Linn.	Neeraj Tandon, Parul Sharma	Indian Council of Medical Research	New Delhi	2017	01

4	K.S.Laddha	Quality Standards of Indian Medicinal Plants" B)Bauhinia racemose Lamk	Neeraj Tandon,	Indian Council of Medical Research	New Delhi	2017	14
5	K.S. Laddha	Quality Standards of Indian Medicinal Plants" C)Barberis aristata DC	Neeraj Tandon, Parul Sharma	Indian Council of Medical Research	New Delhi	2017	24
6	K.S. Laddha	Quality Standards of Indian Medicinal Plants" D) Blepharis edulis (Forssk).	Neeraj Tandon, Parul Sharma	Indian Council of Medical Research	New Delhi	2017	34
7	K.S. Laddha	Quality Standards of Indian Medicinal Plants" E) Carapichea ipecacuana(Brot).	Neeraj Tandon, Parul Sharma	Indian Council of Medical Research	New Delhi	2017	60
8	K.S. Laddha	Quality Standards of Indian Medicinal Plants" F) Cordia dichotoma G.Forst (Ripe fruit).	Neeraj Tandon, Parul Sharma	Indian Council of Medical Research	New Delhi	2017	122
9	K.S. Laddha	Quality Standards of Indian Medicinal Plants" G) Cordia dichotoma G. Forst (Stem bark)	Neeraj Tandon, Parul Sharma	Indian Council of Medical Research	New Delhi	2017	132
10	K.S. Laddha	Quality Standards of Indian Medicinal Plants" H)Diospyros exsculpta Buch.	Neeraj Tandon, Parul Sharma	Indian Council of Medical Research	New Delhi	2017	158
11	K.S. Laddha	Quality Standards of Indian Medicinal Plants" H)Diospyros exsculpta malabarica. kostal	Neeraj Tandon, Parul Sharma	Indian Council of Medical Research	New Delhi	2017	167
12	K.S. Laddha	Quality Standards of Indian Medicinal Plants" I)Flacourtia indica (Burm.f.) Mer	Neeraj Tandon, Parul Sharma	Indian Council of Medical Research	New Delhi	2017	179
13	K.S. Laddha	Quality Standards of Indian Medicinal Plants" J) Lantana camara Linn	Neeraj Tandon, Parul Sharma	Indian Council of Medical Research	New Delhi	2017	221
14	K.S. Laddha	Quality Standards of Indian Medicinal Plants" K) punica granatum Linn.	Neeraj Tandon, Parul Sharma	Indian Council of Medical Research	New Delhi	2017	299
15	K.S. Laddha	Quality Standards of Indian Medicinal Plants" L) Vitis vinifera Linn.	Neeraj Tandon, Parul Sharma	Indian Council of Medical Research	New Delhi	2017	349
16	Sagar Dhoble, Vinod Ghodake, Manasi Chogale, Vandana Patravale.	Nanoformulations for the Therapy of Pulmonary Infections	Anton Ficai, Alexandru Mihai Grumezescu	Elsevier	Bucharest, Romania	2017	457-480
17	P. Kharkar, S. Talkar, N. Kadwadkar, V. Patravale.	Nanosystems for oral delivery of immunomodulators.	Anton Ficai, Alexandru Mihai Grumezescu	Elsevier	Bucharest, Romania	2017	295-334
18	S. Karandikar, A. Mirani, V. Waybhase, V. Patravale, S. Patankar.	Nanovaccines for oral delivery- formulation strategies and challenges.	Anton Ficai, Alexandru Mihai Grumezescu	Elsevier	Bucharest, Romania	2017	-
19	R. Prabhu, K. Bhise and V. Patravale.	Marine Enzymes in Cancer: A New Paradigm	Se-Kwon Kim, Fidel Toldrá	Elsevier	South Korea	1-14	2016

PUBLICATION

No.	Authors	Title	Journal	Vol. No.	Pages	Year
1.	RU Shelke, MS Degani, A Raju, MK Ray, MGR Rajan,	Fragment Discovery for the Design of Nitrogen Heterocycles as Mycobacterium tuberculosis Dihydrofolate Reductase Inhibitors	Archiv der Pharmazie	349 (8)	602-613	2016

2.	Dalvi, Bhagyashree R.; Shelke, Rupesh U.; Siddiqui, Ejaz A.; Syed, Asad S.; Degani, Mariam S.; Devarajan, Padma V.,	Preparation, characterization and surface modification of nevirapine nanoparticles	American Journal of PharmTech Research	5	187-204	2016
3.	Gangurde, Avinash B.; Kundaikar, Harish S.; Javeer, Sharadchandra D.; Jaiswar, Divakar R.; Degani, Mariam S.; Amin, Purnima D	Enhanced solubility and dissolution of curcumin by a hydrophilic polymer solid dispersion and its insilico molecular modeling studies	From Journal of Drug Delivery Science and Technology	29	226-237	2016
4.	Jain, Puneet P.; Degani, Mariam S.; Raju, Archana; Anantram, Aarti; Seervi, Madhav; Sathaye, Sadhana; Ray, Muktikanta; Rajan, M. G. R.	Identification of a novel class of quinoline-oxadiazole hybrids as anti-tuberculosis agents	Bioorganic & Medicinal Chemistry Letters	26	645-649	2016
5.	Thanekar, Deepavali; Dhodi, Jayesh; Gawali, Nitin; Raju, Archana; Deshpande, Padmini; Degani, Mariam; Juvekar, Archana	Evaluation of antitumor and anti-angiogenic activity of bioactive compounds from Cinnamomumtamala: In vitro, in vivo and in silico approach	South African Journal of Botany	104	6-14	2016
6.	Bulani, Vipin D.; Kothavade, Pankaj S.; Kundaikar, Harish S.; Gawali, Nitin B.; Chowdhury, Amrita A.; Degani, Mariam S.; Juvekar, Archana R.	Inclusion complex of ellagic acid with -cyclodextrin: Characterization and in vitro anti-inflammatory evaluation	Journal of Molecular Structure	1105	308-315	2016
7.	PP Jain, MS Degani, A Raju, A Anantram, M Seervi, S Sathaye, M Ray,	Identification of a novel class of quinoline–oxadiazole hybrids as anti-tuberculosis agents.	Bioorganic & medicinal chemistry letters	26 (2),	645-649.	2016
8.	Arundhati C Lele, Mihir P Khambete, Archana Raju, Muktikanta Ray, MGR Rajan, Mariam S Degani	Design And Synthesis Of Novel Mycobacterium Tuberculosis DHFR Inhibitors	International Journal of Pharmaceutical Sciences and Research	7 (6)	2352	2016
9.	Patil, D. M. and Akamanchi, K.G.	Microwave assisted process intensification and kinetic modelling: Extraction of camptothecin from Notha- podytes nimmoniana plant	Industrial Crops and Products	98	60–67	2017
10.	Patil, D. M. and Akamanchi, K.G.	of influential factors: Extraction of Ultrasound-assisted rapid extraction and kinetic modelling camptothecin from Nothapodytes nimmoniana plant	Ultrasonics Sonochemistry	37	582–591	2017
11.	Ghorpade, A.K. and Akamanchi, K.G.	A mild, convenient and efficient sodium nitrite mediated hydrolysis of α-halo ketones to corresponding α -hydroxy ketones	Chemistry Select	2	2457 – 2461	2017
12.	Kale, S.S. and Akamanchi, K.G.	Rational approach for design and evaluation of anti-aggregation agents for protein stabilization: A case study of trehalose phenylalaninate	International Journal of Pharmaceutics	524	215–225	2017
13.	Patil, P. C. and Akamanchi, K.G.	A new combination of cyclohexylhydrazine and IBX for oxidative generation of cyclohexyl free radical and related synthesis of parvaquone	Tetrahedron Lett.	58	1883–1886	2017
14.	Ganesh D. Wagh, and Akamanchi, K.G.	Sulfated tungstate catalyzed synthesis of C3-symmetric 1,3,5-triarylbenzenes under solvent-free condition	Tetrahedron Lett.	58	3032–3036	2017

15.	Veer, S.D.; Pathare, S.P.; Akamanchi, K G.	Sulfated tungstate catalyzed hydration of alkynes	ARKIVOC	(iv)	1-8	2016
16.	Veer, S.D.; Katkar, K.V. and Akamanchi, K.G.	Sulfated tungstate catalyzed activation of nitriles: addition of amines to nitriles for synthesis of amidines	Tetrahedron Lett.	57	4039–4043	2016
17.	Ghorpade, A.K.; Huddar,S.N. and Akamanchi, K.G.	Aq HBr–NaNO2–KI/air: a new catalytic system for a-monobromination of ketones	Tetrahedron Lett.	57	4918–4921	2016
18.	Katkar, K.V.; Veer, S.D. and Akamanchi, K.G.	Sulfated tungstate as hydroxyl group activator for preparation of benzyl, including p-methoxybenzyl ethers of alcohols and phenols	Synth. Commun.	46:23	1893-1901	2016
19.	Kale, S.S. and Akamanchi, K.G.	Trehalose Monooleate: A Potential Antiaggregation Agent for Stabilization of Proteins	Mol. Pharmaceutics	13	4082–4093	2016
20.	J Pawar, R Narkhede, P Amin, V Tawde	Design and Evaluation of Topical Diclofenac Sodium Gel Using Hot Melt Extrusion Technology as a Continuous Manufacturing Process with Kolliphor® P407.	AAPS PharmSciTech	18 (6)	2303-2315	-
21.	N Desai, S Jain, PSP Singh, P Amin	Novel orodispersible compositions of nutraceuticals prepared by the technology of extrusion-spheronization.	Journal of Applied Pharmaceutical Science	7(04)	31-17	-
22.	KK Moravkar, TM Ali, JN Pawar, PD Amin	Application of moisture activated dry granulation (MADG) process to develop high dose immediate release (IR) formulations.	Advanced Powder Technology	28(4)	1270-1280	-
23.	P Vaingankar, P Amin	Continuous melt granulation to develop high drug loaded sustained release tablet of Metformin HCl.	Asian journal of pharmaceutical sciences	12(1)	37-50	-
24.	JN Pawar, HR Desai, KK Moravkar, DK Khanna, PD Amin	Exploring the potential of porous silicas as a carrier system for dissolution rate enhancement of artemether.	Asian journal of pharmaceutical sciences	11(6)	760-770	2016
25.	DR Jaiswar, D Jha, PD Amin	Preparation and characterizations of stable amorphous solid solution of azithromycin by hot melt extrusion.	Journal of Pharmaceutical Investigation	46(7)	655-668	-
26.	CK Khatri, VB Satalkar, GU Chaturbhuj	Sulfated polyborate catalyzed Kabachnik-Fields reaction: An efficient and eco-friendly protocol for synthesis of α-amino phosphonates	Tetrahedron Letters,	58	694-698	2017
27.	CK Khatri, VB Satalkar, GU Chaturbhuj	Kabachnik–Fields Reaction on a Sulfated Polyborate	Synfacts	13	0438	2017
28.	DS Rekunge, CK Khatri, GU Chaturbhuj	Sulfated polyborate: An efficient and reusable catalyst for one pot synthesis of Hantzsch 1,4-dihydropyridines derivatives using ammonium carbonate under solvent free conditions	Tetrahedron Letters,	58	1240–1244	2017
29.	DS Rekunge, CK Khatri, GU Chaturbhuj	Synthesis of Hantzsch 1,4-Dihydropyridines Catalyzed by Sulfated Polyborate	Synfacts	13	0558	2017
30.	KS Indalkar, CK Khatri, GU Chaturbhuj	Rapid, efficient and eco-friendly procedure for the synthesis of quinoxalines under solvent-free conditions using sulfated polyborate as a recyclable catalyst	Journal of Chemical Sciences	129	141–148	2017

31.	KS Indalkar, CK Khatri, GU Chaturbhuj	Sulfated polyborate: A mild, efficient catalyst for synthesis of N-tert-butyl/N-trityl protected amides via Ritter reaction	Journal of Chemical Sciences	129	415–420	2017
32.	Chetan K.Khatri, Krishna S.Indalkar, Chandragouda R. Patil, Sameer N. Goyal, Ganesh U. Chaturbhuj	Novel 2-phenyl-4,5,6,7-tetrahydro [b] benzothiophene analogues as selective COX-2 inhibitors: Design, synthesis, anti-inflammatory evaluation, and molecular docking studies	Bioorganic & Medicinal Chemistry Letters	27	1721-1726	2017
33.	CK Khatri, MS Patil, GU Chaturbhuj	Sulfated polyborate: mild, efficient and eco-friendly catalyst for the synthesis of 2, 3-dihydroquinazolin-4 (1H)-ones	Journal of the Iranian Chemical society	14	1683-1689	2017
34.	CK Khatri, AS Mali, GU Chaturbhuj	Sulfated polyborate catalyzed Kindler reaction: a rapid, efficient, and green protocol	Monatsheftefür Chemie-Chemical	148	1463-1468	2017
35.	KS Indalkar, CK Khatri, GU Chaturbhuj	Expeditious and efficient synthesis of Strecker's α-aminonitriles catalyzed by sulfated polyborate	Tetrahedron Letters,	58	2144-2148	2016
36.	KS Indalkar, CK Khatri, GU Chaturbhuj	Strecker Reaction with Sulfated Polyborate	Synfacts	13	0889	2016
37.	CK Khatri, SM Potadar, GU Chaturbhuj	A reactant promoted solvent free synthesis of 3, 4-dihydropyrimidin-2 (1H)-thione analogues using ammonium thiocyanate	Tetrahedron Letters,	58	1778-1780	2016
38.	DS Rekunge, CK Khatri, GU Chaturbhuj	Rapid and efficient protocol for Willgerodt–Kindler's thioacetamides catalyzed by sulfated polyborate	Monatsheftefür Chemie-Chemical	Doi;	10.1007/s00706-017-2013-x	2016
39.	MS Patil, AV Palav, CK Khatri, GU Chaturbhuj	Rapid, efficient and solvent-free synthesis of (un) symmetrical xanthenes catalyzed by recyclable sulfated polyborate	Tetrahedron Letters,	58	2859-2864	2016
40.	MS Patil, C Mudaliar, GU Chaturbhuj	Sulfated polyborate catalyzed expeditious and efficient three-component synthesis of 3-methyl-4-(hetero) arylmethylene isoxazole-5 (4H)-ones	Tetrahedron Letters	58	3250-3261	2016
41.	Chetan K Khatri G U Chaturbhuj	Sulfated polyborate catalyzed N-formylation of amines: A rapid, green and efficient protocol	Journal of the Iranian Chemical society	14	2513-2519	2016
42.	DS Rekunge, CK Khatri, GU Chaturbhuj	Sulfated polyborate-catalyzed efficient and expeditious synthesis of (un)symmetrical ureas and benzimidazolones	Tetrahedron Letters	58	4304-4305	2016
43.	Khatri C K, Rekunge D S, & Chaturbhuj G U	Sulfated polyborate: a new and eco-friendly catalyst for one-pot multi-component synthesis of 3,4-dihydropyrimidin-2(1H)-ones/ thiones via Biginelli reaction	New Journal of Chemistry	40	10412-10417	2016
44.	Deelip S. Rekunge, Krishna S. Indalkar, Ganesh U. Chaturbhuj	Activated Fuller's earth as an inexpensive, eco-friendly, efficient catalyst for the synthesis of 5-Aryl 1-H- tetrazole via [3+2] cycloaddition of nitriles and sodium azide	Tetrahedron Letters	57	5815	2016
45.	Hemchandra Keshav Chaudhari, Afsar Ali Siddiki, Yogesh D. Manohar	Design and Synthesis of novel oxadiazole and diphenyl ether hydrazone derivatives of coumarin as potential antibacterial agents	Current Bioactive Compounds	13	318-325	2017

