

**DEPARTMENT OF MICROBIOLOGY, KURUKSHETRA UNIVERSITY**  
**KURUKSHETRA-136119, HARYANA ,INDIA**

**Department Profile**

The Department of Microbiology was established in 1995 to provide education at the Master and doctoral levels in Microbiology and to disseminate knowledge and promote quality research and extension activities for farmers and industries. It is an applied department as the microbes have diverse applications of microbes in pharmaceuticals, food, dairy and beverages industries. The Department of Microbiology is concentrating on the microorganisms especially Fungi that may be of biocontrol potential & would lead to the production of commercial biopesticides for controlling the internationally important weeds and pests to save the environment from the hazardous effects of chemical pesticides.

Another area where research is being concentrated on the evaluation of natural plant and microbial products (Antibiotics) that would result in providing consultancy to the pharmaceutical industries and also resulting in the development of new products that could be patented later on the biocontrol products.

Chairperson : Prof. K.R.Aneja  
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**M.Sc. Microbiology-** The two-year M.Sc. course deals with the detailed study of microorganisms like bacteria, molds, yeast, algae, viruses and protozoa, which covers various aspects of cell biology, genetics, biochemistry, physiology and recombinant DNA Technology. The course also deals with the applied aspects of microbiology, which includes the use of microorganisms in the production of various novel products in the varied fields of agriculture, dairy, environment, food, Pharmaceutical, beverages and other industries. The role of microbes as causative agents of human and plant diseases, their mode of action and immunity is also included.

**Ph.D.** The theme of the course is based on the detailed research on the applied and basic aspects of Microbiology and is generally comprised of practical work and thesis writing. The topic for research is selected by the candidate with the help of the supervisor and the objectives are laid down on the basis of which technical programme has to be followed. The duration of PhD course varies from 3 to 4 years.

**Faculty Information**

		<b>Joining Date</b>	<b>Specialization/Qualifications</b>	<b>Contact information</b>
Chairperson Professor	Prof. K.R.Aneja	05-09-1978	M.Sc., Ph.D., F.B.S., F.P.S.I.	anejkr@yahoo.co.ca 01744-230395, 9416366529
Reader	Dr. Neelam	12-10-1995	M.Sc., Ph.D.	01744-291952
Lecturer	Dr. Neeraj Kumar	19-06-06	M.Sc., Ph.D.	nakuk26@rediffmail.com

**Courses offered****Type of Course (Postgraduate & others)**

M.Sc.

Ph.D.

**System of Examination**

Annual

Thesis

**Profile of different courses offered**

Degree Type	Course Duration	No. of sanctioned seats	Scheme of Exam. (Annual/Semester)
M.Sc.	2 years	12+10	Annual
Ph.D.	3+1 year	–	Thesis

**Details of different Courses**

Course Name : M.Sc. Microbiology

Course Type : Post Graduate

Exam Scheme : Annual

Duration : 2 years

**Year-wise details****MSc.1<sup>st</sup> Year**

Paper code	Paper Name	Paper Type	Paper Remarks	Max Marks	Internal Marks	External Marks
Micro:101	General Microbiology, Mycology and Phycology	Compulsory	--	80	--	80
Micro:102	Bacteriology, Microbial Physiology & Development	Compulsory	--	80	--	80
Micro:103	Microbial Genetics and Molecular Biology	Compulsory	--	80	--	80
Micro:104a	Biochemisty	Compulsory	--	40	--	40
Micro:104b	Computers and Biostatistics	Compulsory	--	40	--	40

