

# Powering Education...Towering Knowledge





## Divisions:



## The Indian Pharmaceutical Association (IPA)

The Indian Pharmaceutical Association (IPA) is the premier professional association of pharmacists in India founded on 23rd December 1939, with a member base of over 10,000, spread across the length & breadth of the nation. IPA operates in India through 20 state branches & more than 46 local branches. The members represent various facets of pharmaceutical profession viz. industry, regulatory, community pharmacy, hospital pharmacy & education. IPA is also actively associated in managing several academic programmes. As member of the Drug Technical Advisory Board, India, IPA is actively involved in advising the government on matters of professional importance. IPA is affiliated to international pharma associations like FIP, FAPA, CPA, AAPS, AAiPS, IPSF & WHO, for carrying out various collaborative professional activities which include organizing training programmes for professionals from industry, academics, regulatory & practice, making representations to the authorities on matters of professional interest & working towards constantly upgrading the standards of professional services offered by the pharmacists.

## Mission

Mission: The Indian Pharmaceutical Association (IPA) is the national professional body of pharmacists engaged in various facets of the profession of pharmacy. The IPA is committed to promote the highest professional and ethical standards of pharmacy, focus the image of pharmacists as competent healthcare professionals, sensitize the community, government and others on vital professional issues and support pharmaceutical education and sciences in all aspects

## IPA Students' Forum (IPA-SF)

**IPA Students' Forum (IPA-SF)** is a national forum for pharmacy students under the IPA. It aims to bring all pharmacy students under one umbrella so that their energies can be synergized to make a difference. The forum enables them to become better future pharmacists while abiding with the highest ethical and professional standards. This catalyzes their overall development and facilitates development of their academic, leadership and professional skills for their benefit and in turn the profession and thus health of INDIA. Activities of IPA-Student Forum are guided by esteemed personalities of Pharmaceutical professionals from India and abroad.

## The Indian Journal of Pharmaceutical Sciences

The Indian Journal of Pharmaceutical Sciences is the bimonthly scientific publication of the IPA. The journal publishes original research work in the areas of Pharmaceutical Sciences (Pharmaceutical Technology, Pharmaceutics, Biopharmaceutics, Pharmacokinetics, Pharmaceutical/ Medicinal Chemistry, Computational Chemistry and Molecular Drug Design, Pharmacognosy and Phytochemistry, Pharmacology, Pharmaceutical and bioanalysis, Pharmacy Practice, Clinical and Hospital Pharmacy, Cell Biology, Genomics and Proteomics, Pharmacogenomics, Bioinformatics and Biotechnology of Pharmaceutical Interest). IJPS is indexed by various abstracting agencies e.g. Chemical Abstracts, DOAJ, International Pharmaceuticals Abstracts, Journal Citation Reports, PubMed, Pubmed Central, Science Citation Index Expanded, Scimago Journal Ranking, SCOLOAR, SCOPUS, SIIC databases & is available online ([www.ijpsonline.com](http://www.ijpsonline.com)) Original research work is published in IJPS either as a Full Research Paper or as a Short Communication. Review Articles on current topics in Pharmaceutical Sciences are also considered for publication by the Journal.

## Pharma Times

Pharma Times is the news magazine of the IPA. It is a scientific journal and in addition to featuring general articles of professional interest, it also publishes proceedings of the Central Executive Council of IPA, the Annual Report and Accounts of the Association, reports on branch activities, proceedings of IPA Convention, notifications of IPA and other information such as articles, advertisements, announcements etc. Pharma Times is indexed by the search engines - Scopus & Embase of the premier scientific publication house Elsevier.



## The Indian Pharmaceutical Association, Maharashtra State Branch (IPA-MSB)

IPA-MSB is a state branch of the IPA initiated in 1941 immediately after the foundation of IPA in 1939. IPA-MSB runs an educational institute, Bombay College of Pharmacy (BCP). The Amrut Mody Research Fund (AMRF), The Research Society of Bombay College of Pharmacy (RSBCP), the Dr. M. K. Rangnekar Memorial Testing Laboratory (MKR), the Academy for Clinical Excellence (ACE), IPA-SF-MSB are other ventures which are governed by IPA-MSB. IPA-MSB is the only state branch of IPA, that has the distinction of getting the BEST BRANCH AWARD constituted by IPA four times i.e. 2004, 2005, 2011, 2012, 2016 and 2017. It has till date 2088 Life members and has active local branches at Pune, Nashik, Aurangabad, Solapur, Nagpur, Kolhapur, Amravati and Dhule.

## IPA-Student Forum-MSB (IPA-SF-MSB)

IPA-SF-MSB participates actively under the guidance of IPA-MSB in the organization and conducts the National Pharmacy Week celebrations every year. The Rx Festival, which is a cultural event, is also organized by the Student Forum every year, in which students from all the pharmacy Colleges in Mumbai, Navi Mumbai and Thane region and other parts of Maharashtra participate. The IPA-SF-MSB also publishes a magazine called 'Panache' which is greatly appreciated by the members, industry and academicians.

## Some of the Activities (Symposia/Seminars/Lectures, etc.) conducted by IPA-MSB in recent past

- Material Science Solution to Formulation and Drug Delivery with ObD Perspective - Particle Size
- Rx Festival - Every Year
- Prospects after Pharmacy Education
- Training Program for Community Pharmacy
- Building Concentration Through Stress Management - Nerul, Ulhasnagar, Chembur
- Rational Design of Modulators of Human Follicle Stimulating Hormone
- DOTS TB Training Program
- Continuing Professional Development Program
- Matrix & Matrices - Compliance Mantra
- Drug Discovery and Development
- National Pharmacy week (NPW)
- Advanced Instrumental Analytical Techniques
- Studies on Reactive metabolites leading to Mechanism Based Inhibition of Cytochromes
- Orientation and future Trends in Pharmacy
- Overcoming Regulatory Compliance Hurdles
- Role of NAT in blood banking
- Monoclonal Antibodies
- To & Thru the Skin
- Training Workshop on "Regulatory Global Scenario" at Taloja
- International Yoga Day
- Dr. H. P. Tipnis Memorial Lecture
- "Let's Do NBA Accreditation" I P A - M S B & Konkan Gyanpeeth
- Free Medical Camp at Karjat organised by Rahul Dharkar College Of Pharmacy, IPA-MSB & Konkan Gyanpeeth
- Health Check-up Camp at Nagpur by Nagpur Local Branch jointly with IPA - MSB
- Interactive lecture by Dr. R. B. Smarta on Soft Skill
- Lecture on GPAT with Pharmacad
- Asthama Checkup Camp at R.F. Naik School, Koparkhairne - WPD
- Seminar on Nutrition at St. Laureate School, Koparkhairne - WPD
- World Pharmacist Day Celebrations at KEM Hospital by Hosp. Pharmacy Div Of IPA-MSB
- Diabetic Monitoring Camp at Div. of Ashwini Chemist - WPD
- Lecture on Stress Management by Dr. Shantesh Kaushik - WPD
- Medical Health Checkup Camp at BCP - WPD
- World Pharmacist Day Celebrations at SNTD college
- Diabetic Monitoring Camp at Shree Sai Medicals, Koparkhairne - WPD
- World Pharmacist Day at Chemist Bhavan Sanpada - WPD
- Diabetic Monitoring Camp at Health Plus Medicals at Navi Mumbai - WPD
- World Pharmacist Day Celebration at Saifee Hospital at Chani Road.
- Nutrition Awareness Camp at R.F. Naik School, Koparkhairane, Navi Mumbai.
- Program on 'Clinical Trials Regulations in India' on 19<sup>th</sup> Oct. 2017 at BCP.
- Half Day Seminar on "Recent Trends in Science Journalism and Science Communication"
- Principal Meeting to discuss the Action Plan of 'Education Conclave 2018
- Breath Free Camp held at Ashwini Chemist & General Store
- Interactive meeting with Dr. Khalid and Dr. Giannetti at BCP
- Program oheld on the Occasion of 56<sup>th</sup> NPW Celebration at R.F. Naik School, Kopakhai.
- Seminar on Innovation in Pharmaceutical Industry - Drug Development and Chromatography.