46.	Hemchandra K. Chaudhari, AkshataPahelkar, Balaram S. Takale	Preparative-scale synthesis of amino coumarins through new sequential nitration and reduction protocol	Tetrahedron Letters	58	4107-4110	2017
47.	Mande PP, Bachhav SS, Devarajan PV.	Bioenhanced advanced third generation solid dispersion of tadalafil: Repurposing with improved therapy in pyelonephritis.	Asian Journal of Pharmaceutical Sciences	12 (6)	569-579	Feb 2017
48.	Kande KV, Kotak DJ, Degani MS, Kirsanov D, Legin A, Devarajan PV.	Microwave-Assisted Development of Orally Disintegrating Tablets by Direct Compression.	AAPS PharmSciTech	18 (6)	2055-2066	Feb 2017
49.	Shinde RL, Devarajan PV.	Docosahexaenoic acid–mediated, targeted and sustained brain delivery of curcumin microemulsion.	Drug Delivery	24 (1)	152-161	Jan 2017
50.	Jindal AB, Bachhav SS, Devarajan PV.	In situ hybrid nano drug delivery system (IHN-DDS) of antiretroviral drug for simultaneous targeting to multiple viral reservoirs: An in vivo proof of concept.	International journal of pharmaceutics	521 (1)	196-203	Jan 2017
51.	Pranatharthiharan S, Patel MD, Malshe VC, Pujari V, Gorakshakar A, Madkaikar M, Devarajan PV.	Asialoglycoprotein receptor targeted delivery of doxorubicin nanoparticles for hepatocellular carcinoma.	Drug Delivery	24 (1)	20-29	Jan 2017
52.	Ngwuluka NC, Kotak DJ, Devarajan PV.	Design and characterization of metformin-loaded solid lipid nanoparticles for colon cancer.	AAPS PharmSciTech	18 (2)	358-68	Jan 2017
53.	Pranatharthiharan S, Patel MD, Malshe VC, Devarajan PV.	Polyethylene sebacate doxorubicin nanoparticles: role of carbohydrate anchoring on in vitro and in vivo anticancer efficacy.	Drug Delivery	23 (8)	2980-2989	Dec 2016
54.	Mestry SN, Dhodi JB, Kumbhar SB, Juvekar	Attenuation of diabetic nephropathy in streptozotocin-induced diabetic rats by Punica granatum Linn. Leaves extract	Journal of Traditional and Complementary Medicine	7	273-280	2016
55.	Gawali NB, Bulani VD, Gursahani MS, Deshpande PS, Kothavade PS, Juvekar AR	Agmatine attenuates chronic unpredictable mild stress-induced anxiety, depression-like behaviours and cognitive impairment by modulating nitrergic signalling pathway	Brain Research	1663	66-77	2017
56.	Waghmare V, Wadke P, Dyawanapelly S, Deshpande A, Jain R, Dandekar P.	Starch Based Nanofibrous Scaffolds for Wound Healing Applications, Bioactive Materials	In Press, Corrected Proof			2017
57.	More, M.P., Ganguly, P.R., Pandey, A.P., Dandekar, P.P., Jain, R.D., Patil, P.O., Deshmukh, P.K.	Development of surface engineered mesoporous alumina nanoparticles: Drug release aspects and cytotoxicity assessment	IET Nanobiotechnology	11	661-668	2017
58.	Yadav V, , Jain R*, Dandekar P	Influence of sodium hydroxide in enhancing the surface plasmon resonance of silver nanoparticles,	Materials Research Express,	4,	085015,	2017
59.	Yadav V, Krishnan RA, Borde L, Shirolikar S, Jain R, Dandekar P	pH tunability and influence of alkali metal basicity on the plasmonic resonance of silver nanoparticles,	Materials Research Express	4,	075021	2017
60.	Wadke P, Chhabra R, Jain R, Dandekar P.	Silver-embedded starch-based nanofibrous mats for soft tissue engineering,	Surfaces and Interfaces	8,	137-146	2017
61.	Bangde P, Atale S, Dey A, Pandit A,Dandekar P, Jain R.	Potential Gene Therapy Towards Treating Neurodegenerative Diseases Employing Polymeric Nanosystems,	Current Gene Therapy,	17,	170-183,	2017

62.	Dobhal A, Kulkarni A, Dandekar P, Jain R.	Microreactor-based continuous process for controlled synthesis of Poly-Methyl-Methacrylate-Methacrylic acid (PMMA) nanoparticles,	Journal of Materials Chemistry B,	5,	3404–3417	2017
63.	Dyawanapelly S, Jagtap D D, Dandekar P, Ghosh G, Jain R.	Assessing safety and protein interactions of surface-modified iron oxide nanoparticles for potential use in biomedical areas	Colloids and Surfaces B: Biointerfaces	154	408–420	2017
64.	Poonam Agrawal, KS Laddha	Development of validated high-performance thin layer chromatography for quantification of aristolochic acid in different species of the Aristolochiaceae family	Journal of food and drug analysis	1-5		2016
65.	Vandana Jain1, Vedang Kinjawadekar1, Kirti Laddha	A novel high-performance thin layer chromatography method for quantification of long chain aliphatic hydrocarbons from Cissus quadrangularis	Journal of Pharmacy & Pharmacognosy Research	4(4)	159-164	2016
66.	A.U. Arvindekar, K.S. Laddha	An efficient microwave-assisted extraction of anthraquinones fromRheum emodi: Optimisation using RSM, UV and HPLC analysis andantioxidant studiesA	Indian crops and products	83	587-595	2016
67.	Snehal Bhandare KS laddha	Simultaneous quantification of kaempferol and quercetin in medicinal plants using hptlc	IJPER	7 (6)	2379-2384.	2016
68.	Snehal Bhandare KS LAddha	Isolation of kaempferol and quercetin from podophyllum hexandrum rhizome.	IJPBS	7(2)	98-100	2016
69.	S. P. Patil and K. S. Laddha	Simple method of isolation of loganin from nux vomica fruits and its quantification by hplc	IJP	4(1)	39-42	2016
70.	P. Prabhu, S. Suryavanshi, S. Pathak, A. Patra, S. Sharma, V. Patravale	Nanostructured lipid carriers of artemether–lumefantrine combination for intravenous therapy of cerebral malaria..:	International Journal of Pharmaceutics	513	504-517	2016
71.	P. Prabhu, S. Suryavanshi, S. Pathak, S. Sharma, V. Patravale.	Artemether–lumefantrine nanostructured lipid carriers for oral malaria therapy: Enhanced efficacy at reduced dose and dosing frequency.	International Journal of Pharmaceutics	511	473–487	2016
72.	M. Chaudhari, P. Desai, P. Patel, V. Patravale	Solid lipid nanoparticles of amphotericin B (AmbiOnp): in vitro and in vivo assessment towards safe and effective oral treatment module	Drug Delivery and Translational Research	6	54-64	2016
73.	P. Prabhu, V. Patravale	Dissolution enhancement of atorvastatin calcium by co-grinding technique.	Drug Delivery and Translational Research	6	380-391	2016
Review Articale						
74.	R. Bhuptani, K. Deshpande,V. Patravale.	Transungual permeation: current insights.	Drug Delivery and Translational Research	6	426-439	2016
75.	Roopali Redkar, Vaibhavi Peshattiwar, Sadhana Sathaye	Neuroprotective Effects Of Ocimum Sanctum, Linn Extract On Mptp-Induced Oxidative And Nitrosative Stress Markers In Male Mouse Brain	International Journal of Pharmaceutical Sciences and Research (In Press)	-	-	2016
76.	Tarun Bhatia, Priya Ghumatkar, Sadhana Satahye.	Role of Presenilin-1 in modulating Glycogen Syntahse Kinase 3 β Expression in the pathogenesis of Alzheimer's disease,	IOSR Journal of pharmacy and biological Sciences (IOSR-JPBS)	11(5)	87-97	2016

77.	Neha Chitre, Priya Ghumatkar, Sadhana Sathaye.	The role of M1/ M2 transition of the brain macrophages in Alzheimer's disease.	IOSR Journal of pharmacy and biological Sciences (IOSR-JPBS)	11(5)	72-78	2016
78.	Urmi Chedda, Aakruti kaikini, Sneha Bagle, Madhav Seervi, Sadhana Satahye.	In vitro pancreatic lipase inhibition potential of commonly used Indian spices.	IOSR Journal of Pharmacy	6(10)	10-13	2016
79.	Divya Kanchan, Gauresh Somani, Smita Kale, Aakruti Kaikini, Sadhana Sathaye	Thymol, a monoterpene, inhibits aldose reductase and high-glucose-induced cataract on isolated goat lens.	Journal of Pharmacy and Bioallied Sciences	8(4):.	277–283	2016 Oct-Dec
80.	R. G. Redkar, V. V. Peshattiwar and S. Sathaye	Neuroprotective effects of ocimum sanctum, linn. Extract on mptp-induced oxidative and nitrosative stress markers in male mouse brain	International Journal of Pharmaceutical Sciences and Research	8 (4)	1694-1700	2017
81.	D. Vathalani, V. V. Peshattiwar and S. Sathaye;	Anti-Oxidant Potential Of Methanolic Extract Of Trigonella Foenum, Trachyspermum Copticum, Nigella Sativa And Their Combination in 1:1:1 ratio.	International Journal of Pharmaceutical Sciences and Research	8 (4)	1701-1707	2017
82.	Disha Vithlani, Vaibhavi Peshattiwar, Sadhana Sathaye,	Anti-Oxidant Potential Of Methanolic Extract Of Trigonella Foenum, Trachyspermum Copticum, Nigella Sativa And Their Combination In 1:1:1 Ratio	International Journal of Pharmaceutical Sciences and Research			2017
83.	Pankaj Jain, Rufi Tambe, Sachin Patil, Priya Ghumatkar, Suraj Muke, Vaibhavi Peshattiwar, Devang Sarvaiya, Sadhana Sathaye.	Antiepileptogenic And Neuroprotective Effects Of A-Pinene In Pentylenetetrazole Induced Kindling Model Of Epilepsy In Mice.	Pharmaceutical Biology	55(1)	264-268	2016
84.	Devang sarvaiya, Pankaj Jain, Priya Ghumatkar, Madhav Seervi, Sadhana Sathaye.	Development And Validation Of Hplc Method For Rifampicin And Its Application In Pharmacokinetic Studies	PHARMANEST - An International Journal of Advances in Pharmaceutical Sciences	7(6)		2016
85.	Jaishree K. Mali, Devidas A. Mali, Vikas N. Telvekar	Copper-II mediated tandem reaction between aromatic ketones and 2-aminobenzenethiol for the synthesis of 2-aroylbenzothiazoles	Tetrahedron Letters	57	2324-2326	2016
86.	Wavikar, P., Pai, R., Vavia, P.	Nose to Brain Delivery of Rivastigmine by In Situ Gelling Cationic Nanostructured Lipid Carriers: Enhanced Brain Distribution and Pharmacodynamics	Journal of Pharmaceutical Sciences	106	3613-3622	2017
87.	Vora, L.K., Donnelly, R.F., Larrañeta, E., (...), Thakur, R.R.S., Vavia, P.R.	Novel bilayer dissolving microneedle arrays with concentrated PLGA nano microparticles for targeted intradermal delivery: Proof of concept	Journal of Controlled Release	265	93-101	2017
88.	Vora L., Sita V. G., Vavia P.	Zero order-controlled release delivery of cholecalciferol from injectable biodegradable microsphere: In-vitro characterization and in-vivo pharmacokinetic studies	European Journal of Pharmaceutical Sciences	107	78-86	2017
89.	Darandale S., Shevalkar G., Vavia P.	Effect of Lipid Composition in Propofol Formulations: Decisive Component in Reducing the Free Propofol Content and Improving Pharmacodynamic Profiles	AAPS PharmSciTech	18	441-50	2017

90.	Pawar S., Mahajan K., Vavia P.	" In Vivo Anticancer Efficacy and Toxicity Studies of a Novel Polymer Conjugate N-Acetyl Glucosamine (NAG)–PEG–Doxorubicin for Targeted Cancer Therapy	AAPS PharmSciTech	18	3021-3033	2017
91.	Jadhav N., Vavia P.	Dodecylamine Template-Based Hexagonal Mesoporous Silica (HMS) as a Carrier for Improved Oral Delivery of Fenofibrate	AAPS PharmSciTech	18(7)	2764-2773	2017
92.	Jadhav N., Vavia P.	Supercritical processed Starch nanosponge as a carrier for enhancement of dissolution and pharmacological efficacy of Fenofibrate	International Journal of Biological Macromolecules	99	713-20	2017
93.	Wavikar, P., Pai, R., Vavia, P.	Nose to Brain Delivery of Rivastigmine by In Situ Gelling Cationic Nanostructured Lipid Carriers: Enhanced Brain Distribution and Pharmacodynamics	Journal of Pharmaceutical Sciences		1-25	2017
94.	Pawar S., Shevalkar G., Vavia P.	Glucosamine-anchored Doxorubicin-loaded Targeted Nano-niosomes: Pharmacokinetic, Toxicity and Pharmacodynamic evaluation	Journal of Drug Targeting	24	730-43	2016
95.	Pawar S., Vavia P.	Glucosamine anchored cancer targeted nano-vesicular drug delivery system of doxorubicin	Journal of Drug Targeting	24	68-79	2016

PATENTS : Applied/Granted

No.	Inventors	Title	Country	Funding agency
PROFESSOR P. D. AMIN				
9	Gejage Santosh Maruti, Moravkar Kailas Kalicharn, Khatik Tousif Ayyub, Amin, Purnima Dhanraj	"201621015220" Continuous manufacturing process for preparing directly compressible grade api's by melt granulation technology	India	Self
10	Gejage Santosh Maruti, Divakar Ramsawar Jaiswar , Shinde Umesh Keshav, Amin, Purnima Dhanraj, Aware Rahul Suresh, Boundugulapti Murali Krishna, Vasanth Kumar Shetty, Shirish Dhande.	Pharmaceutical compositions containing melt extruded ibuprofen and fixed dose combinations thereof	India	Sci- Tech Centre Jogeshwari
DR. GANESH U. CHATURBHUJ				
11	Ganesh Chaturbhuj, Chetan Khatri	Preparation of sulfated polyborate and its application, July 2016	Indian Patent office	NIL
PROFESSOR PADMA V. DEVARAJAN				
12	Devarajan P. V., Das Saugandha, Devarajan Archit	201721018468 Device for conserving low temperatures	India	BIRAC-SRISTI
13	Devarajan P. V., Lokhande Amit S	201721011288 Dialysis assembly for dissolution testing	India	INN TEQIP
14	Devarajan P. V., Maithania Heena	201621024980 Pharmaceutical compositions that spontaneously form lipidic particulate dispersions	India	TEQIP
15	Devarajan P. V., Chawla Shweta, Gorakshakar Ajit, Madkaikar Manisha, Ghosh K.	201721046817 A Kit for Extended Blood Group Determination and Method Thereof	India	--
DR. PRAJAKTA DANDEKAR JAIN				
16	Dandekar Jain Prajakta, Jain Ratnesh, Gore Manish Ravikiran,	Microfluidic Device for the development of in-vitro co-cultures of Mammalian Tissues,	International PCT Patent Application, PCT/IN2017/000071	RUSA