Micro:105	Lab Course I (Practicals based on theory papers Micro 101 & 103)	Compulsory	--	80	--	80
Micro:106	Lab Course I (Practicals based on theory papers Micro 102 & 104)	Compulsory	--	80	--	80
Micro:107	Seminars Tutorials (1/2hr per theory paper per batch)	Compulsory	--	20	20	--
<b>MSc.2 nd Year</b>						
Micro:201	Medical Microbiology and Fundamentals of Infection and Immunity	Compulsory	--	80	--	80
Micro:202	Cellular Microbiology and Recombinant DNA Technology	Compulsory	--	80	--	80
Micro:203	Food Microbiology, Industrial Microbiology and Microbial Technology	Compulsory	--	80	--	80
Micro:204	Virology	Compulsory	--	40	--	40
Micro:205	Project Report*	Compulsory	--	40	--	40
Micro:206	Lab Course I (Practicals based on theory papers Micro 201 & 202)	Compulsory	--	80	--	80
Micro:207	Lab Course I (Practicals based on theory papers Micro 203 & 204)	Compulsory	--	80	--	80
Micro:208	Seminars Tutorials (1/2hr per theory paper per batch)	Compulsory	--	20	20	--

\*Dissertation based on the topic related to the research work going on in the Department/Based on a visit to an industry for two months involved in the use of microbes.

### **Facilities**

Library & Computer Lab: Library is well furnished with a good no. of Foreign and Indian author books. Recently, 400 new books have been added to the departmental Library. There is well- equipped computer lab.

Teaching Labs : Well-equipped Laboratories for M.Sc. Previous and Final Students.

Other Facilities : Well-equipped Research Laboratories with latest scientific

instruments.

### **Placement cell**

Placement information for the year 2005-2006

**M.Sc. and Ph.D. students have been selected in various Pharmaceutical Industries of International repute such as Lupin, Wockhardt, Panacea Biotech, Serum Institute of India, Biome.**

**Two M.Sc. students of this department have been selected for Pradan (an NGO).**

### **Information on Research Activities (Projects)**

<b>Topic Name</b>	<b>In charge</b>	<b>Date from</b>	<b>Date To</b>
<b>Dr. K. R. Aneja</b>			
Taxonomical, ecological and Physiological studies on soil borne pathogens  <b>Funded by: U.G.C.</b>	<b>Dr. K.R. Aneja</b>	1981	1985
Fungi from fresh, polluted and sewage waters of north India  <b>Funded by: U.G.C.</b>	<b>Dr. K.R. Aneja</b>	1984	1988
Biological weed control with mycoherbicides  <b>Funded by: DOEn</b>	<b>Dr. K.R. Aneja</b>	1988	1991
Studies on thermophilic fungi  <b>Funded by: U.G.C.</b>	<b>Dr. K.R. Aneja</b>	1988	1991
Biological control of terrestrial weeds with fungal pathogens  <b>Funded by: U.G.C.</b>	<b>Dr. K.R. Aneja</b>	1992	1995
Developing strategies for the control of parthenium weed in India using fungal pathogens  <b>Funded by: DFID (ODA NRI), UK</b>	<b>Dr. K.R. Aneja</b>	1996	1999
<b>Dr. Neelam</b>			
Bioconversion of lignocellulosic feed stock into ethanol as biofuel  <b>Funded by: DBT</b>	<b>Dr. Neelam, Co-PI</b>	<b>2003</b>	<b>2005</b>

## **Information on Achievement**

- ❖ Dr. K. R. Aneja in collaboration with Dr. Jagjeet Singh of UK organized an International conference titled “From Ethnomycology to Fungal Biotechnology: Exploiting fungi from natural resources for novel products” on December 15-16,1997. The proceedings of the conference were published by Kluwer Academic/ Plenum Publications, New York, USA in 1999.
- ❖ Dr. Aneja has been working on the biocontrol of pests especially weeds and plant pathogens for the last fifteen years and has made notable contribution in the biocontrol of various obnoxious weeds like *Eichhornia crassipes* (water hyacinth), *Trianthema portulacastrum* (Horse pursulane) and *Parthenium hysterophorus* (Congress grass).
- ❖ Prof. K.R. Aneja, Department of Microbiology has been selected in 2006 for evaluation and monitoring of a research project of international importance.
- ❖ Professor K.R. Aneja visited UK under the Bilateral Exchange Programme of INSA, New Delhi and Royal Society London.
- ❖ Dr. Baljeet Saharan visited Germany under DAAD Fellowship.