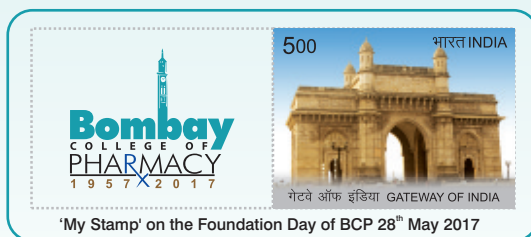
2017 | BCP Diamond Jubilee Year

2016 | The IPA MSB Platinum Jubilee Year

2014 | IPA Platinum Jubilee Year

2014 | Amrut Mody Centennial Birth Anniversary

## Ventures of The IPA-MSB



Dr. E.C. Coutinho, I/C Principal

Dr. Krishna Iyer  
Vice Principal (Academic)

Dr. Krishnapriya Mohanraj  
Vice Principal (Administration & Strategy)

**AMRF**

Amrut Mody Research Fund

**RSBCP**

The Research Society of  
Bombay College of Pharmacy

**MRT**

Dr. M.K. Rangnekar Memorial  
Testing Laboratory

**ACS**

Academy for Clinical  
Excellence

Mrs. Manjusha Pimplodkar, Sr. Manager

**BCP-AA**

The Bombay College of Pharmacy-Alumni Association

Dr. Anisha Pargal, Chairperson  
Dr. Mala Menon, Treasurer

Dr. Anuradha Majumdar, Secretary  
Ms. Shruti Desai, Jt. Secretary

### The IPA-MSB's Office Bearers 2018-2020

Dr. N. Sivaprasad, President  
Dr. Anand Shedge, Vice-President  
Nitin N. Maniar, Hon. Secretary

Dr. Hemant Mondkar, Immediate Past President  
Satish Shah, Vice-President  
K. G. Gadewar, Hon. Joint Secretary

Santosh Ghodinde, Hon. Treasurer

### Council Members

Dr. Anubha Khale  
Sureshkumar Choudhary  
Vidya Sawakhande

Dr. M. S. Gadge  
Sahebrao Salunkhe  
Vijaykumar Ghadge

Rahul Lad  
Umesh Tiwari  
Zarine Khety

### Divisional Chapter Chairperson/s

Anita Bhisikar (Community Pharmacy)  
Sheetal Chandan (Hospital Pharmacy)  
Girish Hukare (Regulatory Affairs)

Dr. John Disouza (Education)  
Sandip Shah (Industrial Pharmacy)  
Mathew Abreo (Executive Secretary)



The Indian Pharmaceutical Association-Maharashtra State Branch (IPA-MSB)

Bombay College of Pharmacy Campus, Kalina, Santacruz (East), Mumbai - 400 098

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The formal announcement of the commissioning of the 50kw Solar Power-on-grid System at Bombay College of Pharmacy (BCP) campus was done at the programme on 28th May 2015, BCP's Foundation Day and concluding ceremony of the Centennial Birth Anniversary of Padmabhushan Late Shri Amrut Vithaldas Mody (Founder Chairman of the Governing Body of the BCP).

Looking at the success ratio of the 50kv solar power-on-grid system at BCP additional 90kv system has been installed on 4<sup>th</sup> Feb 2017 totaling to 140kv. followed by installation of Net Metering for the optimal utilization of resources

# Sun shines on Kalina college; ₹1.6L saved

**WATT AN IDEA** 453 solar panels, installed across a 13,500 sq ft terrace, generate 15,399 units of electricity every month



Badri Chatterjee

badri.chatterjee@hindustantimes.com

**MUMBAI** One of the largest rooftop solar power generation systems in Mumbai helps Bombay Pharmacy College in Kalina to power 70% of its electricity requirements from the sun.

The college saves ₹1.6 lakh every month in electricity bills by running the 140 kilowatt-power (kW) system that has 453 solar panels installed across a 13,500 sq ft terrace area. The system generates an average 15,399 units of electricity per month and runs lights, fans, air-conditioners, and lifts across 13 laboratories, seven classrooms, the college administration office area and the canteen. For a comparison, a two-bedroom flat in Mumbai uses 300-350 units of electricity per month.

Solar energy, apart from being renewable and free, does not cause pollution unlike power plants that burn coal, gas and oil. Solar energy can be used in remote areas where electricity

## SOAKING UP THE SUN

### WHAT IS SOLAR ENERGY?

Solar energy is a free source of renewable energy

### WHY IS IT IMPORTANT?

Generation of solar power does not cause carbon emissions that come from burning coal, gas and oil for generation of electricity

Solar energy can be used in remote areas where electricity from the grid cannot be accessed

Gadgets like calculators, street lights and other low power-consuming devices can be powered by solar power

The potential to harness solar energy as a natural resource is infinite

■ The 453 solar panels installed across a 13,500 sq ft terrace area.

### HOW TO HARVEST RAINWATER

Rainwater can be harvested in several ways:

One way is to assist rainwater to seep into the ground and recharge groundwater levels. In this process, wells will have water for a longer period in the dry season

Rain water falling on building terraces can be diverted and stored for use in the dry season



Students and staff stand near the medicinal garden located near the entry of the college. PHOTOS BY ANJAL PATEL/HT



### KEEP IN MIND

Rain can be acidic, because it mixes with atmospheric gases, so it needs to be processed before it is used for drinking or cooking. Unprocessed rain water can be used for non-potable purpose like flushing toilets and watering gardens

Around 800 million litres of water is wasted through leakages in tanks every day according to the data provided by the BMC. Rainwater harvesting can help save this precious resource

from the grid cannot be accessed.

Nitin Navnitray Maniar, chairman, governing body, Bombay Pharmacy College and special executive officer for the state government, said, "We went for such a large-scale setup because this energy source is

both eco-friendly and cost-effective, and allows us to give something back to the environment."

Founded by the Indian Pharmaceutical Association, Maharashtra State Branch in 1967, the college has over 400 undergraduate, postgraduate and PhD stu-

dents along with 80 teachers and staff members. The college is spread across 65,000 sq ft area with one-quarter-of-an-acre garden that has medicinal plants and a large ground allocated for extracurricular activities and events.

The solar project was completed in two phases. In the first phase, a 50kW setup at a cost of ₹39.5 lakh in May 2015, and in the second phase in February this year, a 90kW unit was installed for ₹49.5 lakh. "We expect to recover the entire ₹89

lakh by 2021. We have already received ₹14.59 lakh in the form of subsidy (30%) from the state government. We estimate annual savings of ₹20 lakh from this project," he said.

Prior to the solar installation, the monthly electricity bill for the college was ₹3.25 lakh that fell to ₹1.65 lakh post installation. The campus also uses a net-metering system, which allows surplus power generated through solar panels to be sent back to the grid and any deficiency is imported from the grid.

The college also has a rainwater harvesting system that collects water during the rains for use later. The college estimates that it has saved close to 32 lakh litres of water through rainwater harvesting since 2009. The college complex does not depend on the civic body for its non-potable water consumption. The rooftop and common areas act as catchment for rainwater. The water collected is channelled into a well with a capacity of 50,000 litres, and the water is used in the 45 washrooms on campus. "The water is also used in our gardens. Channels have been dug up through the campus that allows water to drain into the well," said Maniar.

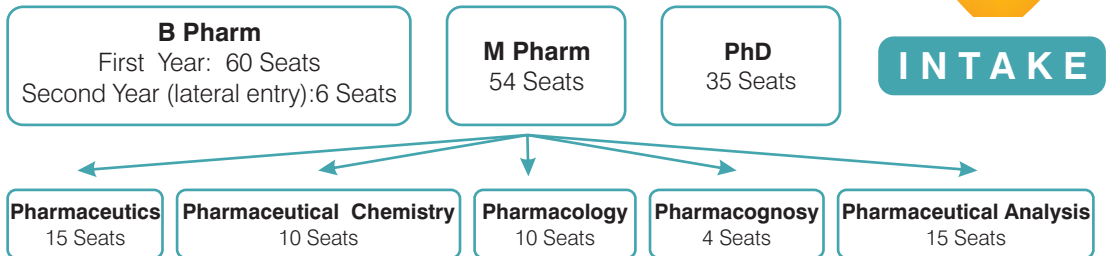
## VISION

To be a leader in Pharmacy Education, Pharmacy Training and Research in Pharmaceutical Sciences.

## MISSION

- To educate and train students in the knowledge and practice of pharmaceutical sciences
- To contribute to improvement of health of the society through education programs
- To contribute to improvement of health of the society through research programs

**Bombay College of Pharmacy (BCP)** is a pioneer institution in pharmaceutical education in India. BCP was founded in 1957 by the Indian Pharmaceutical Association - Maharashtra State Branch (IPA - MSB) with financial assistance from the Government of Maharashtra and several pharmaceutical companies. It is centrally located and well connected by road, rail and air. Since its inception as a college offering a Diploma in Pharmacy, the college has grown in stature and at present offers Bachelors, Masters, and Doctoral programs of study in Pharmaceutical Sciences.