17	Gore Manish Ravikiran, Dandekar Jain Prajakta, Jain Ratnesh,	Microfluidic device for the development of in-vitro co-cultures of mammalian tissues	Indian Patent Application No.201621000456, 2016.	DST
18	Gore Manish Ravikiran, Dandekar Jain Prajakta, Jain	Ratnesh,Microfluidic platform for in-vitro co-cultures of mammalian tissues	Indian Design Application No.279195, 2016	RUSA
PROFESSOR V. B. PATRAVALE				
19	Prof. Vandana B. Patravale	Novel dendrimer and application thereof (201621034246)	India	Self-Applied
20	Prof. Vandana B. Patravale	Stable atovaquone nanoparticles with increased bioavailability and pharmaceutical composition of the same (201621020162)	India	Self-Applied
21	Prof. Vandana B. Patravale	Lipidic nanoparticles based composition and method of formulation and use thereof (3329/MUM/2010)	India	Self-Granted
22	Prof. Vandana B. Patravale	Pharmaceutical composition of curcumin (Indian Patent No. 283059)	India	Self-Granted

ENDOWMENT FELLOWSHIPS AND LECTURES ORGANIZED

Sr. No	Date of Lecture	Fellowship	Distinguished speaker/ Affiliation	Title of Lecture
1	25th January, 2017	AAIPS- Dr. R. S. Baichwal Seminar	Dr. Kailas Thakker Co-Fouder and chief operating officer of Tergus Pharma 317 Dalton Drive Raleigh, NC 27615-1655	Changing Regulatory Environment for Development of Semisolid Dosage Forms
			Dr. Maharukh Rustomjee 509, Annex 3, Ness Baug, Nana Chowk. Mumbai 400 007.	Bioavailability and bioequivalence implications of topical dermatological products
			Dr. Amrita Bajaj Adjunct Professor-Pharmaceutics Pharmacy Institutes of NMIMS SPP SPTM SVKM's NMIMS & BNCP A-4501, D B Towers, Gokuldham, Gokuldham, Goregaon, Mumbai 400 063.	Novel evaluation strategies for transdermal delivery
2	February 17, 2017	Cipla Distinguished Fellowship in Pharmaceutical Science1	Dr. Dimitrios A. Lamprou Strathclyde Institute of Pharmacy and Biomedical Sciences (SIPBS), University of Strathclyde, 161Cathedral Street, Glasgow, G4 0RE, Scotland, UK	Nanotechnology Applications in Drug Delivery and Tissue Engineering
3	16th March, 2017	The Cipla Distinguished Fellow in Pharmaceutical Science Lecture	Prof. Srinivas Hotha ISSER Pune	From Agony to Ecstasy: A Decade Long 'Gold'en Journey from Diversity to Discovery
4	16th March, 2017	Themis Medicare Uict Diamond Jubilee Distinguished Fellow In Pharmaceutical Science Lecture	Prof. S. J. Gharpur, IIT Mumbai	New strategies for the synthesis of oxa- and aza-cycles
5	20 March, 2017	Professor V. M. Kulkarni Endowment Lectures	Dr. B. Gopalan,Ph.D. Chief Scientific Officer & Executive Director, Drug Discovery Research, Orchid & Pharma Ltd, Plot No.476/14, Old Mahabalipuram Road, Sholinganallur, Chennai – 600119.	Synthetic challenges in small molecule Drug Discovery Research in Indian industry, my experiences
6	26th April 2017	Dr. S.K. Pradhan Endowment Lectures	Dr. Subhash P. Chavan, Chief Scientist – Division of Organic Chemistry - Technology, National Chemical Laboratory, Pune	Lecture (1) : Synthesis of some pharmaceutical compounds of commercial relevance
				Lecture (2): Synthesis of Biologically active compounds & development of synthetic methodologies

ORAL / POSTER PRESENTATIONS:

PROFESSOR P .V. DEVARAJAN

- Amit S. Lokhande*, Padma V. Devarajan presented a poster titled "In Vitro Release Testing of Microparticles Co-encapsulated with Anti-Tubercular Three Drug Combination",at Disso India Mumbai- an International Annual Symposium on Dissolution Science, Organized by SPDS (Society for Pharmaceutical Dissolution Science) in association with SOTAX AG, on 8th & 9th June 2017, at The Leela, Mumbai, India.
- Saugandha Das*, Padma V. Devarajanpresented a poster titled "Optimization of Dissolution method for Amphotericin B Nanoformulations", at Disso India Mumbai- an International Annual Symposium on Dissolution Science, Organized by SPDS (Society for Pharmaceutical Dissolution Science) in association with SOTAX AG, on 8th & 9th June 2017, at The Leela, Mumbai, India.
- Priyanka Jahagirdar*, Pramod Kumar Gupta, Savita Kulkarni and Padma V. Devarajanpresented a Poster titled "Nanocurcumin Mediated Autophagy Modulation in M.tuberculosis infected Murine Macrophages", at South Asian College an Affiliate of American College of Clinical Pharmacology (SAC-ACCP) 10th Annual International Conference on "Clinical Pharmacology for healthy ageing" on 30th April-1st May 2017, held at Nehru Centre, Worli, Mumbai, India.
- Sagar Bachhav*, Vikas Dighe and Padma V. Devarajan,presented Oral presentationon topic titled "Rifampicin Nanoparticles for Oral to Lung Delivery", at South Asian College an Affiliate of American College of Clinical Pharmacology (SAC-ACCP) 10th Annual International Conference on "Clinical Pharmacology for healthy ageing" on 30th April-1st May 2017, held at Nehru Centre, Worli, Mumbai, India.
- Amit S. Lokhande*, Parth N. Kadakia, Padma V. Devarajan presented Oral presentationon topic titled "Ophthalmic ATIS (Aqua Triggered in Situ) Gel of Curcumin for Diabetic Eye Complications", at South Asian College an Affiliate of American College of Clinical Pharmacology (SAC-ACCP) 10th Annual International Conference on "Clinical Pharmacology for healthy ageing" on 30th April-1st May 2017, held at Nehru Centre, Worli, Mumbai, India.
- Heena V. Maithania*, Abdul Samad, and Padma V. DevarajanPresented a poster for Contribution in commercialization of the Technology titled as "Solid lipid Nanocarriers a Revolutionary Approach for targeted therapy in Theileriosis", at XXIII Annual Convention of Indian Society for Veterinary Immunology & Biotechnology National conference on Challenges in Livestock and Poultry Production-solutions with Biotechnology, on 19th April 2017, held at Krantisinh Nana Patil College of Veterinary Sciences, Shirval, Pune, India.
- Suraj K. More*, Amit S. Lokhande, Padma V. Devarajan, presented a Poster titled "Role of Oils on Enhanced Solubility of Curcumin in Microemulsion", at Savitribai Phule sponsored two days National Conference on "Opportunities and Challenges in Development of Herbal Formulation", organized by Amrutvahini College of pharmacy, Sangamner, Ahmednagar, Maharashtra, India from 10th to 11th February 2017.
- Amit S. Lokhande*, Padma V. Devarajan, presented a Poster titled "Insulin Dissociation: Strategy for Enhanced Sublingual Permeation from Microemulsion", at 2nd National Conference of Institute of pharmacy, NCIP 2017, on "Emerging Trends in Drug Delivery, Development and Molecular Targets for Cancer Research" Organized by Nirma University, Ahemdabad & supported by SERB, DRDO and ICMR, India, from 24th to 25th January 2017 at Nirma University, Ahemdabad, Gujarat, India.
- Amit S. Lokhande*, Padma V. Devarajanpresented a poster titled "Simultaneous Incorporation of Multiple Drugs in Polymeric Microparticles by Precipitation in a Single Step", at "Nanobioteck-2016 - 1st Annual Meeting of Indian Society of Nanomedicine" organized jointly by DBT, Govt. of India & AIIMS, New Delhi, from 24th to 26th November, 2016 at AIIMS, New Delhi.
- Sagar Bachhav*, Vikas Dighe and Padma V. Devarajanpresented a poster titled "Effect of Rifampicin Nanoparticles Hydrophobicity on Peyer's Patch Uptake", at "Nanobioteck-2016 - 1st Annual Meeting of Indian Society of Nanomedicine" organized jointly by DBT, Govt. of India & AIIMS, New Delhi, from 24th to 26th November, 2016 at AIIMS, New Delhi.

DR. PRAJAKTA DANDEKAR JAIN

- Gore M, Chhabra R, Waval A, Bute M,Gadge S, Mathpati CS, Gosavi S, Jain R and Dandekar P (2017), Design, Fabrication and Optimization of micro-bioreactor for in-vitro development of human skin tissue, Poster Presentation and exhibition at 3rd TEQIP-INN Meeting and Exhibition, ICT-Mumbai, India, March 2017
- Pant T, Murarka V, Dandekar P and Jain R (2017), Development of microcarrier based platform for high density cellular growth and production of biologics, Poster presentation and exhibition at 3rd TEQIP-INN Meeting and Exhibition, ICT-Mumbai, March 2017
- Dobhal A, Kulkarni A,Dandekar P and Jain R (2017), Microfluidic platform for the controlled synthesis of polymeric nanoparticles, Poster Presentation at Nano India 2017, Indian Institute of Technology, Delhi, India, March 2017.
- Deokuliar A, Dhobhal A, Balasaheb C, Khushlani D, Dandekar P and Jain R (2017), Implications for Nano-Biointeractions in Cellular Studies, Poster Presentation atNanoIndia-2017, IIT, New Delhi, India, March 2017.
- PrachiBangde, Dharmendra Prajapati, Ratnesh Jain, Anant R. Kapdi and Prajakta Dandekar (2016), Water-soluble palladium complexes as potential anticancer agents, Poster Presentation at NRSM-2016, ACTREC-Kharghar, India, December 2016.
- Pradeep Bhartiya, UdayKoli, Prajakta Dandekar, Ratnesh Jain, Deepak Modi (2016), In vivo knockdown of GFP using siRNA loaded polymeric nanoparticles, Poster presentation at NRSM-2016, ACTREC-Kharghar, India, December 2016.
- R Akhil Krishnan, SathishDyawanapelly, Tejal Pant, Ratnesh Jain, Prajakta Dandekar (2016), Protective nature of low molecular weight chitosan in a Chitosan-Amphotericin B (C-AMP) nanocomplex, Poster presentation at 11th Asia Pacific Chitin and chitosan symposium and 5th Indian Chitin and Chitosan Society Symposium, IMA House, Kochi, India, September 2016.
- Nikhil Kalane, R Akhil Krishnan, Ratnesh Jain, Prajakta Dandekar (2016), Synergistic effect of hetero and homo catalysts on the synthesis of 5-hydroxymethyl furfural (HMF) from chitosan, Poster presentation at 11th Asia Pacific Chitin and chitosan symposium and 5th Indian Chitin and Chitosan Society Symposium, IMA House, Kochi, India, September 2016.
- Saurabh Patil, R Akhil Krishnan, ShashankBhangde, Prajakta Dandekar, Ratnesh Jain (2016), Comparison between solid and liquid acid catalysts for the synthesis of low molecular weight chitosan, Poster presentation at 11th Asia Pacific Chitin and chitosan symposium and 5th Indian Chitin and Chitosan Society Symposium, IMA House, Kochi, India, September 2016.

- PrachiBangde, Ratnesh Jain and Prajakta Dandekar (2016), Green approach for synthesis of Trimethyl Chitosan, poster Presentation at 11th Asia Pacific Chitin and Chitosan Symposium & 5th Indian Chitin and Chitosan Society Symposium, Kochi, Kerala, India, September 2016.
- UdayKoli, Pradeep Bhartiya, Deepak Modi, Ratnesh Jain and Prajakta Dandekar(2016), Gene silencing using chitosan oligosaccharide-siRNA nanoplexes for alleviating lung diseases, Poster Presentation at CRS Annual Meeting & Exposition, Seattle, Washington USA, July 2016
- Rohan Chhabra, Aparna Deshpande, Ratnesh Jain and Prajakta Dandekar. (2016) Novel Starch Based 3D Scaffolds as Dermal Substitute for Skin Tissue Engineering, Poster Presentation at CRS Annual Meeting & Exposition, Seattle, Washington USA, July 2016

PROFESSOR S. SATHAYE

- Aakruti Kaikini; Thymol exhibits potent anti-glycation properties InVitro and InVivo, Indian council of Medical research sponsored two days National symposium on 'CurrentScenario of Pharmacological Experimentation and Interpretations' at Prin.K MKundanani college of pharmacy, Colaba, Mumbai 2nd and 3rd September 2016
- Suraj Muke; Osteoprotective Effect of Lawsonia inermis.", Indian council of Medical research sponsored two days National symposium on 'Current Scenario of Pharmacological Experimentation and Interpretations' at Prin.K M Kundanani college of pharmacy, Colaba, Mumbai 2nd and 3rd September 2016
- Suraj Muke; Anti-epileptic evaluation of coumarin extract isolated from Eclipta alba in acute zebra fish and rodent models of epilepsy, 2nd International Conference on Epilepsy and Treatment, Rome Aurelia Italy. 20-21 October 2016
- Vaibhavi Peshattiwar; Mechanistic investigation of neuroprotective effect of metformin in SH-SH5Y cell culture, Indian council of Medical research sponsored two days National symposium on 'Current Scenario of Pharmacological Experimentation and Interpretations' at Prin.K M Kundanani college of pharmacy, Colaba, Mumbai ,2nd and 3rd September 2016

PROFESSOR P. R. VAVIA

Oral presentations

1. Yadav Nisha, Nakhwa Yash, Vavia Pradeep, "Quality based lipidic nanoparticles of Quercetin as a substitute therapy for resistant cancer". 68th Indian pharmaceutical Congress, Vishakhapatnam, December 2016.

Poster presentations

A. International

- Yadav Nisha, Vavia Pradeep et al, "Novel and new avenue for pharmaceutical industries-"PVA EG-48 CRM" A release controlling polymer in Carbamazepine controlled release tablets", Annual Meeting and Exposition, Controlled Release Society, Boston, USA 2017.
- Patel Mayank, Vavia Pradeep et al, "Formulation and evaluation of modified β-cyclodextrin self-assembling nano-vesicles with tamoxifen citrate", Annual Meeting and Exposition, Controlled Release Society, Boston, USA 2017.
- Shevalkar Ganesh, Vavia Pradeep et al, "Painless nano-formulation of Propofol for improved parenteral delivery ", Annual Meeting and Exposition, Controlled Release Society, Boston, USA 2017.
- Lalit Vora, P González-Vázquez, R.F. Donnelly and Pradeep Vavia, "Novel bilayer microneedles formulation approach by in-situ nanoparticles generation: proof of concept" 7th Academy of Pharmaceutical sciences of Great Britain (APS) conference 2016 at Glasgow, UK.

B. National

- Mayur Patil, Manoj Pawar, Pradeep Vavia, "Design and Development of first of its kind formulation of Trazodone hydrochloride-An alternative approach for enhancing compliance in psychiatric patients", 68th Indian pharmaceutical Congress, Vishakhapatnam, December 2016.
- Satish Rojekar, Nitin Jadhav, Pradeep Vavia, "Pickering dry emulsion system for enhancement of dissolution and efficacy of poorly water soluble fenofibrate",68th Indian pharmaceutical Congress, Vishakhapatnam, December 2016.

