

Departmental Profile: Microbiology

About the Department:

Department of Microbiology started in 1980 and now recognized as centre of excellence in teaching and learning Microbiology with respect to undergraduate and post graduate studies in the central part of India. The department aims to stimulate an interest in the social and economic implications of Microbiology in society. The intake capacity of undergraduates is 100 and 22 for post graduation. We have successfully completed five years UGC sponsored and R.T.M. Nagpur University, Nagpur recognized certificate course, career oriented programme in Clinical Laboratory Technology. The same course is restarted from 2016 on Self Finance basis with intake capacity of 30. Department has well-equipped spacious laboratories for UG and PG with sophisticated instruments set ups, computers and internet facility as well as departmental library.







Sophisticated Major Instruments:

- Gel Documentation System, Model Gusto
- Trinocular Microscope with Microscope image projection system, Make Olympus
- Polymerase Chain Reaction (P.C.R.) Thermal Gradient Cycler, Eppendorf with 98 wells,
- Double Beam UV Visible Spectrophotometer, Shimadzu Model UV-1800
- Fermentor, Shree Biocare India, Cap 3 lit
- UV Transilluminator, with filter (25 cm x13cm)
- Bio -Safety Cabinet Class II, type A2 , 4'x2'x2'G/powder coated Micro-Fit make.
- Deep Freezer, Remi Quick freezer, BDF 2822

Recent Achievement of Students:

Two students of B. Sc. final year cleared IIT JAM entrance exam (Biology) for the year 2017-18. Seven M.Sc. students participated and presented the paper in National and International Conference and one student cleared CSIR- NET examination in 2018.

FACULTY PROFILE

Name	Designation	Qualification	Area of research
 Dr. Mrs. S.S. Khandare	Asso. Prof and Head, Department of Microbiology.	M.Sc. Ph.D.	Environmental, Industrial & Food Microbiology.
 Dr. Ulka A. Malode-Bidwai	Asst. Professor, Co-Ordinator: PG Microbiology and Add on Course	M.Sc. Ph.D.	Agricultural & Environmental Microbiology.
 Ms. H.S. Kitey	Asst. Prof. (on contractual basis)	M.Sc.	Agricultural & Environmental Microbiology.
 Mr. M.G. Ingale	Asst. Prof. (on contractual basis)	M.Sc. NET (CSIR), ICAR NET.	Environmental Microbiology. (Bioremediation & Nitrogen fixation)
 Mr. S.V. Kombe	Asst. Prof. (on contractual basis)	M.Sc. NET (CSIR), SET, GATE, ICAR NET.	Environmental Microbiology, Phy cology.
 Ms. P.R. Thote	Asst. Prof. (on contractual basis)	M.Sc.	Environmental Microbiology.

Non-teaching Staff:

Name	Designation	Experience
Mr. Rajendra Brahmankar	Laboratory Assistant	13 years
Mr. Premanand Ambade	Laboratory Attendant	14 years
Mrs. Sandhya Karnake	Laboratory Attendant	14 years
Miss. Rajani Zodape	Laboratory Attendant	13 years

Highlights of the syllabus (B. Sc. and M. Sc.) under Autonomy:

The course is designed to ensure that the graduating and post graduating students with Microbiology subject will have the academic standard require to stand in many allied fields in India and abroad and to face any national competitive exams. The skill and practical's incorporated in autonomy syllabus will help them to get job opportunities in nearby industrial area.

UG Syllabus covers Microbial Physiology, Industrial Microbiology, Medical Microbiology, Immunology, Agricultural and Environmental microbiology, Food microbiology, Genetic Engineering, Molecular Biology, Advance techniques in Microbiology. Syllabus includes innovative projects for B. Sc. I year students, that helps to inculcate research attitude among them.

After completion of M. Sc. Students will get the knowledge of DNA cloning, Transformation, Restriction Digestion, PCR, Animal and Plant Tissue Culture, Fermentation Kinetics, Industrial Production of Antibiotics, Single cell Proteins. Students will have sound skills in identification of bacteria and various techniques like Gel Electrophoresis, Ion Exchange Chromatography, ImmunoElectrophoresis, and SDS-PAGE.

Microbiology-Biotechnology society:

The purpose of the formation of society by students is to provide platform for them to explore their ideas related with subject. The society organizes various activities like guest lectures, poster competition, wall magazine, educational tours etc. Students arrange guest lectures of eminent personalities in the field of Microbiology. This society helps to develop the leadership qualities among the student. Prof. Incharge of this society is Dr. Ulka Malode-Bidwai.