## PROGRAM EDUCATIONAL OBJECTIVES

**To teach and help assimilate theoretical knowledge in various fields of Pharmaceutical and Allied Sciences namely**

- Pharmaceutical Chemistry
- Pharmaceutics
- Pharmacology
- Pharmacognosy
- Pharmaceutical Analysis
- Clinical & Industrial Pharmacy
- Microbiology & Immunology
- Biochemistry & Biotechnology
- Mathematics & Statistics

**To teach and help assimilate the practical / laboratory skills/ knowledge in various fields of Pharmaceutical and Allied Sciences namely**

- Pharmaceutical Chemistry
- Pharmaceutics
- Pharmacology
- Pharmacognosy
- Pharmaceutical Analysis
- Clinical & Industrial Pharmacy
- Microbiology & Immunology
- Biochemistry & Biotechnology

**To foster development of students through participation in the Indian Pharmaceutical Association Student Forum, Drug information Agency, Indian Pharmaceutical Association- Maharashtra State Branch Symposia, International Society for Pharmacoeconomics and Outcomes Research**

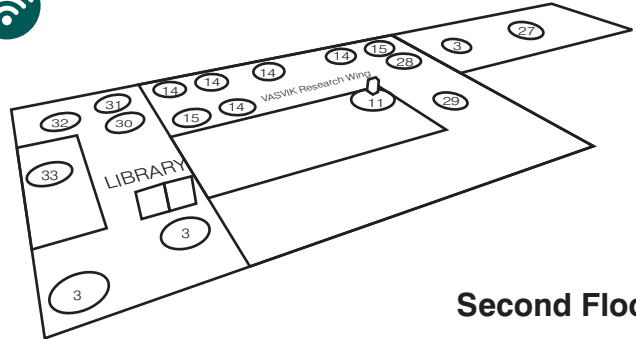
**To develop leadership skills, team building skills, community service outlook, continuing education opportunities, and ethical practices**



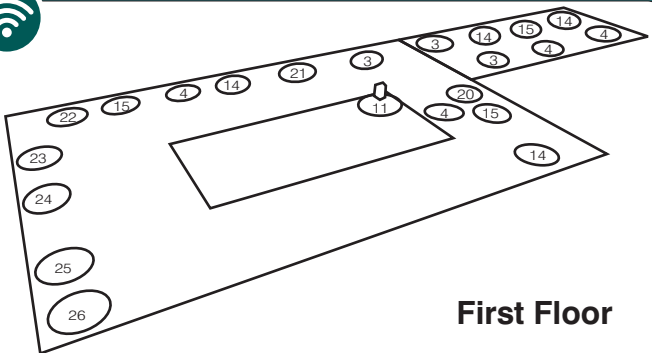
# BIRD'S - EYE VIEW

1. Medicinal Plant garden
2. Seminar Halls
3. State- of- the- art class rooms
4. Fully equipped Laboratories
5. Auditorium
6. Aseptic area
7. Distilled water plant
8. Entry for the disabled
9. Canteen area
10. Recreational Area
  - Carrom boards
  - Garden Chess Set
  - Table tennis

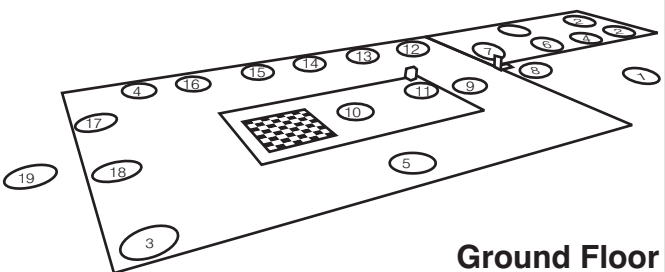
11. Lift
12. Girls common room
13. Machine room
14. Research Laboratories
15. Staff rooms
16. Stores
17. RIA laboratory
18. Boys common room
19. 4 Acre Play ground
20. Museum
21. Sophisticated Central Instrument room
22. Administrative office
23. Accounts
24. IPA-MSB office
25. IPA office
26. Conference room
27. National Facility for Research and Training
28. High speed computation facility and server room
29. MKR laboratories
- LIBRARY
30. Thesis /reference section
31. Language Laboratory
32. Books (> 10000 books) reference section and Periodicals
33. High speed network connected latest computer laboratory
34. VASVIK Research Wing
35. Terrace - 140kv solar system



**Second Floor**



**First Floor**



**Ground Floor**

\* Not to scale

\* Free usage of Office 365 suite for bonafide students, staff of BCP



: With 30mbps dedicated internet lease connectivity



## TRAINING AND PLACEMENT CELL

The placement cell of Bombay College of Pharmacy acts as a contact point for pharma and allied industries that wish to recruit students from the BCP. It also organizes pre-placement talks for corporates who wish to visit the campus for recruitment.



Some of our eminent recruiters include:



## INDUSTRY INSTITUTE PARTNERSHIP CELL

The main objective of this cell is to act as a liaison between industries and the BCP. The following are the major activities of the IIP cell :-

- Maintenance, co-ordination & promotion of consultancy services
- Infrastructure development for strengthening the various departments
- Industry study tour programme (ISTP), internship programme & placement of students
- Tax Incentives from government
- Industrial training and industrial visits for students
- Industrial exhibitions
- Training of industrial personnel in Bombay College Pharmacy
- Guest lectures
- Generate funds from industry / other agencies for maintenance & development of the cell





## ALUMNI

The achievements of alumni of BCP themselves speak of the quality of education and training given here. The alumni are successful entrepreneurs, businessmen, consultants, scientists, administrators and academicians.

### Photograph of some alumni functions



## AWARDS AND ACCOLADES OF FACULTY

Few of the Awards and Accolades of Faculty of BCP are listed below :



Prof. Mala Menon	2018	Best Professor in Pharmaceutics (Dewang Mehta National Education Award)	Prof. M.S. Nagarsenkar	2012	Amrut Mody Distinguished Researcher Award
Prof. Mala Menon	2018	IPA-ACG Scitech Innovation Award in Solid Dosage Development	Prof. Krishnapriya Mohanraj	2012	Dr. P. D. Sethi Annual Award
Prof. Mala Menon	2017	Best Professor of Pharmaceutics (National Education Award)	Dr. Savita R. Kulkarni	2011	Dr. P. D. Sethi Annual Award
Prof. Krishnapriya M.	2017	First Prize at 8 <sup>th</sup> Indian Youth Science Congress	Mr. Mushtaque S. Shaikh	2006	Best emerging Scientist Award at Focus India
Prof. Mala Menon	2016	Dr. P. D. Patil Best Pharmaceutical Scientist Award from APTI Maharashtra	Dr. Alka P. Mukne	2006	Outstanding Achievement Award by IPA
Prof. Krishnapriya M.	2016	2 <sup>nd</sup> Prize in Avishkar for Poster and Oral Presentation	Prof. M. N. Saraf	2004	Best Principal Award by APTI
Prof. M. N. Saraf	2015	Amrut Mody Distinguished Researcher Award	Prof. Evans C. Coutinho	1995	Career Award for Young Teachers by AICTE
Dr. Anuradha S. Majumdar	2014	Gold Medal in Avishkar	Prof. Evans C. Coutinho	1993	PAMDAL Best Teacher Award
Prof. M.S. Nagarsenkar	2013	Mrs. Manjushree Pal Best Researcher National Award			





**2018**  
2<sup>nd</sup> prize for Best Industry Linked institute in Pharmacy category from AICTE-CII

**2018**  
Ranked 8<sup>th</sup> amongst Pharmacy Institutions of India by MHRD under National Institutional Ranking Framework(NIRF)

**2017**  
Accreditation for 5 years by NBA

**2017**  
Ranked 15<sup>th</sup> amongst Pharmacy institutions of India under NIRF MHRD

**2017**  
Grant Rs. 5.87 Crores from DST DPRP for National facility for Research & Training

**2016**  
Ranked 6<sup>th</sup> amongst Pharmacy Institutions by MHRD under (NIRF)

**2015**  
IndPact Mentor Award for Best Industry - Linked Pharmacy Institute from AICTE-CII

**2015**  
BCP and University of Mumbai fetched First runner up Trophy in national research competition AVISHKAR

**1982**  
The M.S.D auditorium, with seating capacity of 500 was opened

**1987**  
The VASVIK Research Wing was inaugurated and an International Symposium on "Controlled Release Dosage Forms" was held and the Staff Quarters for senior faculty members was constructed