SEMINAR / WORSHOP/ CONFERENCE / SYNOPSIS

PROFESSOR K. G. AKAMANCHI

- Flow Chemistry and Pharmaceutical Applications, The Bomaby College of Pharmacy, Mumbai, 14th Nov 2016
- Dendritic Heterolipids Encapsulated Camptothecin in self Micro emulsification System with Enhanced Solubility and Anticancer Activity: in vitro and in silico evaluation by Dinesh Dhumal, 2016 symposium on biomaterial science Renaissance wood bridge hotel lselin NJ USA by New Jersey center of biomaterial, 24th -25th Oct 2016
- Design, Synthesis and Application of novel dendritic lipids by Kapil Chaudhari, ''BiTerm 2016" International Conference on Biomaterials, Biodiagnostics, Tissue Engineering, Drug Delivery and Regenerative Medicine ,IIT, New Delhi by Society for Biomaterials and Artificial Organs (SBAOI), India and IIT, New Delhi, 15-17 April 2016
- New Steroselactive Route for Synthesis of Pragabalin (Got first prize for poster) By Archana Ghorpade, International Conference Nature Inspired Initiative in Chemical Trends (NIICT) Venue: IICT Hyderabad by CSIR-IICT (Hyderabad), 19th -20thsep 2016
- Synthesis of symmetrical and unsymmetrical urea and thiourea by sulfated tungstate by Ganesh Wagh third prize for poster, New vitas of chemical research by IIS University Jaipur, 17th – 18th Jan 2017
- O Iodoxybenzoic acid Mediated Oxysulfonylation of Alkenes with Sulfonylhydrazidesunder Transition metal-free Conditions for Synthesis of β-Ketosulfones by G.D.Wagh, A Tributary Symposium 100 years of Chemical Bonding by Institute of Chemical Technology (IICT), Hyderabad., 4th -5th Aug 2016
- Sulfated Tungstate catalyzed Oxysulfonylation of Alkene with Aryl sulfonylhydrazine-oxygen system by G.D.Wagh, 21st InternationalConference on Organic Synthesis (ICOS 21) at Institute of chemical technology (IIT), Mumbai by IUPAC, IIT (Mumbai), IICT(Hyderabad), 11th -16th Dec 2016
- Sulfated tungstate catalyst synthesis of C3-symmetric 1,3,5-triarylbenzene under solvent free conditions. by snhalata autade, New vitas of chemical research. Jaipur .by IIS university, 17th – 18th Jan 2017
- Palladium catalyzed arylation of electron rich acyclic olefins with arylsulfonylhydrazindes to offers arylmethylketones by snhalata autade, A Tributary symposium 100 years of chemical bonding Venue: Indian Institute of Chemical Technology (IICT), Hyderabad, Telangana, 4th -5th Aug 2016

PROFESSOR V. B. PATRAVALE

Conference/symposia presentations

- Lymphatic system Targeted Lipid Nanocarriers: A Promising Approach for Oral Treatment of Breast Cancer; Prabhu R; at International conference on Novel formulation strategies organized by SELECTBIO, Hyderabad, India, April 2017
- NanoMicide Gel and its Delivery Device: An Alternative to Condoms for Prevention of UAI Associated HIV; Mirani A; at International conference on Novel formulation strategies organized by SELECTBIO, Hyderabad, India, April 2017
- Novel Lipid Nanoformulation of Artemether-Lumefantrine Combination for Oral Malaria Therapy; Pawar R; at International conference on Novel formulation strategies organized by SELECTBIO, Hyderabad, India, April 2017
- Green Technology assisted nanocarriers of Genistein for Topical Delivery; Pai A., Bhuptani R., Patravale V; at International workshop on Topical Dermatological dosage forms organized by Controlled Release Society Indian Chapter and SciTech Centre, Mumbai, India, January 2017
- Detection of brucellosis in humans: a non-invasive and patient friendly approach; Vyas S., Pawar R., Jadhav S.,

Manjee S., Patravale V; at In vitro Diagnostics: Oncology and Infectious Diseases Conference, London, United Kingdom, November 2016

- Sub-unit nanovaccine for brucellosis using green technology; Dhoble S., Vyas S., Ghodake V., Patravale V; at 6th Indo-Japanese International Symposium on "Overcoming intractable infectious diseases prevalent in Asian countries" Goa, India, September 2016
- Lipid based cochleates for oral delivery of gentamicin sulphate; Dhoble S., Dhage S., Patravale V; at 6th Indo-Japanese International Symposium on "Overcoming intractable infectious diseases prevalent in Asian countries" Goa, India, September 2016
- Chitosan nanoparticles for the delivery of anti-tuberculosis agents; Chogale M., Patravale V; at 6th Indo-Japanese International Symposium on "Overcoming intractable infectious diseases prevalent in Asian countries" Goa, India, September 2016
- RESS: A novel approach for the fabrication of inhalable rifampicin nanocrystals; Chogale M., Talkar S., Patravale V; at 6th Indo-Japanese International Symposium on "Overcoming intractable infectious diseases prevalent in Asian countries" Goa, India, September 2016
- Inhalable rifampicin nanocrystals: an alternative approach for tuberculosis therapy; Chogale M., Ghodake V., Patravale V; at 6th Indo-Japanese International Symposium on "Overcoming intractable infectious diseases prevalent in Asian countries" Goa, India, September 2016
- Bioenhancedatovaquone for oral delivery; Darade, A., Pathak, S., Sharma, S., Patravale, V; at 6th Indo-Japanese International Symposium on "Overcoming intractable infectious diseases prevalent in Asian countries" Goa, India, September 2016
- Punicagranatum Extract Loaded Nanomicrobicide Gel for Prophylaxis of HIV transmission; Mirani A., Kundaikar H., Velhal S., BandivdekarA., Degani M., Patravale V; at 6th Indo-Japanese International Symposium on "Overcoming intractable infectious diseases prevalent in Asian countries" Goa, India, September 2016
- Development and characterization of metallodendrimer with broad spectrum anti-bacterial activity; Pukale S., Sane M., Patravale V; at 6th Indo-Japanese International Symposium on "Overcoming intractable infectious diseases prevalent in Asian countries" Goa, India, September 2016
- Evaluation of 'curcumin' vs. 'curcumin analogue' as GP120-CD4 binding inhibitor: in silico &in vitro screening; Mirani A., Kundaikar H., Kharkar P., Shilpa V., Bandivdekar A., Degani M., Patravale V; at 6th Indo-Japanese International Symposium on "Overcoming intractable infectious diseases prevalent in Asian countries" Goa, India, September 2016
- Surface modified nanotherapeutics for cerebral malaria treatment; Jain S., Upadhaya P., Pathak, S., Sharma, S., Patravale V.; at 6th Indo-Japanese International Symposium on "Overcoming intractable infectious diseases prevalent in Asian countries" Goa, India, September 2016
- Development of atovaquone nanosuspension for treatment of pneumonia:quality by design (QbD) approach; Kakade P.,Gite S., Patravale V; at 6th Indo-Japanese International Symposium on "Overcoming intractable infectious diseases prevalent in Asian countries" Goa, India, September 2016
- Exploring nanostructured lipid carriers (NLC) as potential vaccine adjuvants; Prabhu, P.1, Prabhu, R.1, Pathak, S.2, Sharma, S.2, Patravale, V.1; at 6th Indo-Japanese International Symposium on "Overcoming intractable infectious diseases prevalent in Asian countries" Goa, India, September 2016
- Anti-malarial efficacy of lipid nanoparticles: combination of curcumin-arteethervsellagic acid-arteether; Gugulothu D1., Pawar R1., Pathak S2., Sharma S2., Patravale V1; at 6th Indo-Japanese International Symposium on "Overcoming intractable infectious diseases prevalent in Asian countries" Goa, India, September 2016
- Novel metallodendrimer hydrogel for wound care; Pukale S., Bhuptani R., Patravale V.; at 6th Indo-Japanese International Symposium on "Overcoming intractable infectious diseases prevalent in Asian countries" Goa, India, September 2016
- Nano by Design Approach for Development of Camellia sinensis Extract Loaded Rectal Nanomicrobicide Gel; Gite S., Mirani A., Velhal S., BandivdekarA., Patravale V; at 6th Indo-Japanese International Symposium on "Overcoming intractable infectious diseases prevalent in Asian countries" Goa, India, September 2016
- Molecular modelling of nattokinase and its delivery as intranasal microemulsion for the treatment of HIV induced neurodegeneration; Naik S.V., Patravale V.B.; at 6th Indo-Japanese International Symposium on "Overcoming intractable infectious diseases prevalent in Asian countries" Goa, India, September 2016
- Immunochromatographic diagnostic test for detection of brucellosis in humans;Vyas S., M.K. Soumya, Bhatia L., Patravale V; at 6th Indo-Japanese International Symposium on "Overcoming intractable infectious diseases prevalent in Asian countries" Goa, India, September 2016

PROFESSOR S. SATHAYE

- Evaluation of anti-arthritic activity of homeopathic medicines in Wistar Rats, World Homeopathy Summit on Recent Advances in Scientific Research, Mumbai, April 2015
- Biomarkers and disease mechanisms in neurological/ neurodegenerative disorders, Neurological Disorders Summit 2015, San Francisco, USA, July 2015
- Pharmacokinetic and biodistribution of alternative medicines using radiolabeling, The foundation of Medical Research, Mumbai, Oct 2015
- Anti-oxidants and aging, Lokmanya Nagar, Dec 2015
- Research Methodology in Pharmacology, L. H. Hiranandani College of Pharmacy, Mumbai, Jan 2016
- Health and Disease, Vanita Samaj, Dadar, June 2016

MEMBERSHIP OF IN-HOUSE COMMITTEES

PROFESSOR M. S. DEGANI

- Fellow of Maharashtra Academy of Sciences
- Life member of Indian Pharmaceutical Association.
- Life member of Indian Women Scientists Association (AWSA)
- Member of Third World Organization of Women's Association in Science.
- Life member of APTI.
- Life member UDCT alumni association.
- Member of American Chemical Society

PROFESSOR K. G. AKAMANCHI

- R C member dept of chem.
- Co-ordinator TEQIP R & D committee
- Admission committee for PG Pharma Dept.
- Fellowship enhancement committees
- Research Assistants selection committee.
- Member academic council
- Member, Board of Management ICT
- Member, Senate ICT

PROFESSOR P. D. AMIN

- Unfair Means committee

PROFESSOR P. V. DEVARAJAN

- Institute TEQIP Coordinator
- Coordinator of M. Tech Pharmaceutical Biotechnology Course
- Member UGPC
- Member PGPC
- Member Academic Council
- Member Anti-ragging Committee
- Member Library Committee

DR. PRAJAKTA DANDEKAR JAIN

- Member, UDCT Alumni Association

PROFESSOR K. S. LADDHA

- Dean Infrastructure and Campus Development
- Chairman, Purchase Committee
- Telecom Incharge

PROFESSOR V. B. PATRAVALE

- Editor, Bombay Technologist
- Lab in-charge, Undergraduate Pharmaceutics Laboratory
- Member, Inhouse Committee
- In-charge, B. Tech. Projects, Department of

Pharmaceutical Sciences and Technology
- In-Charge, Pharmacy Council of India, Department of Pharmaceutical Sciences and Technology

PROFESSOR S. SATHAYE
- Chair person of Institutional Animal Ethics Committee.
- Co-ordinator for placements of Dept. of Pharmaceutical Sciences and Technology.
- Member of Safety Committee.
- Student's welfare Committee.
- Member of examination squad.

DR. V. N. TELVEKAR
- Member of Scrap Committee
- In-Charge of In plant training;
- In-Charge of industrial visit
- In-Charge of Community Service

PROFESSOR P. R. VAVIA
- Dean, Academic Program
- Colloquium in-charge, ICT
- In-plant training co-ordinator, Pharmaceutical Department, ICT
- Member, Institutional animal ethics committee, ICT
- Chairman, Examination committee, ICT
- Member, Equal Opportunity Cell, ICT
- Member, Fee's committee, ICT

INVITED LECTURES:

PROFESSOR M. S. DEGANI
- Speaker at the India Bio-Pharma Landscape Conference "Collaborate to Innovate - Connecting end-to-end drug manufacturing with technology and innovation" 25th April 2018 Bombay Exhibition Center, Mumbai on Developing the next generation of Bio-pharma leaders – Making India the hot bed of innovation and scientific research

PROFESSOR P. D. AMIN
- Guest Lecture at VI. Formulation & Regulatory Workshop in March 02, 2017, Merck Lifescience Pvt. Ltd. Mumbai

PROFESSOR P. V. DEVARJAN
- Program co-chair at "Disso-Europe 2016: Advances and applications in Dissolution science" organized by SPDS in association with Romanian Academy Section of Medical Sciences and Romanian Society for Pharmaceutical Sciences & delivered a lecture on topic titled, "Drug release Methodologies for nanomedicines, addressing challenges", held at Bucharest, Romania, 19th to 22nd October 2016.
- Program co-chair at "Disso India Ahmedabad 2016: International Annual Symposium on Dissolution Science", organized by SPDS at Courtyard by Marriot, Ahmedabad, Gujarat, India, on 26th to 27th July 2016 and delivered a lecture on topic titled, "Dissolution Testing During Product Development".
- Delivered a lecture on topic titled "In situ nanosystem: A revolutionary approach in drug delivery", at Free University of Berlin, Germany, on 17th October, 2016.
- Delivered a lecture on topic titled "In situ systems for infectious diseases", at University of Hannover, Germany on 18th October, 2016
- Delivered lectures at St. Petersburg ITMO University, Russia under the DST-Russian Federation for Basic Research grant, titled, "Taste masking Technologies for the Design of Palatable Drug Formulations". September 2016.
- Delivered a lecture on topic titled, "Challenges in Protein Formulation Development", Organized by Sinhgad College of Pharmacy (SCOP), at Savitribai Phule Pune University sponsored seminar on Therapeutic proteins: Challenges & Opportunities, 7th February 2017 at Sinhgad college of pharmacy, Vadgaon Budruk, Pune, Maharashtra, India.

PROFESSOR V. B. PATRAVALE
- Smart lipid nanocarriers: Potential for intracellular targeting, Global Conference on Pharmaceutics andDrug Delivery Systems, Valencia, Spain 2017
- Functionalized lipid based novel nanopharmaceuticals for neurodegenerative disorders, Three days national conference on Neurodegenerative diseases: Stratergies of drug discovery and delivery to the brain, July 2017
- Smart lipid nanocarriers: Potential for intracellular targeting, Two days conference on Novel Parenteral Drug Development, July 2017
- Lipidic nanomimics for malaria prevention and therapy, International conference on "Trends and Innovations in Chemical and Pharmaceutical Technologies", Anna University, Bharathidasan Institute of Technology Campus, Tiruchirappalli, Tamil Nadu, February 2017
- Fundamentals of Topical Dermatological Drug Delivery, Controlled Release Society Indian Chapter, SciTech Centre, Mumbai, January 2017
- Manuscript Writing, Seminar on Skill Development on Research Rubrics & Outcomes, organized by SPP SPTM SVKM's NMIMS, Mumbai, November 2016

PROFESSOR S. SATHAYE
- Invited talk at National institute of Mental health and Neurosciences, Bangalore.