Virtual lecture Series:

The department conducts virtual lectures by eminent scientist and academicians from India and abroad for the PG students. Students get benefited from this programme since there are interactive sessions with the scientists. Dr. Trupti Gogte , BITS, Dubai, Prof. Dr. Tanzima Yeasmin Department of Microbiology, Rajshahi University, Bangladesh, Prof. Dr. A.M. Deshmukh, Former Prof. and Head, Department of Microbiology, Babasaheb Ambedkar Marathwada University (BAMU), Sub Centre-

Osmanabad, Dr. Rajpal Singh, Kashyap, CIIMS, Nagpur has delivered the lectures in this series. Dr. Ms Suhas Khandare is keen to arrange these lectures for the students.

Workshops:

Department regularly organized workshops under Edu-bridge between JBCS-NCCS, Pune as well as in collaboration with Hi Media Laboratories. Scientists from National Center for Cell Science, Pune conducted the workshops on Proteomics, Bioinformatics, Protein separation by SDS-PAGE Nanotechnology, Research Career and Research ethics. Workshops are also conducted in collaboration with Hi media, Gujarat, for M. Sc. Microbiology students as well as for M. Sc. Botany and M. Sc. Zoology students on Restriction fragment length Polymorphism..Dr. Ms Suhas Khandare heading this activity with cooperation of other faculties.

Microbio-Olympaid Microbiological Contest:

State Level Microbio-Olympaid Microbiological Contest organised in collaboration with R.C Patel College, Shirpur, Dhule and Microbiologists society of India. This contest is very good platform for the students of B.Sc. part I, II and III categories to access themselves on state level platform. Dr. Ms Suhas Khandare is looking after this activity

Industry-Academia Interaction Programme:

Department of Microbiology regularly arranges educational tours under industry-academia programme. Some of the institutes where student visits are Rajiv Gandhi Biotechnology Centre, Nagpur Central Citrus Research Institute, Nagpur Government Institute of Forensic Science, Nagpur, National Environmental Engineering Research Institute (NEERI), Nagpur, Center for Cellular and Molecular Biology, Hyderabad, Center for DNA Fingerprinting and Diagnostics, Hyderabad, Perigo Multinational Company, Hyderabad and Bio-Era, Pune. Students get benefited by this study tour since they get familiar with the working of these laboratories and different sectors in research institutes. Dr. Ulka Malode-Bidwai is looking after this programme.

Social Outreach Programme of the Department:

Microbiology students should dispense their knowledge and take the subject to the society. With this idea Dr. Ms. Suhas Khandare started the social outreach programme for the students of UG and PG. The student make aware the school going childrens about their topic by power point presentations. Zilla Parishad and Nagarpalika Schools are selected where childrens from economically poor background studies. These students are guided on different topics like their personal hygiene and microorganisms, Microbes in day today life, water borne diseases during rainy seasons, Importance of washing of hands, Environment protection and preservation, Soil pollution etc. By performing this activity Microbiology students remain attached with this sector of the society.

Add on Course

To make the current education system more relevant, career-oriented and to opt skill oriented add-on courses by students as a parallel sub-discipline while pursuing their degree level education so that at the end of three years, the students will be equipped with a certificate along with a conventional degree in respective faculty, Dept.of Microbiology run successfully Clinical Laboratory Technology which is need based and 'Career-Oriented Course.' The students get acquainted with knowledge and skills of students in clinical and pathological study. The syllabus of this course are of 20 credits (300 hours). Since there is heavy demand by students from the session 2016-17 the course is restarted. The course co-ordinator is Dr.U.A. Malode-Bidwai.

Achievements by faculty and students/Awards:

1. Dr. Ms Suhas Khandare is Recieipient of **STATE LEVEL SAVITRIBAI PHULEY AADRSHA SHIKSHIKA PURSKAR 2013** awarded by Shikshan Sanvedan Magazine Thane, Mumbai.(2012-2013).

2. Dr. Ms Suhas Khandare, recieipient of **Second prize with Silver medal for best paper presentation** in the National Conference on Dynamic Microbes : Role in Human Welfare (2015) at Modern College, Savitribai Phuley Pune University, Pune, on 20 and 21 st February 2015. ‘Inhibitory activity of Lactic acid bacteria against isolated pathogens and spoilage organisms associated with meat’

3. Dr. Ms. S. S. Khandare delivered **Invited Talk** at AMI – an International Symposium, held at BBAU, (Central University) Lucknow on 17 Nov.2017 on Partial purification and characterization of novel pediocin produced by *Pediococcus acidilactici* CSI29MX for management of foodborne pathogens.

4. **Best paper presentation award** to Dr. Ms. S. S. Khandare in the International conference on ‘Microbial Technology for Better Tomorrow organized by Dept. of Microbiology, Dr. D. Y. Patil Arts,Commerce and Science College Pune, in association with Microbiologists society of India, on 17 to 19 Feb.2018, entitled ‘**Partial characterization and purification of novel class IIa Pediocin produced by *Pediococcus parvulus* MF233 isolated from batter of idli, a traditional fermented food of south India for management of food borne pathogens.**