**1984**  
The Silver Jubilee of the college was celebrated and an International Symposium on "Advance in Drug Delivery System" was held

**2014**  
Best Industry Linked Institute in Pharmacy category from AICTE- CII

**2013**  
Best Industry Linked Institute in Pharmacy category from AICTE- CII

**2013**  
Ranked Country's 4th Best Pharmacy College by a Survey

**1981**  
The Research Society of the Bombay College of Pharmacy was formed and registered with the Department of Scientific and Industrial Research (DSIR), Govt. of India

**1976**  
The UNESCO Microbiology workshop

**2013**  
Inauguration of Radioimmunoassay Laboratory (RIA Lab)

**2011**  
BCP and University of Mumbai fetched Gold Medal(s) and a Trophy in AVISHKAR

**2011**  
Postgraduate Course in Pharmaceutical Analysis with intake for 18 students

**1977**  
The Second Commonwealth Pharmaceutical Congress jointly with the 28th I.P.C.A and the Pharma Expo-77

**1970**  
BCP was affiliated to the Mumbai University for the B. Pharm course

**2008**  
Accreditation for 5 years by NBA

**2008**  
Golden Jubilee Celebrations. An International Symposium " Designing the future New Medicines and New Methods" conducted on 18<sup>th</sup> and 19<sup>th</sup> Jan. 2008 at Hyatt Regency Mumbai

**1973**  
BCP was affiliated to the Mumbai University for the M. Pharm and the PhD(Tech) course. The College also received its first research grant from CSIR. Since then several important events have marked the progress of BCP

**1966**  
The Building at Kalina was inaugurated and BCP hosted the 18th Indian Pharmaceutical Congress

**2004**  
FIST grant from DST for improving infrastructure

**2001**  
Patents Awareness Workshop in Collaboration with TIFAC-Govt. of India

**1956**  
The idea of establishing the Bombay College of Pharmacy (BCP) was formulated under the leadership of the Late Prof. M. L. Khorana in 1956, in the form of a short term course called "Practicing Pharmacists Training (PPT) course "

**1998**  
Golden Jubilee IPCA Conference Jointly with FAPA Conference

**1995**  
Inauguration of "Ramesh Banatwala Memorial Industrial Pharmacy Laboratory" and Permanent Affiliation to University of Mumbai

**1957**  
The Diploma course was started and BCP was formally constituted

**1993**  
International Symposium on "Update on Bioavailability and Bioequivalence"

**1990-1993**  
Foundation and opening of "Bioavailability Centre"





### Faculty:

**Mala Menon**, Ph.D. (Tech), Professor &

Head of Department (mala.menon@bcp.edu.in)

**Ujwala Shinde**, Ph.D. (Tech), Associate Professor

(ujwala.shinde@bcp.edu.in)

**Shubhangi Aher**, M.Pharm, Assistant Professor

(shubhangi.aher@bcp.edu.in)

**Harita Desai**, Ph.D. Assistant Professor

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**Pankaj Sontakke**, Ph.D. M.Pharm, Assistant Professor

(pankaj.sontakke@bcp.edu.in)



The Department of Pharmaceutics is dedicated to undergraduate teaching and is actively involved in research at the post graduate (M. Pharm. and Ph.D.) level. The department is equipped with the necessary infrastructure essential for smooth undergraduate teaching. The department also has state-of-the-art facility to support post graduate research activities.

### Research areas in drug delivery systems viz.

- Liposomal and niosomal formulations
- Cyclodextrin based drug delivery systems
- Development of gene delivery systems
- Probiotic formulations
- Microcapsules and microspheres
- Polymeric coatings and pelletization
- Polymeric and lipid nano particulates
- Polymer synthesis, design of ligands for tumor targeting
- Development of mucosal vaccine delivery systems
- Development of in vitro release methodologies
- Oral controlled release preparations

### The Industrial Pharmacy Laboratory has facilities :

- For solid dosage forms which include rapid mixer granulator, fluidized bed coater, GMP model compression machine and dissolution test apparatuses.
- For novel systems which include probe sonicators, high speed homogenizer, spray dryer, freeze dryer, type 4 dissolution test apparatus, vertical diffusion cells, high pressure homogenizer, DSC, particle size analyzers and HPLC systems.

### Collaborations

The department also collaborates with pharmaceutical corporate clients for preformulation, formulation development and pilot plant scale up projects. Some of the clients include :

- |                        |                        |                         |                |
|------------------------|------------------------|-------------------------|----------------|
| • Unichem Labs         | • Bayer (I) Ltd.       | • Gattefosse (I) Ltd.   | • Mother Dairy |
| • Novartis (I) Ltd.    | • Glenmark Ltd.        | • Famy Care Ltd.        | • USV Ltd.     |
| • Naprod life sciences | • Macleods Pharma Ltd. | • DMV Fonterra          |                |
| • Inventia Pvt Ltd.    | • Serum Institute      | Excipients GmbH & Co KG |                |
| • Abbott Laboratories  | • ACG                  |                         |                |
| • Hansen Probiotics    | • Lubrizol             |                         |                |
| • Marico Ltd.          |                        |                         |                |



**Department has established several research international as well as national collaborations in areas of drug delivery research. Department has successfully collaborated with:**

- Department of Pharmaceutical Technology, University of Jena, Germany
- Centre of Drug Research, University of Helsinki, Finland
- Department of Pharmaceutical Technology, Goethe University, Germany
- Bristol Myers Squibb, USA



**Some of the national institutes with which the department has collaborations include:**

- Advanced Centre for Treatment, Research and Education in Cancer (ACTREC, Navi Mumbai)
- GS Medical college and KEM Hospital (Parel, Mumbai)
- Bombay Veterinary College (BVC, Mumbai)
- Serum Institute of India (Pune)
- Board of Radiation and Nuclear Science (BRNS, Mumbai)

**Department also provides services in characterization of drug delivery systems which include:**

- Size Determination using Beckmann Coulter, USA
- Zeta Potential using Malvern NanoSizer Series ZS (UK)
- In vitro lung deposition using Anderasen Cascade Impactor, Copley Scientific, UK
- In vitro skin permeation studies using Vertical Diffusion Cell, Hanson Research, US
- Differential Scanning Calorimetry Studies using DSC, Mettler Toledo, Switzerland
- Probiotic Cultures and Formulation Testing
- Size reduction using high pressure homogenizer
- R&D Scale batches on spray drier, Fluid Bed Water, Freeze Dryer.



#### **Publications:**

More than 200 publications in high impact factor journals like

- Journal of controlled release
- International Journal of Pharmaceutics
- Molecular Pharmaceutics
- Nanomedicine-Nanotechnology, biology and Medicine
- AAPS PharmSciTech
- Journal of Pharmaceutical Sciences
- Journal of microencapsulation
- Cell oncology
- Carbohydrate Research
- RSC Advances
- Dissolution Technology
- Nanomedicine -Future Medicine
- Drug development and Industrial Pharmacy



Faculty has contributed chapters in several books and has acquired patents and trademarks.

More than 300 papers have been presented by the department in national and international conferences, symposia and seminars.

Faculty is frequently invited to deliver lectures in field of novel drug delivery systems.



### Faculty:

- Evans Coutinho**, Ph.D. (Tech), Professor & I/C Principal  
(evans.coutinho@bcp.edu.in)
- Krishna Iyer**, Ph.D., Professor & Vice Principal (Academic)  
(krishna.iyer@bcp.edu.in)
- Premlata Ambre**, Ph.D., Assistant Professor  
(premlata.ambre@bcp.edu.in)
- Abhijeet Dalvi**, M. Pharm., Assistant Professor  
(abhijeet.dalvi@bcp.edu.in)
- Mahesh Borkar**, Ph.D., Assistant Professor  
(mahesh.borkar@bcp.edu.in)
- Anand Chintakrindi**, Ph.D., Assistant Professor  
(anand.chintakrindi@bcp.edu.in)
- Kavita Raikumar**, M. Pharm., Assistant Professor  
(kavita.raikumar@bcp.edu.in)



### Research Guides from other departments:

- Krishnapriya Mohanraj**, Ph.D.(Tech), Professor &  
Vice Principal (Administration and Strategy) (krishnapriya.mohanraj@bcp.edu.in)
- Vaishali Shirsat**, Ph.D. (Tech), Associate Professor  
(vaishali.shirsat@bcp.edu.in)

### Areas of Research:

- Multidimensional and multinuclear NMR
- Multidimensional QSAR
- Molecular Dynamics Simulations
- Protein Modeling
- Pharmacokinetics
- Process development for intermediates and bulk drugs
- Molecular modeling and Drug Design
- Binding Free Energy Calculations
- Quantum Mechanical Calculations
- Drug Metabolism
- Synthetic Medicinal Chemistry
- Plant xenobiotic metabolism