EVENTS OF ORGANIZED

Conference/ Symposia /Workshop	Title	Duration
Workshop	"Importance of compliance and records in regulated labs" by faculty from Waters India Ltd.; for PG students of DPST	10th June, 2016
	Successful NBA inspection, Tier I, for B.Pharm, valid upto 30-06-20121	29th to 31st July, 2016
Workshop	'Data Integrity – A Key to Compliance'	26th August, 2016
Workshop	"Master Your Mind Enhancing Learning Skills"	27th August, 2016
Seminar	"Veterinary Drug Delivery Systems: Opportunities and Challenges"	2nd September, 2016
Workshop	"Case Studies in Drug Discovery" Part 1: Molecular Design & SAR	19th September, 2016
Symposium	6th Indo-Japanese International Symposium on 'Overcoming Intractable Infections Diseases Prevalent in Asian Countries' organized by PERD Centre, Ahemdabad, India, ICT, Mumbai, India TKCP, Warananagar, India IPA-Goa, India TUS, Tokyo, Japan	23rd and 24th September, 2016
Seminar	"Fostering Stem Cell Research in India – An Industry Perspective"	23rd September, 2016
Workshop	"Biostatistics"	24th September, 2016
	NBA inspection for B.Tech course	30th September to 2nd October, 2016
Workshop	PCR-Techniques and Significance	3rd October, 2016
Seminar	"Therapeutic Peptides and Nucleotides"	7th October 2016
Workshop	"Extraction and isolation of phytoconstituents" in under TEQIP.	October 2016
Workshop	"Case Studies in Drug Discovery" Part 2: Targeting Protease, The Cathepsin K Story	8th October, 2016
Workshop	"Extraction and Isolation of Phytoconstituent"	8th and 9th October, 2016

Seminar	'Validation-Imperative to Provide Safe and Efficacious Medicines'	8th and 10th October 2016
Seminar	'Clinical Approach for Drug Delivery Systems – Adherence to Regulatory Requirements' organized by Controlled Release Society Indian Chapter (CRS-IC) supported by the Scitech Centre, Mumbai	15th October 2016
Workshop	"Case Studies in Drug Discovery" Part 3: Thermodynamics of Enzyme Inhibition	19th November, 2016
Worshop	Training Programme on 'Mentoring for faculty of Technology and Engineering Institutes'	12-16 December, 2016
Workshop	"Master Your Mind Enhancing Learning Skills"	19th December, 2016
Workshop	'Topical dermatological dosage forms' organized by Controlled Release Society Indian Chapter (CRS-IC) supported by the Scitech Centre, Mumbai	24th January, 2017
Seminar	Dr. R. S. Baichwal Seminar: 1. Changing regulatory environment for development of semisolid dosage forms 2. Novel evaluation strategies for transdermal delivery 3. Bioavailability and bioequivalence implications of topical dermatological products	25th January, 2017
	NBA inspection for B.Tech course – revisit	10 and 11th of Feb. 2017
Workshop	Nanotechnology Applications in Drug Delivery and Tissue Engineering	Feb 2017
Workshop	Five workshop conducted on "Extraction and isolation of phytoconstituents"	Feb 2017
Workshop	One Workshop conducted on "Herbal microscopy	Feb 2017
Workshop	"A Laboratory Notebook Writing – Basic Principles and Basic Practices" in under TEQIP	17th Feb. 2017
Workshop	Pellet / Particle coating by Mr. AjitKanetkar and Mr. VasantShetty, ACG world	23rd Feb. 2017
Workshop	"Good Laboratory Practices (Part I and Part II)" in under TEQIP	7th March, 2017
Workshop	"Validation and Calibration of instrument and Equipment" in under TEQIP	15th March, 2017
Workshop	Training on laboratory Animal handling techniques	2 days
Workshop	Role of targeting G protein-coupled receptors dopamine receptor D2 as a novel therapeutic target that is dysregulated in glioblastoma by Dr. Varun Prabhu, Associate Director R & D, Oncoceutics Inc.	August, 2017
Workshop	Qunatitative Microscopy of Fixed and Live Cells by Dr. Peter Banks, the Scientific Director at Bio Tek Instruments Inc., USA	November, 2017

INDUSTRIAL CONSULTANCY

Faculty	Name of Company	Area of Advice	Period
Professor M. S. Degani	Salicylates and chemical Pvt. Ltd.	Drug intermediates	On going
	DST-RFBR	Drug intermediates	On going
Professor K. G. Akamanchi	M/s. Arati Industries Mumbai	Drugs and Intermediates	On going
	Sahajananad Technologies Pvt. Ltd.	Pharmaceuticals	Ongoing
Professor P. D. Amin	Evonik	Excipients	6 months
	Merck	Nutracuticals	12 months
	BASF	Excipients	6 months
	Gattefosse India Pvt Ltd	Excipients	12 months
Professor P. V. Devarajan	Zim Laboratories	Pharmaceuticals and drug delivery systems	2014- present
	Emcure Pharmaceuticals Pvt Ltd	Pharmaceuticals and drug delivery systems	2013- present
Professor S. V. Joshi	Bajaj Health Care	Process Technology	Ongoing
	Salicylate & Chemcal Pvt. Ltd	Methyl salicylate purification methods	Ongoing
Professor K. S. Laddha	Total Herb solutions	Anaylsis of Herbal Drugs	Ongoing
	Ms sheekkhar starch pvt.ltd.	Modification of starch	Ongoing
Professor V. B. Patravale	Sahajananad Technologies Pvt. Ltd.	Pharmaceuticals	2001-ongoing
	CadilaPharma Ltd.	Pharmaceuticals	2003-ongoing
	Mankind	Pharmaceuticals	2016-2017
Professor P. R. Vavia	Nippon Synthetic Chemicals Ltd. Japan	-	March 2017

DETAILS OF POST-GRADUATE/ PH. D. STUDENTS WHO PASSED OUT

Name	Course	Title
PROFESSOR M. S. DEGANI		
Mrs. Arundhati C. Lele	Ph. D. (Tech)Pharmaceutical Chemistry	Design and synthesis of novel antifolate anti-infectives
Mr. Puneet P. Jain	Ph. D. (Tech)Pharmaceutical Chemistry	Synthesis of novel substituted benzopyridines as anti-infectives
PROFESSOR K. G. AKAMANCHI		
Mrs. Smita S. Kale	Ph. D. (Tech)Pharmaceutical Chemistry	Designing Protein Stabilizing Systems
Mr. Ashishkumar H. Jain	Ph. D. (Tech)Pharmaceutical Chemistry	Sythesis and Evaluation of Polyphenols and their metal complexes as potential bioactive agents

PROFESSOR P. D. AMIN		
Mr. Divakar R. Jaiswar	PhD (Tech)Pharmaceutics	Development of Fixed dose combinations for tuberculosis by HME
Mr. Sharadchandra Javeer	PhD (Tech)Pharmaceutics	Innovative formulation development using hot melt extrusion
Mr. Avinash B. Gangurde	PhD (Tech)Pharmaceutics	Stabilization and formulation of Nutraceticals
PROFESSOR P. V. DEVARAJAN		
Mr. Prashant Mande	PhD (Tech)Pharmaceutics	Bioenhancement strategies for Oral Drug Delivery
Mr. Rohit R Joshi	PhD (Tech)Pharmaceutics	Drug Delivery for Anti-Cancer Therapy
Mrs. P Sandhya	PhD (Tech.)Pharmaceutics	Drug Delivery Systems for Hepatic Targeting
Mr. Vilas Malode	PhD (Tech.)Pharmaceutics	Oral Controlled Release and Gastroretentive Formulations
PROFESSOR A. R. JUVEKAR		
Mr. Sabir Husain Attar	Ph.D(Tech.)Pharmacology	Study of Toxicology and Genotoxicity of L-DOPA and Hyoscine in combination therapy
Mr. Pankaj S. Kothavade	Ph. D. (Tech.)Pharmacology	Pharmacological investigation of Achyranthes aspera linn. And Celastrus peniculatus willd. Foranti-inflammatory and anti-arthritis activity
Mr. Vipin D. Bulani	Ph.D(Tech.)Pharmacology	Evaluation of bioactive complex fo r their anti-inflammatory activity
Mr. Dharmendra Khatri	Ph.D(Tech.)Pharmacology	Investigations on natural bio-active compouns for their anti-Parkinson's potential
PROFESSOR K. S. LADDHA		
Mr. Aditya U. Arvindekar	Ph. D. (Tech.)Pharmacognosy	Natural Anthraquinones:Their extraction, isolation and chemistry
Mr. Mandar Mulik	Ph. D. (Tech.)Pharmacognosy	Natural Lignans: their Extraction, Isolation and chemistry
PROFESSOR VADANA B. PATRAVALE		
Mrs. Desai Preshita	Integrated Ph.D. (Tech.) Pharmaceutics	Novel delivery systems for neurodegenerative disorders
Mrs. Swati Vyas	PhD (Tech)Pharmaceutics	Development of polymeric nanomaterials for biomedical applications
Mrs. Prabhu Priyanka	PhD (Tech)Pharmaceutics	Development of Novel Antimalarial Nanocarriers
Mr. Velhal Milind	PhD (Tech)Pharmaceutics	Development of colon targeted microparticles/nanoparticles
PROFESSOR SADHANA SATHAYE		
Mr. Rahul Chaudhari	Ph.D(Tech.)Pharmacology	Herbal drugs in the pharmacotherapy of vascular complications of diabetes- A mechanistic approach
Mr. Sachin P.Patil	Ph.D(Tech.)Pharmacology	Investigation of biologically active molecules as novel therapeutic strategies in Parkinson's disease
Mr. Madhav S.Seervi	Ph.D(Tech.)Pharmacology	Studies on Herb-Drug Interactions
Mrs. Divya M. Kanchan	Ph.D(Tech.)Pharmacology	Screening and evaluation of Thymol and Diosgenin in complications of Diabetes mellitus
Mrs. Rufi Tambe	Ph.D(Tech.)Pharmacology	Neuropharmacological screening of biologically active phytoconstituents in the treatment of epilepsy
Mr. Pankaj Jain	Ph.D(Tech.)Pharmacology	Evaluation of antiepileptic activity of medicinal plants in animal models of epilepsy
DR. V. N. TELVEKAR		
Mr. Prashant B. Jagadhane	Ph. D. (Tech.)Medicinal Chemistry	Design, synthesis of Novel Anti-infective Agents.

M. PHARM

Name	Title
Professor M. S. Degani	
Lalit P. Khare	Nitrogen containing bicyclic system as anti-infective agent
Professor K. G. Akamanchi	
Renu N. Jain	Design, Synthesis and Evaluation of Novel Heterolipids for Solubility Enhancement of BCS Class II Drug
Richa M. Tripathy	Design, Synthesis and Evaluation of Water soluble derivatives of Camptothecin
Kshitij I. Patel	Design, Synthesis and Evaluation of Novel Antimicrobial agents
Professor P. D. Amin	

Durgesh H. Jha	Exploring Scalable Innovative Technolgies for Solubility enhancement of poorly water soluble durgs
Ashish Rajput	Preformulation and Solubilization of Novel New Chemical entity
Dr. G. U. Chaturbhuj	
Kavita R. Chandramore	Design, Synthesis of New Class of DPP-4 Inhibitor and Evaluate their Anit-diabetic Activity.
Professor P. V. Devarajan	
Pinalkumari A. Chaudhari	Design of in situ Lipomer (Lipid- Polymer Hybrid Nanoparticle) for Veterinary Infection
Shibani M. Supe	Lipid based Particulate System for Coccodial Infection
Prof. A. R. Juvekar	
Yogesh Kumar Singh	To study the effect of Gmelina arborea bark extract in animal mice model of Alzhiemer disease
Dinesh M. Choudhary	Evaluation of Hepatoprotective activity of Mitragyna paravifolia (Roxb.) leaves extract
Professor K. S. Laddha	
Bijal R. Dalal	Phytochemical investigation on eclipta alba
Professor V. B. Patravale	
Aditya Darade	BioenhancedAtovaquone for oral delivery
Professor S. Sathaye	
Swati Pawar	Immunomodulatory activity of Naringenin in Streptozotocin
Dr. V. N. Telvekar	
Liya F Momin	-
Niharika D Gohil	-
Professor P. R. Vavia	
Pawar Manoj	Formulation and Evaluation of Gastroretentive Floating Tablet System

M. TECH.

Name	Course	Title
PROFESSOR M. S. DEGANI		
Vishakha A. Rawal	M. Tech. Pharma	New techniques for extraction of polyphenols
Irfan Sheikh	M. Tech. BPT	Isolation and purification of drug metabolizing and drug targeting enzymes
DR. PRAJAKTA DANDEKAR JAIN		
Pallavi R. Wadke	M. Tech. Pharma	Starch nanofibers for Tissue Engineering Applications
PROFESSOR K. S. LADDHA		
Sachin Vyavhare	M.Tech. (Perfumery)	D-limonene from citrus fruit and its industrial application
PROFESSOR VADANA B. PATRAVALE		
Ketki S. Bhise	M. Tech Pharma	Development of nanostructured lipid carriers for delivery of anticancer agents.
Satyajeet Kokate	M. Tech Pharma	Extraction of Nyctanthes arbor-tristis using green and scalable technologies
PROFESSOR SADHANA SATHAYE		
Aparna Gautam	M. Tech BPT	Enzymatic extraction and purification of rosmarinic acid
PROFESSOR P. R. VAVIA		
Nikhil S. Agrawal	M. Tech. Pharma	Novel Drug Delivery System for a Protein

PGDCTM COURSE

Name	Course	Guide
Gejage Santosh	PGDCTM Batch of 2015-2017	Professor P. D. Amin

MAJOR ACCOMPLISHMENTS:

PROFESSOR M. S. DEGANI

Prof. Degani has been a Professor in Pharmaceutical Chemistry since 2006 and is currently Head of Department of Pharmaceutical Sciences and Technology. She has more than sixty five publications in international peer reviewed journals and has a Scopus h-index of 14. She has filed two international and several Indian patents. She has also co-authored a book on retro synthesis. She is actively involved in various industrial projects and consultancy in the areas of process chemistry and drug discovery.She has guided 17 PhD and over Masters' students. Currently there are 15 PhD students and 4 Masters' students working in her research group. Dr. Degani has been awarded the Distinguished Alumni Award by C. U. Shah College of Pharmacy in 2007 Mumbai, Gharda Award for research publications in 2009 and Best Teacher Award of ICT 2013 and 2015. She is a fellow of the Maharashtra Academy of Sciences.

DR. PRAJAKTA DANDEKAR JAIN

- Galenus-Privatstiftung Award, Austria, 2016 to attend the 43rd Annual Meeting and Exposition of the Controlled Release Society, Seattle, USA, July 2016
- 'Gandhian Young Technological Innovation Award 2016' based on work related to the development of Development of a novel, non-biological pyrogen/ microcellular components detection technique for purification and depyrogenation of water', March 2016 (Award winners: Vijay Yadav, Rohan Chhabra, Nikhil Kalane, AnomitraDey and Tejal Pant awarded at RashtrapatiBhavan by Honourable Dr. RaghunathMashelkar)
- Third Prize during 7th Edition BEST-INDIA 2015 (Biotechnology Entrepreneurship Student Teams) sponsored and promoted by DBT, Govt. of India and managed by Association of Biotechnology Led Enterprises – ABLE, February 2016 (Winning Team: Vijay Yadav, Rohan Chhabra, Nikhil Kalane, AnomitraDey and Tejal Pant)

PROFESSOR K. S. LADDHA

- 4 Monographs in Quality Standards of Indian Medicinal Plants' Volume 13, 2015, published by Indian Council of Medical Research, New Delhi as a part of ICMR project.
- 13 Monographs in Quality

Standards of Indian Medicinal Plants' Volume 15, 2017, published by Indian Council of Medical Research, New Delhi as a part of ICMR project.

