

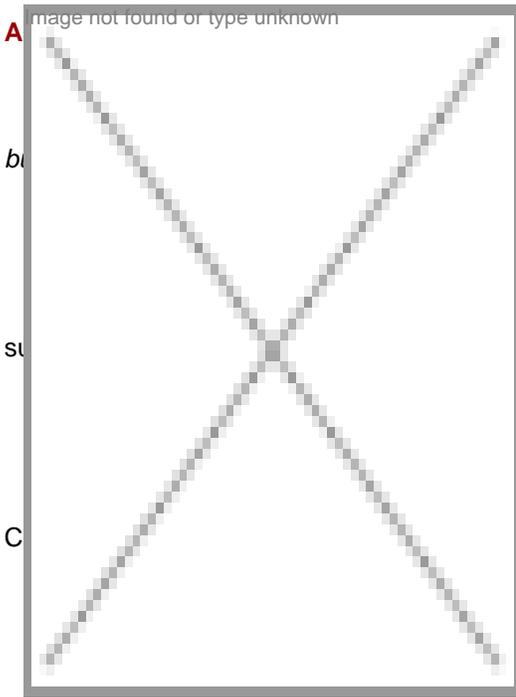
## Rank 10 - MS Baroda University, Baroda

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**Rank 10 - MS Baroda University, Baroda**  
Department of Microbiology and Biotechnology



*MS Baroda University's biotech department specializes in research-oriented courses in biotechnology and allied areas. With full-fledged infrastructure and experienced faculties the university provides an excellent training ground for*

Maharaja Sayajirao University of Baroda's department of microbiology and biotechnology was started in 1964. In 1985-86, it started MSc (biotechnology) course in addition to the master's course in microbiology. The biotechnology training program was started with NBTB (DBT) and UGC's

By the year 2003, the department had produced 90 PhD holders. A large number of research papers are regularly published in journals of international repute. This department was funded by DST-FIST-I under which new equipments have been purchased and other infrastructure facilities are being strengthened. Earlier too, it received support from UGC-DRS, UGC-DSA and

The program begins with the fundamental courses in biochemistry, genetics, microbiology and molecular biology. After the fundamental courses, students proceed to a thorough study of their selected areas of specialization. They are also given basic training in developmental biology, genetic engineering, biochemical engineering and some aspects of biophysics, biostatistics, environmental biology. A distinct feature of this department is that students are

made to undertake a research project, for the duration of their entire course work as a part of the practical training. Prof. Bharat B Chattoo, coordinator, biotechnology program, MS Baroda University, said, "The aim is to make students work independently and enable them to carry out independent research. Projects are assigned according to the individual interests of students and are carried out in our own labs."

Students are also required to give major seminars during their course work and submit a project proposal including the term paper.

Academic year 2008-09 saw the introduction of new courses into the department. "Last year, we started a post-MSc program and this is supported by DBT. It is a program on intellectual property rights and regulatory affairs. We take 10 students and doing it in collaboration with faculty of law who help us in the legal aspects of the course," added Prof. Chattoo. The local industry is also involved in this course and MSc students are sent in doing internships in companies. "Last year, we sent students to Zydus, Intas, Torrent and the National Innovation Foundation where they spent a little more than two months to get hands-on experience," said Prof. Chattoo.

The broad areas of research in which the department is engaged are molecular biology and genetic engineering, microbiology and bioprocess engineering. Some of the ongoing research projects at the moment include NMITLI project on development of novel fungicide funded by CSIR, New Delhi; microarray facility under the Center of Excellence in Agri-Biotech, funded by GSBTM, Gandhinagar; plant SUMO conjugates - its role in biotic stress funded by DST, New Delhi; and molecular analysis of disease resistance signaling funded by DBT, New Delhi.

The department houses centers like the Center for Genome Research and Bioinformatics Center. The Center for Genome Research was established in 1999 with initial support from GSFC Science Foundation, Baroda, under a research project sanctioned to Prof. Chattoo. Since then, it has created and updated the facilities and extension of the laboratory from various research projects funded by DBT, CSIR, Rockefeller Foundation and Indo-Swiss Collaboration in Biotechnology.

The Bioinformatics Center was started in 1989 as a distributed information sub-center (Sub-DIC) under Biotechnology Information System network (BTISnet) of the Department of Biotechnology, Ministry of Science and Technology, Government of India. As recognition to the training activities, the center was upgraded to a distributed information center (DIC) in 2004. The main function of the center is to provide information on topics pertaining to the relevant areas of biotechnology, especially genome analysis. The center also serves as the regional node under the ICCB-net in collaboration with the Weizmann Institute of Science, Israel.

### **"The industry does not offer challenging projects to students"**

*Prof. BB Chattoo, coordinator, biotechnology program, and director, Genome Research Center, MS Baroda University*

### **What makes MS Baroda University's department of biotechnology distinct from other institutes offering biotech courses?**

The most important aspect is the hands-on training which we give to students and officially we spend about 50 percent of time on practical training but in reality spend more than that time. Again, students have to work on their research project or dissertation throughout the course. Students are given a topic so that they can carry out the research project at their own

pace and go into an indepth analysis of the subject. Apart from this, they are also asked to write a project from the point of view of an investigator and hence, made to work independently. We have a continuous evaluation system wherein we have an exam every week and at the end of the year choose the two best performances. The same applies for practicals.

**What initiatives is the department taking to foster an industry-academia relationship?**

We are taking initiatives in that area, like in our board of study, we always have a representative from the industry. Even in our course like the post M Sc diploma in genetic engineering, we have left 50 percent of the seats to be sponsored by the industry. Other than that, we do small consultancy projects in collaboration with the industry.

**The industry claims that biotech colleges churn out quantity and not quality students. Your comments?**

There has been mushrooming of biotech colleges in the country and also a major rush of commercialization of a number of professional colleges. We have to encourage students to pursue research in basic sciences rather than go into professional courses. Mainly after BSc, students are lost to other industries. The talent is dwindling out because of this huge growth in pharma and engineering colleges. When the DBT started, the MSc courses were only five places, now there maybe 500 colleges.

Nayantara Som