### Facilities available in the department include:

- CEM Discover Microwave synthesizer
- Shimadzu HPLC with dual wavelength UV detector
- Jasco HPLC with PDA and fluorescence detector
- Jasco UV-visible spectrophotometer
- Low temperature synthesizer
- Buchi Flash Chromatography with fraction collector C-660 and Buchi pump manager C-615
- Jasco HPLC with UV detector
- CAMAG HPTLC
- Roteva Rotary evaporator
- Molecular modeling software -



### Extra mural funding:

- All India Council of Technical Education (AICTE)
- Council of Scientific and Industrial Research (CSIR)
- Department of Science and Technology (DST)
- Spring Bank Pharmaceuticals, USA.
- University of Mumbai
- University Grants Commission (UGC)
- Department of Biotechnology (DBT)
- BASF, Germany
- Bristol Meyers Squibb (BMS, USA)

### Collaborative Programs:

- UM-DAE Center for Excellence in Basic Sciences, Mumbai
- Chemworks, Mumbai
- Tuberculosis Research Centre, University of Illinois, Chicago, USA
- Chandigarh College of Pharmacy, Mohali, Punjab
- School of Biochemistry, University of Bristol, UK
- Eli Lilly, USA
- Institute for Pharmaceutical and Medicinal Chemistry, Heinrich-Heine University, Düsseldorf, Germany
- University Institute of Pharmaceutical Sciences, Punjab University, Chandigarh
- Department of Chemistry, Saurashtra University, Rajkot
- Indofil Ltd., Thane, Maharashtra
- Department of Molecular Microbiology and Immunology, Bloomberg School of Public Health, Johns Hopkins University, USA
- Kingston University, London
- Central Effluent Treatment Plant, Ambernath

### Publications:

#### More than 170 research publications in high impact factor journals like:

- The Journal of American Chemical Society
- Journal of Organic Chemistry
- Biochemistry
- FEBS Lett.
- Tetrahedron
- Journal of Computer Aided Molecular Design
- Journal of Molecular Graphics and Modeling
- Journal of Molecular Modeling
- Drug Metabolism and Disposition
- Biomaterials
- Journal of Medicinal Chemistry
- Journal of Chemical Information and Modeling (Formerly known as Journal of Chemical Information and Computer Science)
- Journal of Computational Chemistry
- QSAR and Combinatorial Science
- Journal of Peptide Science
- Bio-organic and Medicinal Chemistry
- Chemical Research in Toxicology
- Biopolymers
- Water Science & Technology

Faculty has also contributed chapters in several books and Encyclopedias. More than 200 papers have been presented by the faculty in Conferences, Symposia and Seminars in India and abroad besides being invited for lectures in Conferences, Seminars, Workshops etc.





### FACULTY:

**Anuradha Ghosh Majumdar**, Ph.D. (Tech), Associate Professor & I/C Head of Department (anuradha.majumdar@bcp.edu.in)

**Vaibhavi Peshattiwar**, M. Pharm, Assistant Professor (vaibhavi.peshattiwar@bcp.edu.in)

**Prashant Dongre**, M. Pharm, Assistant Professor (prashant.dongre@bcp.edu.in)



The Department of Pharmacology, Bombay College of Pharmacy, is reputed for its preclinical research in India. The department offers Master and Ph.D. in Pharmacology. This course is approved by the All India Council of Technical Education, Directorate of Technical Education, Maharashtra State and the University of Mumbai. The department boasts of experienced and renowned faculty and well equipped Pharmacology and Toxicology laboratories. The laboratories are designed to cater to preclinical pharmacological and toxicological evaluations of drugs/herbals/phytochemicals using contemporary in vivo and in vitro tools. The department has been prolific in its outcome of successful completion of several industry and Government sponsored projects.

### Some of our Research Expertise:

Pharmacological screening and evaluation in the domain of:

- Inflammation and Immunology
- Cardiovascular and Respiratory disorders
- Cancer
- Diabetes and Metabolic disorders
- Neuropharmacology and Behavioural Pharmacology
- Pharmacokinetics
- Safety Pharmacology and Toxicology
- Metalloid toxicity studies
- Herbal and Phytochemical analysis
- Metabolism and Pharmacokinetic studies
- NDSS
- Consultancy in pharmacological and toxicological field
- Medical writing (Publication and Medical Information)

### Facilities available in the department include:

- CPCSEA approved animal house facility.
- HPLC with PDA and fluorescence detector.
- Intracerebroventricular (i.c.v.) drug delivery and CSF aspiration in rodents using Stereotaxic apparatus and Nanomite pump.
- Real time Polymerase Chain Reaction based Equipments both semi-quantitative PCR and RT-qPCR.
- Radio Immunoassay laboratory offering rat serum insulin and estradiol measurements.
- Zebra fish and Drosophila Experimental facility.
- Physiological data acquisition system like Laser Doppler Flow meter, 8 and 4-channel Power Lab data acquisition system with Spirometry, ECG, NIBP, IBP, NCV, isolated muscle preparation nerve electro physiology measurements etc.



- Protein quantification and characterisation through western blot, gel electrophoresis and gel documentation system.
- Dedicated mammalian cell culture facility for Cell Proliferation and Cytotoxicity studies.
- Other instruments include Roteva Rotary evaporator, Plethysmometer, hot plate, Actophotometer, Rota-rod, Cooks pole climbing apparatus, forced swimming test apparatus, rodent and zebrafish mazes, recording devices etc.
- The biochemical parameter assessment through blood-gas analyzer, auto-analyzer, cell counter, ELISA Plate reader.

### Funding, infrastructural support, collaborative research and industrial projects, consultancy assignments include:

#### Funding Agency (Government)

1. All India Council for Technical Education (AICTE)
2. Central Council for Research in Ayurveda & Siddha (CCRAS)
3. Council of Scientific & Industrial Research (CSIR)
4. Department of Science and Technology (DST)
5. Department of Biotechnology (DBT)
6. University Grants Commission (UGC)
7. Indian Council of Medical Research (ICMR)
8. Board of Research in Nuclear Sciences (BRNS)
9. University of Mumbai
10. Department of Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homoeopathy (Ayush)
11. Department of Biotechnology - Biotechnology Industry Research Assistance Council (DBT-BIRAC)

#### Funding Agency (Industry)

Alembic Ltd., Aurobindo Pharma Ltd., Bharat Serums and Vaccines Ltd., Cipla Ltd., Clinworld Pvt. Ltd., Criticare Laboratories Pvt. Ltd., Elder Pharmaceuticals Ltd., FDC Ltd., Glenmark Pharmaceuticals Ltd., Gufic Healthcare Ltd., Hetero Drugs Ltd., Hindustan Lever Ltd., Ipca Laboratories Pvt. Ltd., Kopran Ltd., Khandelwal Labs Ltd., Lupin Laboratories Ltd., Macleods Pharmaceuticals Ltd., Marico Ltd., Medley Pharmaceuticals Ltd., Micro Labs Ltd., Siro Clinpharm Pvt. Ltd., Sun Pharmaceutical Industries Ltd., Shreya Life Sciences Ltd., Sandu Pharmaceuticals Ltd., Themis Medicare Ltd., Torrent Pharmaceuticals Ltd., Unichem Laboratories Ltd., Yasham P2D Life Sciences, Lamar Group of Companies, Charak Pharma Ltd. etc.



### The department also conducts “Technical Developmental Programs” for industry personnel on:

- Skill development program in animal handling and preclinical pharmacological Evaluation Methods.
- Skill development program for Medical Product Marketing and Sales Representation.

#### Consultancy Services:

- Consultancy Services in field of Preclinical and Clinical Pharmacology.



### Faculty:

**Alka Mukne**, Ph.D., Assistant Professor & I/C Head of Department (alka.mukne@bcp.edu.in)

**Galvina Pereira**, Ph.D., Assistant Professor (galvina.pereira@bcp.edu.in)

**Swapna Nair**, M. Pharm, Assistant Professor (swapna.nair@bcp.edu.in)

The Department of Pharmacognosy and Phytochemistry offers Masters and Doctorate in Pharmaceutical Sciences, approved by All India Council of Technical Education (AICTE), Directorate of Technical Education, Maharashtra State and University of Mumbai.