PROFESSOR V. B. PATRAVALE

- Vice-President, CRS-IC, Controlled Release Society
- Execution of major grants from Indian Government includingBoard of Research in Nuclear Sciences (BRNS), Department Of Biotechnology, Department of science and Technology, Indian council of medical research, All India Council Technical Education all focusing on nanotechnology based product development.

PROFESSOR S. SATHAYE

- 1 student awarded Ph. D. degree, 2 students awarded masters' degree.
- Nominee of CPCSEA
- 14 peer- reviewed publications in international journals.
- Recipient of 3 awards for presentations (oral and poster) in national and international conferences.
- Expert pharmacologist on various scientific committees.
- Principal investigator of 3 government projects.
- Invited talk at National Institute of Mental Health and Neurosciences, Bangalore.
- 8 oral and 11 poster presentations in national and international conferences.

PLACEMENT DATA

FINAL YEAR B. TECH. PHARMA

Roll. No.	Name	Job/ Higher Studies
13PHT1001	Aiswarya Rath	Job
13PHT1002	Mrunal Sakharkar	Higher Studies
13PHT1003	Pranita Kane	Placed at Hikal Ltd.
13PHT1004	Gulsha Motihar	Placed at Hikal Ltd.
13PHT1005	Shubhransh Misra	Job(unplaced)
13PHT1006	Pihu Mehrotra	Higher Studies
13PHT1007	Neha Shah	Higher Studies
13PHT1008	Srushti Sodha	Higher Studies
13PHT1009	Sanchi Jain	Higher Studies
13PHT1010	Urmi Chedda	Higher Studies
13PHT1012	Krutika Kale	Higher Studies
13PHT1013	Chirag Mudaliar	Higher Studies
13PHT1014	Hardik Rathod	Job(unplaced)
13PHT1015	Sanyat Mapara	Higher Studies
13PHT1016	Omkar Mhatre	Higher Studies
13PHT1017	Shivam Naik	Job(unplaced)
13PHT1018	Pradnyata Pabale	Higher Studies
13PHT1019	Ameya Shejale	Higher Studies
12PHT1019	Pushkar Pawar	Job(unplaced)

IN PLANT TRAINING

T. Y. B. TECH. (PHARMA)

Sr. No.	Student name	Company address
1	Hersh Bendale	Sanofi Pvt. Ltd.
2	Shubham Kumavat	Sanofi Pvt. Ltd.
3	Utkarsh Gupta	Dorizoe Lifesciences
4	Anay Navandar	Balaji Amines Ltd.
5	Trisha Saxena	Medley Pharmaceuticals
6	Ameya Chaudhari	University of Minnesta
7	Parth Naik	Sanofi Pvt. Ltd.
8	Mayur Pujara	Indofil
9	Tanmay Parekh	Indofil
10	Shweta Jogi	Gattefosse India Pvt. Ltd.
11	Anishka Umathe	Hikal
12	Yashomangalam Bhutada	Technoforce Solutions (I) Pvt. Ltd.
13	Suyash Patil	Cipla IPD
14	Omkar Parkhi	Indofil
15	Ashish Nikam	Bajaj Healthcare Corp. Ltd.
16	Prabhas jagdale	Zydus Cadila
17	Sachin Binnar	Sanofi Pvt. Ltd.
18	Amruta Dandekar	CDRI and Zydus cadila

VISITING FACULTY

Sr. No	Name
1	Dr. Evans C. Coutinho
2	Dr. Krishna Iyer
3	Prof. Arti Prabhu
4	Dr. Dimple R. Bhatia
5	Mr. M. H. Navlur
6	Ms. Shefali Chutke
7	Mrs. S. Phadnis
8	Ms. Rama Iyer
9	Poonam Dhake
10	Prof. P. A. Sathe
11	Dr. Smita Limaye
12	Ms. Rama Iyer
13	Dr. (Mrs.) Archana S. Iyer
14	Dr. Ajit C. Gorakshakar
15	Dr. Divya Lal Saxena

16	Prof. Vijayalaxmi S. Suvarna,
17	Dr. Arundhati N. Abhyankar
18	Dr. Jyoti Baliga
19	Dr. V. Chandrasekharan
20	Mr. Dipesh Uday Suvarna

Tata Education and Development Trust Scholarship for meritorious students from Department of Pharmaceutical Sciences and Technology (Value decided by trust)

Sr. No.	Name of the Student	Year of the Study	Discipline / Specialization	Amount (Rs.)
1.	Mr. Purav Jignesh Shah	S. Y. B. Pharm	Pharmacy	62,000/-
2.	Ms. Apurva Rajesh Pardeshi	S. Y. B. Pharm	Pharmacy	62,000/-
3.	Ms. Drashty Prashant Mehta	S. Y. B. Pharm	Pharmacy	62,000/-
4.	Ms. Shweta Venugopal Sabu	S. Y. B. Pharm	Pharmacy	62,000/-
5.	Ms. Neha Ramesh Pai	T. Y. B. Pharm	Pharmacy	57,000/-
6.	Ms. Tanishka Satyajit Saraf	T. Y. B. Pharm	Pharmacy	57,000/-
7.	Mr. Parth Nimish Kadakia	T. Y. B. Pharm	Pharmacy	57,000/-
8.	Ms. Akanksha Madhav Kale	T. Y. B. Pharm	Pharmacy	57,000/-
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10.	Ms. Suchitra Sankaranarayan	Final Y. B. Pharm	Pharmacy	54,000/-
11.	Ms. Malavika Muralidharan	Final Y. B. Pharm	Pharmacy	54,000/-
12.	Ms. Tanvi Kashyap Shah	Final Y. B. Pharm	Pharmacy	54,000/-
13.	Ms. Vidhi Chandresh Murarka	Final Y. B. Pharm	Pharmacy	54,000/-
14.	Ms.Neha Milind Chitre	Final Y. B. Pharm	Pharmacy	54,000/-

ABSTRACT OF THESIS

M. PHARM

Student: Ms. Devanshi Shah
Supervisor: Prof. P. D. Amin

FORMULATION DEVELOPMENT OF TOPICAL DOSAGE FORM USING HOT MET EXTRUSION

Topical semisolid dosage forms have a wide range of applications in pharmaceuticals as well as personal care. This work mainly focuses of topical creams and gels. Emulsions are generally prepared by melt emulsification method and gels are prepared by soaking the polymer in water. The current work proposes the use of Hot-melt extrusion (HME) for the preparation of these topicals. Different kinds of placebo bases were prepared using single screw as well as a twin screw extruder and their properties were compared with those made by conventional method. Further, sunscreen actives were used in order to prepare sunscreens using HME. The product characteristics were compared with that of the conventional sunscreens. Various parameters like appearance, pH, viscosity, spreadability, texture, stability and SPF were studied for both the products. It was found that the HME product characteristics were similar to that made by conventional method. There was nominal increase in the efficacy too. This study demonstrates an application of the hot- melt extrusion process in the manufacturing of topical semisolid emulsions and gels.

Student: Mr. Satish V. Rojekar
Supervisor: Professor Padma V. Devarajan

NANO DRUG DELIVERY SYSTEM FOR ANTIRETROVIRAL DRUG

Nano Drug Delivery Technology offers a great advantage that can enhance safety and efficacy of drug molecules by altering its pharmacokinetic and pharmacodynamics properties. To maximize potential of ananocarriers, manufacturing processes should be industrially feasible, providing reproducible, scalable, and stable formulation. Most of the current manufacturing methods of nanocarriers are associated with several shortcomings such as high input of energy, substantial use of organic solvents, multiple steps, instability, difficulty to process heat liable drugs, difficulty in scalability and higher cost. In the present investigation we represent in situ SLN of Etravirine wherein these shortcomings were vercome. In situ SLN of etravirine is intelligent extrapolation of nanoprecipitation technique. Among lipids evaluated namely stearic acid, sebacic acid, adipic acid and polyglyceryldistearate (PGDS) gave desired average particle size range 300-350nm. The surfactants evaluated namely Lutrol F68, Solutol HS15, and Tween 80. The formulation development comprised Etravirine, PGDS, Tween 80 and solvent component Ethanol:PEG300 (1:1) was optimized as component A. Component B comprised of double distilled water filtered through 0.22-micron filter. Which two components were mixed to form Etravirine in situ SLN with high entrapment efficiency >90% and colloidal stability 2hr. Accelerated stability study confirmed as per ICH guideline. In situ SLN showed wide particle size distribution with ranging from 30-1000nm with an average particle size 350nm suggested the possibility of particle size based targeting to multianatomical HIV reservoirs with larger particle >200nm accumulating in RES organs like liver, spleen, lung, kidney and the smaller particle <200nm accumulating in remote sites like brain, bone marrow, and genital organs. In Situ SLN presents simple technology for the development of SLN of Etravirine.

Keywords: In situ SLN, Etravirine, HIV/AIDS, RES

Student: Ms. Shibani Supe
Supervisor: Professor Padma V. Devarajan

LIPID BASED PARTICULATE SYSTEM FOR COCCODIAL INFECTION

The use of lipid based microcarriers for Targeted Drug Delivery in intestinal infection is rapidly emerging due to obvious advantages of site specific drug delivery, reduction in dose and decreased systemic toxicity. An important requirement for targeted delivery in intestinal infection is the design of stealth carriers which could protect drug from enzymatic degradation in intestine and provide localized sustained release of drug at the site of infection. Coccidiosis is a well-known disease that occurs in chicken which lead to destruction of intestinal linings of chicken intestine leading to their death. Particle size is a significant passive approach can be used for targeting of drug at the site of infection. The present study explores particle size for passive targeting to local intestinal infection and discusses design of lipid based microparticles (Sal Na solid lipid microparticles). Salinomycin sodium lipid based microparticles were prepared using Glyceryl monosterate (GMS) as lipid and Gantrez as polymer by Emulsion solvent evaporation technique with the objective of obtaining of average particle size of < 1µm to provide localized action of drug thereby passive targeting to intestinal linings. Drug: Lipid ratio and non-solvent composition was optimised by DOE approach. Salinomycin sodium lipid based microparticles of average particle size < 1µm and entrapment efficiency > 90% prepared. XRD, DSC confirmed decrease in crystallinity of Sal Na in Lipid based microparticles. Zeta potential of -25mV suggest good colloidal stability of microformulation. Sal Na lipid based microparticles was most stable at 5 ± 3°C up to 3 months. The SEM images confirmed particle size of lipid based microparticles of Sal Na. Angle of repose of freeze dried Sal Na lipid based microparticles indicates free flowing microparticles which can be easily mix with

the chicken feed. The in-situ solid lipid microparticle was also developed with particle size of < 1µm and entrapment efficiency > 90%. This in-situ SLM is easy to scale-up and can be given easily to chicken with drinking water.

So, lipid based microparticles of average particle size of 1µm provides a promising tool for targeting to the intestinal linings and thereby providing localized sustained release of drug at the site of infection.

Student: Ms. Pinalkumari Chaudhari
Supervisor: Professor Padma V. Devarajan

DESIGN OF IN SITU LIPOMER (LIPID POLYMER HYBRID NANOPARTICLE) FOR VETERINARY INFECTION

Targeted drug delivery system offers a great advantage that can enhance safety and efficacy ofdrug molecules by altering its pharmacokinetic and pharmacodynamics properties. Tomaximize potential of nanocarriers, manufacturing processes should be industrially feasible,providing reproducible, scalable and stable formulation. Most of the current methods ofnanoparticle preparation are associated with several shortcomings such as high input of energy,substantial use of organic solvents, multiple steps, instability, difficulty to process heat labiledrugs, difficulty in scalability and higher cost. In the present investigation we represent in-situLipomer of Amprolium HCl wherein these shortcomings were overcome. In-situ Lipomer ofAmprolium HCl is intelligent extrapolation of nanoprecipitation technique. Among lipidsevaluated namely stearic acid, sebacic acid, adipic acid and polyglyceryl distearate (PGDS)gave desired average particle size range 500-2000 nm. The formulation developmentcomprised of the Amprolium HCl, stabilizer A, Lipid PP, Gantrez AN 119 as a polymer.Transcutol-P and Propylne glycol used as a solved. All the components used are optimised forrequired particle size range i.e 500-2000 nm, %EE > 90% and colloidal stability about 2 hr.Particulate drug delivery system mostly gets absorbed through the intestinal mucosa which isthe site of infection for the coccidiosis disease. Coccidiosis is local intestinal enterocytesinfection of poultry. In situ system provides simple yet innovative approach for thedevelopment of in situ lipomer of Amprolium HCl.

Student: Mr. Bijal Dalal
Supervisor: Prof. K. S.Laddha

PHYTOCHEMICAL INVESTIGATION ON ECLIPTA ALBA

Eclipta alba commonly known as false daisy and bhringraj is a plant belonging to the family Asteraceae. E. alba has long been used as a herb to treat varied ailments in Indian and Chinese traditional system of medicine. Traditional uses of Eclipta alba include hepatoprotective in liver cirrhosis, anti-aging, hair oil etc. It is one of the 10 auspicious flowers of Dasapushpam in Ayurveda. The major constituents in Eclipta alba includes wedelolactone 0.50-0.55% and demethylwedelolactone. Wedelolactone has been shown to possess antibacterial, anticancer, anti-inflammatory activity. The present studies aims at extraction and isolation of Wedelolactone. Therefore, Wedelolactone along with two other compounds Apigenin and Luteolin were isolated. In addition to this, HPLC method was developed for simultaneous estimation of the above isolated compounds.

Keywords: Eclipta alba, Wedelolactone, Luteolin, Apigenin, HPLC.

Student: Mr. Sachin Wyavhare
Supervisor: Prof. K. S.Laddha

SEPARATION AND ISOLATION OF LIMONENE FROM ORANGE PEEL.

The citrus peel oil was separated by different methods from Citrus sinensis and Citrus Limetta. The oil was then analysed for physico-chemical properties, TLC, FTIR, GC and GC- MS. The main component of the citrus oil, D-limonene was separated by fractional distillation, with and without vacuum. D-limonene was analysed for GC and GC-MS which showed about 90% of D-limonene content. D-limonene microemulsion was prepared by low energy process at room temperature. Micro-emulsion was evaluated for mean droplet diameter polydispersibility index (PDI), viscosity measurements, pH and stability. Formulated micro-emulsion may have various cleaning applications in industry.

Orange oil and D-limonene flavour emulsion were made by high pressure homogenization and analysed for mean droplet diameter, PDI, pH, and stability. It may have application in beverage industry.

Orange oil was further encapsulated by spray drying method using gum arabic and maltodextrin as coating material with the ratio 1:1, 1:3 and 3:1. Microcapsules were evaluated for surface oil, total oil, bulk density, particle size, PDI, and microencapsulation efficiency. Prepared microcapsules can be further used in talcum powder formulation for its fragrance and anti-ageing property.

Keywords: Citrus sinensis, Citrus Limetta and D-limonene.