**The Department of Pharmacognosy & Phytochemistry has a reputation for excellence in research and has experienced and technically - competent faculty with the following areas of expertise:**

- Standardization of crude drugs and herbal extracts
- Bio-activity guided fractionation of herbal extracts
- Evaluation of therapeutic potential of crude drugs and their various extracts
- Study of different parameters of extraction of herbal drugs and optimization
- Isolation and characterization of phytoconstituents from herbal extracts
- Solubility manipulations of drugs of natural origin by various techniques
- Development of conventional formulations and Novel Drug Delivery Systems of herbal extracts
- Analytical method development and validation for crude drugs, herbal extracts and herbal formulations by HPLC, HPTLC and other chromatographic techniques
- Stability studies and shelf life study of herbal formulations
- Development and evaluation of Ayurvedic formulations



**The department is well-equipped with state-of-the-art equipment and facilities for conducting first-grade research in the area of herbal drug discovery, development and evaluation. Given below are few of the high-end equipment available with the department:**

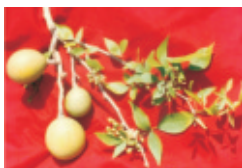
- CAMAG HPTLC with LINOMAT V Applicator and Scanner
- Agilent HPLC with Quaternary pump & PDA Detector
- Supercritical Fluid Extractor
- Buchi Rotary Vacuum Evaporator
- Virtis Lyophilizer
- Esco Class II Biosafety Cabinet
- BioRad ELISA Reader
- Gel electrophoresis

The Department has received funding for its research projects from various government funding agencies including DBT, BARC - BRNS, AICTE, CSIR, UGC and University of Mumbai.

In addition, the department has successfully completed projects sponsored by industry including German Remedies, Marico, Zandu pharmaceutical works, Charak Pharma, Anazeal analyticals and Omniactive Health Technologies. The department has also been engaged in guiding MD students of Ayurved faculty regarding the formulations. Many such funded projects also have been completed.

### Medicinal plant garden

The Department has developed a lush, well-maintained medicinal plant garden with almost 40 herbs of medicinal value. The adjunct literature of the planted medicinal herbs of the garden and Pharmacognosy museum has also been maintained and updated by the department.



### Faculty:

**Krishnapriya Mohanraj**, Ph.D. (Tech), Professor &  
Vice Principal (Administration and Strategy)  
(krishnapriya.mohanraj@bcp.edu.in)

**Vaishali A. Shirsat**, Ph.D. (Tech), Associate Professor  
I/C Head of Department (vaishali.shirsat@bcp.edu.in)

**Dipti Gatne**, Ph.D., Associate Professor (dipti.gatne@bcp.edu.in)



### Research guides for M. Pharm. (Pharmaceutical Analysis) from other departments:

**Krishna Iyer**, Ph.D., Professor & Vice Principal (Academic) (krishna.iyer@bcp.edu.in)

**Premlata Ambre**, Ph.D., Associate Professor (premlata.ambre@bcp.edu.in)

**Alka Mukne**, Ph.D., Assistant Professor (alka.mukne@bcp.edu.in)

Established in 2012, the Department of Pharmaceutical Analysis brings another dimension to specialized research arena at Bombay College of Pharmacy. The department is actively involved in training students at undergraduate and postgraduate levels. The department offers Master of Pharmacy Course in Pharmaceutical Analysis which is approved by the All India Council of Technical Education, Directorate of Technical Education, Maharashtra State and the University of Mumbai for an intake of 15 students per year. The Department has state-of-the-art laboratories, supported by good infrastructure and well-trained faculty.

### Distinguished mentors of department:

The department is privileged to have following distinguished mentors who help and guide the department in its various activities including curriculum development, research and resource mobilization.

- Dr. A. J. Vaidya, Director, Analytical Solutions
- Dr. Manish Gangrade, Vice President, Analytical R&D & Regulatory Affairs (API), Cipla Ltd.
- Mr. V. U. Kshirsagar, Director & CEO, TRAC Pharma Consulting



### Some of our research expertise:

- Analytical and Bio-analytical method development and validation
- Spectrophotometric multi-component analysis
- HPLC and HPTLC analysis
- Chiral chromatography
- Stability indicating methods, Impurity profiling
- Metabolism and Pharmacokinetic studies
- Herbal and Phytochemical analysis, Drug-herb interaction studies
- Bioactivity guided fractionation of herbal extracts
- In silico analysis and Computer-aided Drug Discovery
- Bioassays, High throughput assay method development
- Structural elucidation assignments
- Polymer synthesis and their evaluation

### Some Therapeutic areas of interest:

- Antimicrobial: Anti-bacterial, Anti-fungal, Anti-HIV
- Anti-platelet
- Anti-malarial
- Angiogenesis



#### Facilities available in the department include:

- Shimadzu HPLC with dual wavelength UV detector
- Jasco HPLC with UV detector
- Jasco HPLC with PDA and fluorescence detector
- Jasco UV-visible Spectrophotometer
- CAMAG HPTLC
- Gas Chromatography
- FTIR
- Rotary Evaporator
- Molecular Modeling Facility
- Solid Phase Extractor
- Low Temperature Synthesizer
- Nitrogen Evaporator
- Microbiological testing including resazurin microtitre assay (REMA)



#### Funding, Collaborations and Technology transfer:

The departmental faculty received substantial **funding from government agencies** namely All India Council of Technical Education (AICTE), University Grants Commission (UGC), Department of Biotechnology (DBT), Department of Science & Technology (DST), National Medicinal Plants Board, Department of AYUSH and University of Mumbai for research projects and travel.

In 2017, **Department of Science and Technology (DST)** sanctioned grant of **Rs. 5.87 crores** for establishment of a **National Facility for Research and Training in Integrated Analytical Strategies for Discovery, Development and Testing of Drugs, Pharmaceuticals and Nutraceuticals** under the Drugs and Pharmaceutical Research Program. The facility includes sophisticated high end analytical instruments viz. **LC-MS-MS, ICP-MS, and HPTLC-MS.**

The faculty collaborates with various pharmaceutical industries and academic institutes for infrastructural support, research, consultancy assignments and technology transfer -

- |   |  |  |
|---|--|--|
| • Aarti Healthcare  | • Aventis Pharma                         | • Ambernath Organics                             |
| • GlaxoSmithKline Pharma Ltd                                | • Analytical Solutions                   | • Sandu Pharmaceuticals Ltd                      |
| • Shogun Organics   | • S.G. Pharma                            | • Nerlikar Hospital                              |
| • Unichem   | • Loba Chemie                            | • Schrödinger                                    |
| • T. N. Medical College and<br>B.Y.L. Nair Hospital, Mumbai | • School of Science,<br>NMIMS University | • School of Pharmacy,<br>Kingston University, UK |

#### The department conducts “Technical development programs” for industry personnel on -

- Analytical skills development
- Chromatographic techniques (Fundamentals, TLC, GC, HPLC, UPLC)
- Spectroscopic techniques (UV, IR, NMR-1H, 13C, 2D NMR)
- Mass spectrometric and hyphenated techniques (LC MS/MS, GC MS/MS, HPTLC MS, ICP MS)



Amrut Mody Research Fund (AMRF) was created out of a donation from Unichem Laboratories Ltd by Late Shri A.V. Mody to form the corpus of Amrut Mody Research Fund. The main objective of the Amrut Mody Research Fund is to recognize and encourage research carried out in the field of pharmaceutical and allied sciences in the Bombay College of Pharmacy (BCP) and such other pharmaceutical institutions in India.

Late Shri Amrut V. Mody was a visionary industrialist who believed in good health as a basic human need. He was committed to providing medicines, especially to the economically backward sections of the society. In this endeavor he founded the Unichem Laboratory, one of the few earlier domestic pharmaceutical industries in 1944.

He was also committed to quality professional education and research and was instrumental, along with others in establishing and supporting the BCP. The College was to provide trained man power needed for the pharmaceutical industry and the profession. In this pursuit he established Amrut Mody Research Fund in 1972 at BCP to support research and development activities in pharmaceutical and allied disciplines. Service to society always played an important part in Shri Amrut Mody's life. In recognition of his services Shri Amrut Mody was awarded the Padmabhushan in 1972 by the President of India.