Student: Ms. Ketki Bhise
Supervisor: Professor V. B. Patravale

DEVELOPMENT OF NANOSTUCTURED LIPID CARRIERS FOR DELIVERY OF ANTICANCER AGENTS

The focus of the current investigation was to develop stable Nanostructured Lipid Carriers (NLCs) for oral delivery of antioxidants Ellagic Acid (EA) and Quercetin (QR) that have been reported to exhibit antineoplastic activity. In order to overcome the low aqueous solubility and bioavailability, EA and QR preconcentrate NLCs were developed, optimized and characterized, both individually and in combination. EA and QR NLCs developed individually were optimized by empirical approach, whereas, Quality by Design (QbD) approach was applied to the development of NLCs of combination of EA-QR. The variables were concentration of the lipid and surfactant at two levels. Two responses were chosen, viz. % encapsulation efficiency (%EE) of EA and QR. The response surface plots were generated by Design-Expert® software for analyzing effect of the independent variables on the response. The preconcentrate NLCs were formulated from ME templates. NLC liquid nanodispersion was evaluated for the parameters like total drug content, optical birefringence, scanning electron microscopy (SEM), globule size and polydispersity index (PDI), zeta potential, % encapsulation efficiency, stress study, accelerated stability on centrifugation, freeze-thaw cycles, in-vitro dissolution study and in vitro anticancer cell-line studies. The results suggest development of stable NLCs for EA and QR, both individually and in combination. The excellent antineoplastic activity displayed through MTT studies by EA and QR individual NLCs can positively suggest enhanced anticancer activity of the EA-QR NLCs in combination and can be used as future line of research.

Student: Mr. Aditya Darad
Supervisor: Professor V. B. Patravale

BIOENHANCEDATOV AQUONE FOR ORAL DELIVERY

Atovaquone in combination with proguanil hydrochloride marketed as Malarone® tablets by GlaxoSmithKline (GSK) is prescribed in the treatment of malaria. High dose and poor bioavailability are the main hurdles associated with atovaquone oral therapy. The present study deals with the development of atovaquone nanoparticles using in-house built electrospraying technology and the assessment of bioavailability and therapeutic efficacy of the nanoparticles after oral administration. Solid nanoparticles of atovaquone were successfully produced using electrospraying technology. The atovaquone nanoparticles were characterized using Malvern Zetasizer, DSC, XRD, FTIR, SEM. Atovaquone nanoparticles along with proguanil hydrochloride and a suitable wetting agent were filled in size 2 hard gelatin capsules. The formulation was compared with Malarone® tablets (GSK) and Mepron® suspension (GSK) in terms of in vitro release profile and in vivo pharmacokinetic profile. It showed 2.8 fold and 1.8 fold improved bioavailability in rats compared to Malarone® tablets and Mepron® suspension respectively. Modified Peter's 4-day suppressive test and clinical simulation study were performed in Plasmodium berghei infected mice to assess the therapeutic efficacy of the formulation over Malarone®. The developed nanoparticles showed 128 fold and 32 fold dose reductions in the Modified Peter's 4-day suppressive test and clinical simulation study respectively.

M. TECH

Student: Mr. Satyajeet Kokate (M. Tech. Bioprocess Technology)
Supervisor: Professor V. B. Patravale

EXTRACTION OF NYCTANTHUS ARBOR-

TRISTIS USING GREEN AND SCALABLE TECHNOLOGIES

Nyctanthus arbor-tristis(family: Oleaceae) is a well documented plant in Ayurveda reported for a plethora of pharmacological activities. The present investigation aims at utilizing green, scalable technologies like supercritical extraction and sonication assisted extraction for extraction of an antimalarial phytoconstituentRengyolone, using 'Quallity by Design' approach and compare the yield with conventional organic solvent assisted extraction process.

PHD TECH.

Student: Dr. Prashant Mande
Supervisor: Professor Padma V. Devarajan

BIOENHANCEMENT STRATEGIES FOR ORAL DRUGDELIVERY

The solubility behavior of poorly water-soluble drugs (BCS Class II drugs) remains one of the most challenging aspects of the formulationdevelopment. Among various approaches Solid dispersion (SD) is a promising strategy for bioenhancement of such drug candidates.The present thesis discusses a second generation and advanced third generation SD as filmfor bioenhancement of the BCS II drugs Itraconazole, Curcumin and Tadalafil respectively.A generic alternative of Itraconazole to SPORONOX®100mg (RLD), using secondgeneration SD approach was successfully developed. A formulation I-2 exhibited good assayand drug content uniformity(85-105%), met all quality attributes defined in the QTPP,stability as per ICH guidelines(12 months at 30°C/65% RH and 25°C/65% RH) with F2>50in multiple dissolution media. Scale up batch was successfully developed and technologytransferred. The formulation in a fed and fasted bio study in volunteers exhibited aTest/Reference ratio for Cmax and AUC between 80-125% and was hence found to bebioequivalent with SPORONOX® 100mg.

The advanced third generation SD comprisinga self microemulsifying composition (SMEC)of surfactant, co-surfactant and oil in a polymer was coated onto rapidly disintegrating inerttablet cores to be released as films in aqueous media, following disintegration of the core.

Cur SMEC-SD with high drug loading (~45%) revealed enhanced dissolution rate(t50%-6.45min), good physical stability confirmed by SEM, DSC and XRD. The high loading and stability was attributed to SMEC aided solubilization/ amorphisation, and interaction of KVAwith TDL confirmed by calculating thermodynamic parameters(total solubility, mixing enthalphy and Polarity) and seen in the FTIR spectra.Superior bioenhancement(~400%) compared to Cur and (200%)compared to Cur-SD was demonstrated. The formulationexhibited great promise with efficacy~80% compared to Indomethacin as a safer alternativeinthe therapy of rheumatoid arthritis.

The advanced third generation SD as platform was confirmed by replacing Cur with TDL. Thermodynamic parameters confirmed high interaction of TDL with KVA and SMEC. TDL SMEC-SD with KVA as polymer also revealed high drug loading of 45%w/w enhanced dissolution rate(t50%-7.34min), good stabilityand bioavailability enhancement of ~350% compared to TDL. Improved therapy for a new indication pyelonephritis is demonstrated. The advanced third generation SDs as film presents simple, scalable platform technology forBioenhanced formulations of BCS class II molecules.

Student: Dr. Rohit Joshi
Supervisor: Professor Padma V. Devarajan

NANO DRUG DELIVERY FOR ANTICANCERTHERAPY

Circulation longevity (stealth) of nanosystems is important for improved anticancerchemotherapy. We present stealth anionic self microemulsifying drug delivery system(SMEDDS) of anticancer drug Docetaxel(DTX) for improved therapy. Our strategyemployed localization of anionic surface active agents Sodium oleate and Gantrez AN 119 atoil water interface, to impart negative zeta potential of -16mV and -26mV respectively. Lowhemolytic potential exhibited by diluted SMEDDS confirmed safety for intravenous administration. The 2-fold increase in half-life with sodium oleate DTX SMEDDS in vivo inrats and significant increase in DTX uptake in the A549 human alveolar adenocarcinoma cellline presents sodium oleate DTX SMEDDS as promising anticancer nano delivery system. Nanoparticle effects on the immune system are of concern. Our laboratory has demonstratedpromise of LIPOMERs as nanocarriers. We present preliminary study on effect ofDoxorubicin (Dox) LIPOMER and blank LIPOMER on both innate and adaptive immunity.Uptake and uptake pathway of Doxorubicin (Dox) nanoparticles of average particle size 250-300nm and zeta potential -25 to -33mVin whole blood lymphocytes by flow cytometry,revealed clathrin mediated high uptake confirmed using chlorpromazine as clathrin inhibitor.Irregular particles however revealed lower uptake ($P<0.05$). Complement activation potentialdetermined by gel electrophoresis revealed comparable and low values with Lipomer (<20%)and activation via alternate pathway demonstrating overall safety. Dox polymericnanoparticles without lipid revealed higher (~25%) complement activation. Effect of blanklipomer on innate immune system markers such as murine macrophage(RAW-264.7) phagocytosis rate of green fluorescent protein E.coli revealed concentration dependentdecrease in phagocytosis rate coupled with increased co-stimulatory molecule CD86, IL-1βand TNF-α expression in lipopolysaccharide activated splenic macrophages indicatingmacrophage to antigen presenting cells (APC) maturation.T-cell proliferation,IL-2 and IFNexpression remained unaffected in non-stimulatedand optimally stimulated (Concanavalin-A1µg/mL) cells suggesting non mitogenic and non-immune suppressive property of lipomer.However, a possible immune stimulating effect of lipomer is suggested only in sub-optimallystimulated group (CON-A 0.5µg/mL). Our results suggest that lipomerscould be consideredsafe with respect to the immune system.

Student: Dr. P Sandhya
Supervisor: Professor Padma V. Devarajan

DRUG DELIVERY SYSTEMS FOR HEPATIC TARGETING

Cancer a leading cause of death worldwide continues unabated due to limited therapeutic options. Chemotherapy, a proven approach is severely limited by drug induced systemic toxicity at non-target sites. Targeted anticancer drug delivery is a practical strategy to both enhanced efficacy and decreased toxicity. The present study reports carbohydrate anchored polyethylene sebacate (PES)-Gantrez® AN 119 Doxorubicin hydrochloride (Dox) nanoparticles (NPs) wherein the carbohydrates, Pul, AGn and Pul-AGn combination are exploited through passive targeting for enhanced efficacy in a fibrosarcoma tumor model. Their affinity for the asialoglycoprotein receptor (ASGPR) has been evaluated for active targeted therapy in a hepatocellular carcinoma (HCC) model in PLC/PRF/5 liver tumor bearing Nod/Scid mice.

PES Dox NPs of average size 220 nm, PDI < 0.62, Dox loading ~20% and zeta potential -27 mV were anchored with pullulan (Pul), arabinogalactan (AGn) and Pul-AGn combination by simple adsorption. Circulation longevity in normal rats confirmed stealth property. High antitumor efficacy in the fibrosarcoma mouse model was facilitated due to carbohydrate anchoring with high Dox localization in tumor by enhanced permeability and retention (EPR) effect and sustained tumor reduction upto 60 days. This high antitumor efficacy was attributed to carbohydrate mediated interactions with collagen and with integrin receptors in the tumor. Histopathology confirmed safety of the NPs.

ASGPR mediated targeting to hepatocytes was observed with high hepatocyte uptake in normal rats with hepatocyte:non-parenchymal cell ratio of 85:15. More importantly, Pul-AGn NPs exhibited an additive uptake compared to Pul NPs and AGn NPs alone suggesting synergy in interaction with the receptor. Galactose mediated inhibition of Dox uptake from carbohydrate anchored NPs in HepG2 cell line confirmed ASGPR mediated uptake. Further, efficacy in the HCC model, PLC/PRF/5 liver tumor bearing Nod/Scid mice was exhibited in the order Pul NPs>Dox solution> Pul-AGn NPs. This was confirmed by the mitotic index of 1.135 and T/C values <0.42 of Pul NPs which was significantly lower than Dox solution and Pul-AGn NPs. Further, Pul NPs were well tolerated by the mice as

indicated by a gain in weight and no histopathological alterations. This suggested Pul NPs as highly promising for HCC where there exists a dire need for improved therpaeutic interventions.

The role of carbohydrates on enhanced anticancer efficacy was evaluated through studies of interaction of carbohydrates with collagen and integrin receptors in vitro. Molecular docking confirmed binding to both integrin and collagen. FTIR and DSC also indicated interactions with collagen through hydrogen bonding and circular dichroism revealed unfolding of collagen. Such changes in collagen matrix coupled with integrin receptor mediated uptake could have enabled high drug accumulation in the tumor to enable the high anticancer efficacy observed. Carbohydrates specifically Pul by enabling long circulation and receptor mediated targeting present great promise for the design of a safe and efficacious delivery system of Dox for therapy of cancer.

Student: Dr. Vilas N. Malode
Supervisor: Professor Padma V. Devarajan

ORAL CONTROLLED RELEASE AND GASTRORETENTIVE FORMULATIONS

Controlled release drug delivery systems (CRDDS) provide drug release at a predetermined and predictable rate enabling reduction in dose, dosing frequency and side effects. Gastroretentive drug delivery systems (GRDDS) are specialised CRDDS with prolonged gastric retention for delivery of drugs in the stomach, useful for many conditions.

Part I: Oral controlled drug delivery system of nifedipine

Controlled release (CR) nifedipine formulations produce a gradual antihypertensive effect, thereby avoiding the deleterious effects. Osmotic controlled release oral delivery system are proposed to confer precise control over drug release, the technology require specialized equipments for drilling of the orifice involving high cost and low manufacturing speed. We developed a generic nifedipine 90 mg CR formulation as an alternative to OROS (Procardia XL®) using simple and cost effective matrix technology. The same was achieved by adopting QbD principles a regulatory need. A highlight is the dose proportional formulations of nifedipine CR 90, 60 mg and 30 mg developed by compressing 2/3rd and 1/3rd quantity of nifedipine CR 90 mg blend. The formulations were found to be stable as per ICH stability guidelines. A cost effective Nifedipine 90 mg formulation bioequivalent to Procardia XL® under fed conditions, was successfully developed using simple matrix technology.

Part II: Innovative controlled release gastroretentive formulations

- Hot melt extrusion technology based on consolidation of materials was explored as an innovative strategy for development of low density floating multiparticulates of **metoprolol succinate** using effervescent cum swelling gelling approach. A combination of polymers with a basic carbonate enabled optimisation of torque of extrusion, buoyancy and controlled release of drug. Multiparticulates which exhibited floating lag time of <3 min, total floating time of >12 h, controlled release of metoprolol succinate and good stability were successfully developed.
- Drug free microballoons were developed by emulsion solvent diffusion method and the hollow cavity confirmed by optical microscopy and SEM. Microballoons served as floatation aid to develop a hydrodynamically balanced system of **nizatidine** by simple direct compression. Tablets which exhibited immediate floating and total floating time of >12 h with controlled release of nizatidine and good stability were optimized. Flotation due to intact microballoons was confirmed by SEM analysis.
- Floating tablets of baclofen were developed using a new concept AIROMATRIX technology wherein an empty hard gelatin capsule constituted the central air pocket in tablets. Tablet hardness was optimised for buoyancy. Using QbD approach polymer concentrations were optimised for controlled release of **baclofen**. Tablets were optimized for immediate floating and total floating time of >12 h and controlled release of baclofen with good stability.

Three new scalable technologies for the development of GRDDS are successfully demonstrated.

Student: Dr. Mandar Mullik
Supervisor : Prof. K. S.Laddha

STUDIES ON NATURAL LIGNIN

Lignans are an important class of phytoconstituents derived from monolignols such as pcoumaryl and coniferyl alcohol. They are major constituents of vascular plants and account for nearly 30% of the organic carbon circulating in the planta. Lignans are usually classified as derivatives of diarylbutane, dibenzylbutyrolactone, tetrahydrafuran, tetrahydrofurofuran and aryltetrahydronaphthalene. Present study dealt with the development of laboratory methods that can be reproducible on commercial scale for extraction and isolation of a naturally occurring lignans such as, Podophyllotoxin from Podophyllum emodi; Gmelinol from Gmelina arborea; Cubebin from Piper cubeba and Sesamin from Sesamum indicum, followed by preparation of Hinokinin and Podophyllotoxone by semisynthetic approach from Cubebin and Podophyllotoxin respectively. New analytical methods were developed for the estimation of Podophyllotoxin in P. emodi roots using HPTLC and Gmelinol in G. arborea wood using RP-HPLC.

Keywords: Podophyllum emodi, Gmelina arborea, Piper cubeba, Sesamum indicum, lignans, Podophyllotoxin, Gmelinol, Cubebin, Sesamin, Hinokinin, Podophyllotoxone, extraction optimization, isolation, semisynthesis, characterization, RP-HPLC, HPTLC.