#### The aims and objectives of the Amrut Mody Research Fund in addition to those mentioned above are:

- To sponsor doctoral and advanced research in pharmaceutical and allied sciences in the form of scholarships and give grants to the faculty to support the research work of scholars of the BCP.
- To provide/support grants for purchase and maintenance of equipments, books and journals and for creation of such other research facilities to foster research and a research environment in the BCP.
- To promote and encourage scholarly activities of the faculty and scholars of the BCP by providing grants for writing scientific books, monographs, review articles, etc.
- To provide partial travel grants/registration fees to attend and present research findings of the faculty and doctoral students of the BCP at international conferences/seminars, etc once in three years.
- To hold seminars, symposia, conferences and exhibitions for promoting research in pharmaceutical and allied sciences in BCP.
- To arrange lectures or lecture series by inviting eminent scientists and professionals from academia and industry from time to time during each academic year. Amrut Mody Research Fund shall support the honorarium, local travel and such other expenses for the conduct of such activities.
- To carry out all such activities as are incidental or conducive to the attainment of the above objectives or any one of them.

The Amrut Mody Research Fund Distinguished Researcher Award was conferred to Dr. M.S. Nagarsenkar in 2012 and Dr. M. N. Saraf in 2015.

At the occasion of the concluding ceremony of the Centennial Birth Anniversary of Padmabhushan Late Shri. Amrut Vithaldas Mody, his bust was unveiled on the foundation day of BCP i.e 28<sup>th</sup> May 2015.

Some of eminent scientists and professionals from academia and industry who delivered lectures at Bombay College of Pharmacy in recent past:

- Dr. Aditya Das, Consultant at USA & Associated with Cipla
- Dr. Ajaz Hussain, Inside advance & solution LLC
- Dr. Aparna Khanna, Dean, School of Science, NMIMS
- Dr. Archana Krishnan
- Dr. Aruna Khanolkar, Team leader Qbd IPD, Cipla
- Dr. Abhijeet Date, Assistant Prof. Dept. of Pharmaceutical Sciences, The Daniel K. Inouye College of Pharmacy, USA
- Ms. Almas Sayed, PV-SME at Tata Consultancy Pvt. Ltd.
- Dr. Anil Wani, Foundation for innovation & technology transfer, IIT, Delhi
- Dr. Bettine Boltres, Product Manager Pharmaceutical Tubing SCHOTT AG, Germany
- Chris Freeman, Ametek Brookfield



- Col. Nambiar, RMR Retd.OBL Facilitator
- Dr. Daniel A. Heller, Assistant Member at Memorial Sloan - Kettering & Asst. Prof at Weill Cornell Medical College
- Dr. Dhiren Thakker, Ferguson Distinguished Professor and Associate Dean from UNC Eshelman School of Pharmacy
- Dr. Hari Sharma, University Medical Centre, Amsterdam
- Dr. Kalpana Gandhi
- Dr. Kothari
- Dr. Myke Scoggins, Sr. Principal Scientist, Micromeritics Instrument Corpn USA
- Adv. Manali Chitnis, Intellectual Property Lawyer
- Dr. M.S. Kamath, Hon. Secretary, Consumer Guidance Society of India (CGSI)
- Dr. N. R. Jagannathan, Prof. & HOD of NMR & MRI Facility, AIIMS
- Dr. Nancy Pandita, Prof. in School of Science NMIMS University
- Ms. Neha Pandit Tembe, Nutritionist, Founder, Snack-Right
- Dr. Peter Banks, Scientific Director Bio, Tek Instruments Inc.
- Dr. Prashant Karkar, NMIMS
- Dr. R.P. Iyer, Co-founder of Spring Bank Pharmaceuticals Inc, USA
- Dr. Ramaswamy Iyer, Associate Director Bristol-Meyar Squibb (USA)
- Dr. Rodney JY Ho, Prof. University of Washington
- Dr. Shubhada Chiplunkar, Director-ACTREC
- Dr. Stephen Barton, Kingston University
- Dr. Susan Thomas, NIRRH
- Sarita Singh Rajbhar, Strategic Portfolio Management, CIPLLA Ltd.
- Dr. S J S Flora, Director, NIPER
- Dr. Suraj Shinde, Officer, Learning & Development Dept. Cytel Statistical Software & Services Pvt. Ltd.
- Ms. Swati Dudhale, Learning Links Foundation
- Seminar on Nutraceuticals
- Dr. T.S. Baganesh, Distinguished Scientist CSIR
- Prof Prasad Bharatam, Dept of Medical Chemistry, NIPER
- Prof. G.N. Sastry
- Prof. Padma Devrajan, ICT
- Prof. Prakash Jha, Central University of Rajasthan
- Prof. Subhash Padhye, ISTRA Research Labs. Former HOD of the Dept of Chem University Pune
- Seminar with Royal Society of Chemistry
- Workshop by Mr. Ramandeep Singh, Asst. Manager Technical Services Signet Chemical Corpn Pvt. Ltd.
- Dr. Shashidhar Rao, Rutgers University (USA)
- Dr. Khalid, Duquesne University
- Dr. Giannetti, Duquesne University
- Dr. Rahul Thorat, MVSc Laboratory Animal Facility
- Mr. Abhijit Trimbakkar
- Dr. Siddhivinayak Barve, Dy. Director, The Kelkar Education Trust's Scientific Research Center





# RSBCP The Research Society of Bombay College of Pharmacy

## The Research Society of Bombay College of Pharmacy (RSBCP):

- Is a scientific society of pharmacy and related professionals established in the year 1981 with one of the mandates of promoting and strengthening the pharmacy profession through research collaborations and management & execution of such research collaborations in association with the Bombay College of Pharmacy (BCP) and its faculty members and students.
- Is recognized by Department of Scientific and Industrial Research (DSIR)



## AIMS AND OBJECTIVES OF THE RSBCP:

- To promote, organize, sponsor, establish, conduct research and encourage advancement of scientific knowledge in pharmaceutical and allied sciences in the BCP
- To increase the quality and efficacy of research outcome and to develop innovation culture in the BCP
- To finance research projects by providing grants for research and supporting infrastructure, instruments and their maintenance
- To endow research fellowships to support and recognize outstanding contributions of individuals and encourage research scholars to pursue studies & research
- To coordinate and manage industrial research collaborations in the BCP
- To assist the teaching and non-teaching staff of the BCP to develop professional skills.

## SALIENT FEATURES OF THE RSBCP:

### INDUSTRIAL RESEARCH COLLABORATIONS/ PROJECTS & SERVICES

- The RSBCP manages and effectively coordinates number of industrial research collaborations and industrial projects for pharmaceutical and related industries.
- The research projects are executed in the BCP laboratories by the faculty and their student team.
- The main benefit for industry from these academic research collaborations is the access to the research results and innovative methodologies at reduced cost. It is a mutual approach that the companies offer industrially relevant research problems of their interest and the faculty and students of the BCP contribute the methodology and expertise.
- The RSBCP also caters to the industry by providing 'pay as you use' equipment or instrument usage facilities (e.g., Particle size analyzer in  $\mu\text{m}$  and  $\text{nm}$  range, Zeta potential determination,

List of industries for whom research projects have recently been undertaken and consultancy/ services been provided,

- Inventia Healthcare •Panacea Biotech Ltd. •Glenmark •Abbott Laboratories •Marico
- OmniActive Health Technologies •IPCA •Zytex •Enem Nostrum •Shreya Lifesciences •Cipla •GlaxoSmithKline •Ambernath Organics •Sandu Pharmaceuticals •Bristol Myers Squibb •Getz Pharma Research
- Bharat Serum and Vaccines •Evonik Degussa India
- Neon Labs •Piramal Healthcare •Bajaj Healthcare •Naprod Life Sciences •USV
- Vaidya Patankar Pharmacy



•Nerlikar Hospital •Anazeal Analyticals & Research •Gattefosse India •JMB Pharma •Famy Care •Piramal Life Science •Solumics Plantacid Herbaceuticals •Franco-Indian Pharmaceuticals •Cymbiotics Biopharma •Mank Industries •Syngene International •Lamar Group of companies •Ayurchem.

### Technology Transfer:

- Technology developed through research at the BCP is made available to industries for further development and commercialization. One recent technology transfer to M/s Saife Vetmed Pvt Ltd was for a novel veterinary formulation for prevention and treatment of bovine mastitis. This technology has been developed in Bombay College of Pharmacy (BCP), in collaboration with Bombay Veterinary College (BVC), Mumbai.
- Another technology transfer to LOBA Chemie Private Ltd. has been done for the synthesis of chiral selector (as mobile phase additive) in enantiomeric separation of several chiral Active Pharmaceutical Ingredients (APIs), by Reverse Phase High Performance Liquid Chromatography (RP-HPLC) using non-chiral columns. The chiral selector had to be imported from Sigma Aldrich. The BCP team developed a cost effective indigenous method for synthesis of the chiral selector with around 150% reduction in cost. The synthesized chiral selector showed better performance for enantiomeric separation (better resolution and less run time) than the commercial imported product.

### Research Projects in Collaboration with Foreign Industries:

- Spring Bank Pharmaceuticals, USA for Expressions, Purification and x-ray structure determination of Plasmid RIG-1
- BASF, Germany for Assessment and development of computational methods for predicting which aminoacids in a target protein binding-site are most likely to mutate in order to generate resistance against specific crop protection agents.
- Bristol Myers Squibb Company, NJ, USA for project on design of novel delivery systems, grant received US dollars 5000/- .
- Gattefosse India on exploring role of Gelucires in bioavailability enhancement. The project included formulating tablets containing a drug from BCS class 2 and Gelucires by melt granulation, in-vitro characterisation, scale up and kinetic evaluation in healthy human volunteers. Total grant received at BCP Rs 15,00,0000/.
- Bristol Myer Squibbs, USA through BMS-Biocon -Research Centre to support Ph.D fellowship for project work related to Drug Metabolism.

### Infrastructural Development:

- RSBCP provides financial support for infrastructural development necessary for research at BCP, e.g., support for purchase of instruments and accessories and development of laboratories.
- RSBCP has developed Radioimmunoassay (RIA) laboratory. The RIA laboratory has the approval of Atomic Energy Regulatory Board (AERB), Dept. Atomic Energy, Govt. of India. The activities of this laboratory is supervised by AERB authorized Radiation Safety Officers. The RIA laboratory has calibrated radiation detectors (donated by Indian Association of Nuclear Chemistry and Allied Scientists) for assay of gamma ray and beta particle emitting radioisotopes and other equipment to carry out the assays of biological analytes such as rat insulin and estradiol.
- RSBCP welcomes industry sponsorship of laboratories for renovation, upgradation and instrument purchase. Laboratories can also be named to project the contribution of the sponsoring industry.





## The Indian Pharmaceutical Association-Maharashtra State Branch`s Dr. M. K. Rangnekar Memorial Testing Laboratory

### Key personnel:

**Manjusha Pimplodkar**, Senior Manager

(mkrlabs@gmail.com, manjushamkr@yahoo.com)

**Hemant Shinde**, Assistant Manager

**Vivek Pandit**, Assistant Q.C Manager

**Yogesh Abhyankar**, Quality Assurance Manager

**Swati Dahibawakar**, Incharge of Microbiology Department

**Anuradha Dicholkar**, Q.A Executive



### About us :

Dr. M. K. Rangnekar Memorial Testing Laboratory was founded on 2<sup>nd</sup> July 1988 by The Indian Pharmaceutical Association-Maharashtra State Branch`s Bombay College of Pharmacy in the memory of Dr. M. K. Rangnekar, the first commissioner of FDA Maharashtra and past President of IPA-MSB. This is a FDA approved public testing laboratory complying as per new schedule GLP L1. The Laboratory follows Good Laboratory Practices as specified by the Regulatory authorities from time to time.

### Infrastructure:

- Trained qualified and competent technical staff
- 21 CFR compliant software for documentation as well as efficient, reliable and accurate reporting
- Work environment to provide high degree of co-ordination
- Specialization in latest analytical techniques
- Excellent standard of service to customers
- EPABX system, CCTV cameras and biometric systems to maintain laboratory discipline, secrecy and confidentiality

### Categories of Products Tested:

- Analysis of APIs, Excipients and Pharmaceutical Formulations as per IP/BP/USP/ EP or In-house Standards
- Analysis of Cosmetics, Veterinary Feed Supplements, Drug Intermediates and Food products and Cosmetics

### Services Provided:

- Analytical method development
- Analytical method validation studies



### Analysis by using the following instruments:

- HPLC
- GC
- FTIR
- UV-Visible Spectrophotometer
- Dissolution apparatus
- Disintegration apparatus
- Potentiometric titrator
- Karl Fischer apparatus for moisture content
- Brookfield's viscometer
- Liquid particulate counter
- Digital polarimeter
- Bacterial Endotoxins test
- Raw material analysis
- Chemical analysis
- Particle size analysis (microscopically)



### Microbial analysis:

Sterility testing

- Microbiological assay by cup-plate, cylinder-plate and turbidometric methods
- Effectiveness of Antimicrobial Preservatives
- Microbial Enumeration Tests
- Test for specified microorganisms
- Rideal Walker Coefficient test for disinfectants
- Microbial kill rate study
- Minimum Inhibitory Concentration
- Anti microbial activity
- Water analysis





## The Indian Pharmaceutical Association-Maharashtra State Branch's Academy for Clinical Excellence

### Key Personnel :

**Dr. Indrani Banerjee**, Senior Manager  
(acebcp@eth.net & indrani.dr@gmail.com)

**Ms. Uma K. Mhatre**, Counsellor cum Relationship Manager



### About ACE:

The Academy for Clinical Excellence (ACE) is the pioneering clinical research training institute in India established in February, 2002. ACE is an initiative signed jointly by Pfizer alongwith Suven Life Sciences, Bombay college of pharmacy and Indian Pharmaceutical Association Maharashtra State Branch. The academy is located in the Bombay College of Pharmacy campus. The Academy is a one-stop-shop for the training needs of all clinical research professionals.

### Members of Governing Council :

#### Mentor

Dr. Arun Nanivadekar,  
Consultant

#### Chairman

Dr. Anand Shedje, Vice President,  
Indian Pharmaceutical Association-  
Maharashtra State Branch

#### Members

Mr. Venkat Jasti

Dr. Chandrashekhar Potkar

Dr. Padmakar Pandit

Dr. Chitra Lele

Ms. Swapnali Raut

Mr. Moin Don



### The ACE Advantage:

- **Weekend Programs** - For students pursuing further studies and working professionals
- **Curriculum** - Designed by industry experts from Pfizer Ltd., ClinInvent Research, Lambda Therapeutic Research Pvt. Ltd., Novartis India Ltd., Quintiles Spectral, Ranbaxy Research Laboratories, SIRO Clinpharm Pvt. Ltd., Tata Memorial Hospital, KEM Hospital and Wockhardt Ltd.
- **Faculty** - Eminent persons from the industry and academia
- **Quality of course** - Quality of teaching maintained by strict internal checks
- **Placement** - Placement assistance for students.
- **Facility** - Special classes for soft skills and preparation for interview.



## Courses offered

ACE curriculum is the first formal sketch of training in the CR field to meet the global standards and fulfil the needs of the CR activities in India.

The following are the courses offered by ACE

### 1. Advanced Diploma in Clinical Research(ADCR) (8 Months)

This program provides comprehensive training across the entire clinical trials process from the clinical study site to the sponsor or monitor. This program also provides hands on training for relevant software for Data Management module.

The curriculum is:

1. Introduction to Clinical Research
2. Ethics in Clinical Research
3. Regulations in Clinical Research
4. Clinical Research Methodology
5. Clinical Research Management
6. Biostatistics and Data Management with Hands on relevant software

### 2. Diploma in Pharmacovigilance (DPV) (6 Months)

The objective of the course is to enable participants to understand issues surrounding the manifestations and consequences of adverse drug effects (ADEs) and the risks and benefits of drug used in humans including. The regulatory perspectives of Pharmacovigilance are also the important part of the course.

The curriculum is:

1. Introduction to PV
2. PV operations & Processes
3. Safety Database
4. Pharmacoepidemiology
5. Aggregate Reports
6. Project Management
7. PV Organization & Management
8. Allied PV Topics

- **Eligibility for admission:** Final year Graduating, Graduates and Post Graduates in Life Sciences and Medicine with 50 % aggregate marks
- **Placement:** 100% placement assistance with career opportunities as CRAs, Investigators, Regulatory Managers, Auditors, Data Managers, Medical Writers, QA managers, Drug Safety Officer Etc In top KPO/BPO like TCS, Cognizant, Sciformix, hospitals like Kokilaben Hospital, Tata Hospital, CROs like ICON, SIRO and pharma companies like BI, , SunPharma, Sanofi etc.

### 3. Customized Certificate Courses (Specially Designed for Corporate)

Continuing the tradition of training, Academy for Clinical Excellence, has conducted more than 70 in-house and customized certificate courses.

#### ACE offers following Certificate Courses:

- Independent Ethics Committees (IECs)- Composition and Function
- GCP for Investigators
- Fundamentals of Clinical Research and GCP

#### ACE has successfully done certificate courses for companies like:

- Department of Science and Technology, New Delhi
- GVK Bio • Watson Pharma • Sitec Labs
- Alkem Laboratories • Wyeth • Ranbaxy • Abbott
- KEM, Pune • Ramdas Hospital Pune