Student: Dr. PriyankaPrabhu
Supervisor : Professor V. B. Patravale

DEVELOPMENT OF NOVEL ANTIMALARIAL NANOCARRIERS

Research work on "Development of Novel Antimalarial Nanocarriers" was carried out. Research was conducted in various parts.

Part I: Artemether-Lumefantrine (ARM – LFN) NLC for intravenous therapy of severe malaria

NLC of ARM – LFN were developed using an industrially feasible technique. The NLC were characterized for particle size, zeta potential, drug content, entrapment efficiency, XRD, in vitro drug release, compatibility with commonly employed intravenous infusion fluids, and amenability to sterilization by autoclaving. The NLC were subjected to stability analysis as per ICH guidelines. The anti-malarial activity of the NLC was studied in Plasmodium berghei infected murine malaria model using Modified Peter's Four-Day Suppressive test protocol and clinical simulation protocol. The ability of the NLC to cure cerebral malaria was evaluated in C57BL/6 mice infected with P. berghei ANKA. Toxicity studies were carried out in rats. The developed NLC showed complete parasite clearance and 100% survival in murine model with 90% dose reduction of ARM – LFN and were also found to cure mice of cerebral malaria.

Part II: Artemether-Lumefantrine (ARM – LFN) NLC for oral therapy of malaria

The anti-malarial activity of the NLC was studied in Plasmodium berghei infected murine malaria model using Modified Peter's Four-Day Suppressive test protocol and clinical simulation protocol. Toxicity studies were carried out in rats. The NLC were formulated into soft gelatin capsules. The soft gelatin capsules were subjected to stability studies as per ICH guidelines. The developed NLC offer a lipidic nanoformulation for lipophilic anti-malarials which can be easily administered orally in the form of soft gelatin capsules. The developed NLC resulted in 90% reduction in daily dose of ARM – LFN combination, reduced dosing frequency, and decreased the number of units to be taken. The decrease in side effects due to 10 fold dose reduction coupled with the reduction in dosing frequency would enhance patient compliance.

Part III: Exploring NLC as vaccine adjuvants

BSA was used as model antigen and the immune response studied by varying the particle size, route of administration, and composition of NLC. NLC were found to possess vaccine adjuvant activity and hence can be explored further for development of safe vaccine adjuvants.

NOVEL DELIVERY SYSTEMS FORNEURODEGENERATIVE DISORDERS

Part IV (b): Curcumin Co-crystal Micelles for Nose to Brain Delivery

Alzheimer's disease (AD) is a serious neurodegenerative disorder posing social and health crisis affecting ~ 44 million patients worldwide and is expected to rise at rampant growth of 5.5 million new cases every year. This clearly portrays the unfulfilled need in AD therapeutic research and better management strategies. Progressive decline in the clinical state during AD treatment is majorly attributed to increased oxidative stress and limited transport of therapeutic actives across brain owing to blood brain barrier (BBB). The research work herein aims at developing platform strategies to enhance the bioavailability of AD therapeutic actives and thereby offering efficient therapy module. It is divided into various parts:

Part I deals with Hot Melt Extrusion: A Scalable Green Technology towards Bioenhancement

Hot melt extrusion assisted solid solutions of poorly soluble AD therapeutic actives were developed using a hydrophilic matrix (Patent filed) that will enhance solubility and in turn the oral bioavailability.

Part I (a) - Curcumin Hot Melt Extrudates

Part I (b) - Ellagic Acid Hot Melt Extrudates

Part II - Novel Lipid bioconjugate (t-ligand) with Enhanced Permeability across Blood Brain Barrier was synthesized and evaluated.

Part III - Microneedle Assisted Transdermal Delivery of Donepezil t-Micellar Gel for Alzheimer's Disease Management

The micellar nanocarrier gel of Donepezil (acetylcholinesterase inhibitor) using the t-ligand was developed and optimised for transdermal delivery. The transdermal delivery of developed formulation was facilitated using pre-optimisedmicroneedle assisted poke and punch method. The formulation was characterised for spectral analysis, pH, drug content, in vitro dissolution, rheological properties and stability studies as per ICH guidelines. The enhanced brain permeability of t-micellar gel was investigated in Zebra Fish model. In vivo pharmacokinetic and biodistribution studies in rodent model established the brain bioenhancement of developed therapy module in comparison to marketed and non-targeted micellar gel formulation

Part IV- Novel Nanocarriers of Curcumin for Alzheimer's Disease Management via Intranasal Route

Part IV (a): Curcumin t-Micelles for Nose to Brain Delivery

Part IV (b): Curcumin Co-crystal Micelles for Nose to Brain Delivery

Student: Dr. Swati Vyas
Supervisor : Professor V. B. Patravale

DEVELOPMENT OF POLYMERIC NANOMATERIALS

Currently available vaccines based on live attenuated strains of Brucella spp. pose risk of

Part I: Nanodiagnostic module for detection of brucellosis

Presence of bacteria such as Brucella spp. in dairy products is an immense risk to public health. Diagnostics currently available for identification of diseases such as brucellosis caused due to consumption of infected foods suffer from non-specificity, lack of accessibility to remote areas, requirement of skilled personnel and expensive equipment for analysis and more notably, longer times required to produce a result. Point of care immunoassays are rapid in that they can quickly screen various samples in a relatively short amount of time, are sensitive, specific and offer a great advantage in accurate and fast diagnosis of infectious diseases. A point of care rapid diagnostic assay that employs fluorescent, micellar silica nanosensors capable of specifically detecting IgG antibodies in non-serological samples of afflicted animals was fabricated. Currently, point of care detection assays are not commercially available for field testing of farm animals using milk samples. The nanosensing allows precise detection of antibodies with low sample volumes. Recognition of B. abortus antibodies through capture by fluorescent silica nanosensors was demonstrated using spiked and raw milk samples validated by ELISA and PCR. The test results are accurate and repeatable with high sensitivity and specificity, and a short assay time of 10min for antigenic recognition and do not require any sample processing procedures such as isolation and separation. Additionally, well defined antigenic components and surface biomarkers of various disease causing microbes can be broadly incorporated within the purview of this technology for accurate and rapid detection of suspected bovine pathological conditions, and can largely enable rapid field testing that can be implemented in farms and food industry.

Part II: Nanovaccine for brucellosis using green technology

Currently available vaccines based on live attenuated strains of Brucella spp. pose risk of infection to other healthy animals, animal handlers and veterinarians and are administered invasively. An intranasal sub-unit vaccine comprised of sub-micron sized, mucoadhesive polymer based particles was developed for brucellosis. The vaccine formulation composed of antigen loaded immunogenic xyloglucan nanoparticles was fabricated using rapid expansion of supercritical solution (RESS) method. RESS is a green technology that can eliminate use of hazardous organic solvents and therefore was explored for development of the nanovaccine. The nanovaccine was evaluated for prolonged release and tested for immunogenic potential in Balb/c mice. The nanovaccine showed induction of both cell mediated and humoral immunity, and conferred systemic and mucosal immunity in mice. Also, the nanovaccine did not produce any ciliotoxicity even after booster dose administration. Thus, the nanovaccine was found to trigger Brucella specific immune responses.

Student: Dr. MilindVelhal
Guide: Professor V. B. Patravale

DEVELOPMENT OF COLON TARGETED MICRO/ NANOPARTICLES

Encouraging results obtained by using green, clean modified supercritical fluid technology.

Supercritical fluid technology (SFT) is the most explored concept in the field of downstream biotechnology processes and particle generation. The tunable operating conditions (temperature, pressure) make supercritical fluid technology an attractive and economical method for pharmaceutical applications. In the proposed work, the objective was to utilize lectins as colon targeting agent further development of polymeric nanoparticles using, Sonication Assisted Particles Production using Supercritical Solution (SAPSS).The work was divided into three parts.

Part I- Development, evaluation and optimization of polymeric nanoparticles

Effect of various excipients, drug/ polymer ratio, its concentration and the process parameters on polymeric nanoparticles was and the formulation was optimized using classical method.

Part II- Development, evaluation of lectin conjugated polymeric nanoparticles

Optimized excipients and the process parameters were used for the preparation of lectin conjugated polymeric nanoparticles. The lectin conjugated nanoparticles were tagged using Rhodamine-B and preclinical studies in Albino rats were undertaken to check colon specificity of the developed nanoparticles.

Part III-Screening of various drying methodologies

Further various drying methodologies were screened to convert the nanoparticulate dispersion into free flowing solid powder. The powder was filled into enteric coated hard gelatine capsules. Stability studies were undertaken as per ICH guidelines.

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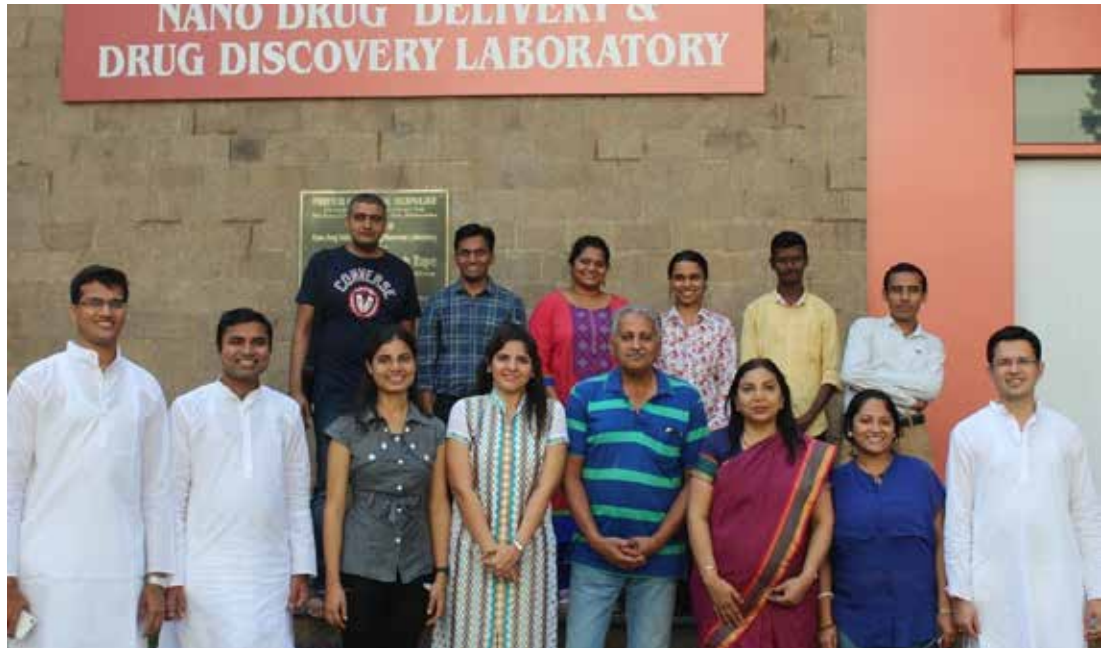

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In absentia: PrabhuPriyanka [Ph. D. (Tech.)], Vyas Swati [Ph. D. (Tech.)],
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Bottom row (left to right): Nisha Yadav (Ph. D. Tech.), Prof. P. R. Vavia, Ganapati Sita (Ph. D. Tech.)

BRIEF CAREER PROFILE UPTO 200 WORDS

PROF. MARIAM S. DEGANI

Dr. Mariam S. Degani is working at Institute of Chemical Technology, Mumbai since 1998 and currently is Sir Dorabjee Tata Professor in Pharmaceutical Chemistry and Head of the Department of Pharmaceutical Sciences and Technology (since Aug 2015). Earlier she was a lecturer at SNDT Women's University, Mumbai from 1985-1998.

Dr. Degani is working in two broad research areas viz. drug discovery and process chemistry. In drug discovery, she is involved in computer assisted rational drug design and synthesis of small focused libraries of potential therapeutic agents. Currently, this has resulted in a molecular library of over 700 molecules, which is available for screening on different drug targets. Her current drug discovery research involves design and synthesis of small molecules for Tuberculosis, Alzheimer's disease and Cancer. She has many national and international collaborations, to help screen the molecules, like ACTREC, BARC, TIFR, NCL, Eli Lily Open Source drug discovery etc.

Her other areas of interest include process chemistry with focus on fluorine chemistry, design and synthesis of task specific ionic liquids and very recently, flow chemistry based process optimization.

As an outcome of her extensive research in the above areas, Prof. Degani has more than sixty five publications in international peer reviewed journals and has a Scopus h-index of 14. She has filed two international and several Indian patents. She has also co-authored a book on retro synthesis. She is actively involved in various industrial projects and consultancy in the areas of process chemistry and drug discovery.She has guided 17 PhD and over 40 Masters' students. Currently there are 15 PhD students and 4 Masters' students working in her research group. Dr. Degani has been awarded the Distinguished Alumni Award by C. U. Shah College of Pharmacy in 2007 Mumbai, Gharda Award for research publications in 2009 and Best Teacher Award of ICT 2013 and 2015. She is a fellow of the Maharashtra Academy of Sciences.

PROF. A. R. JUVEKAR

Ph. D. (Tech) – Pharmacology from UICT, Mumbai University in Dec. 1995

M. Pharmacy in Pharmacology by Research from Mumbai University in March 1984

B. Pharmacy from Govt. College of Pharmacy, Karad, Shivaji University, in 1979

University recognized guide for M.Pharm and PhD.

PROF. P. R. VAVIA

Prof. P. R. Vavia is a Professor in Pharmaceutics at The Institute of Chemical Technology, Mumbai. Currently, he is the Dean of academic programmes at Institute of Chemical Technology. He has more than **28 years** of teaching experience to undergraduate, postgraduate and doctoral students. So far, Prof. Vavia has guided over **53 Master students** and **41 Ph.D. students** who are placed at key positions in leading pharmaceutical organizations. Presently, his research group comprises **3 masters and 17 Ph.D. students**. Till date, he has **144 peer reviewed** scientific publications in national and international journals to his credit, with more than **2483 citations** and **H-index of 22**. Prof. Vavia has given more than **250 research presentations** at national and international levels. He has **1 granted patents, 35 complete patent** specifications and **3 PCT** applications filed in the area of drug delivery technology.


Probe Sonicator
Texture Analyzer
Sieve Shaker
Sifter
Dissolution Test Apparatus
Disintegration Tester
Friability Tester
Peristaltic Pump


Ultracentrifuge
Ultra Turrax
Lipex Lipid Extruder
Gel Electrophoresis
RotaVac
Incubator Shaker


High Pressure Homogenizer
Freeze dryer
Inline Homogenizer
Mathis lab dryer lab coater
Transdermal Diffusion cells
Malvern Mastersizer


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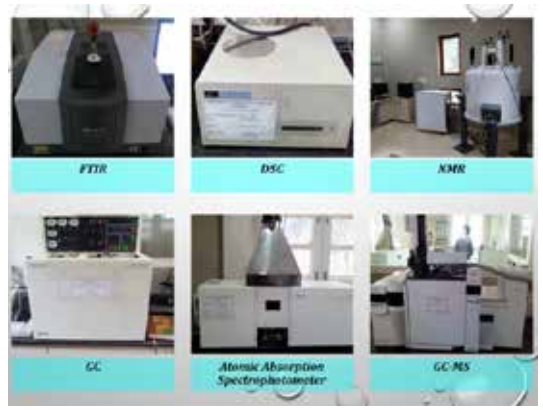
Bilayer Tablet Machine
Rapid Mixer Granulator
Tablet Coater
Dehumidifier
Air jet Mill
Fluidized Bed Processor
MultiMill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