MICROBIOLOGY Departmental Report (2020-2021)

Preliminary information

I Department profile

Names	Designation
Dr. Arjumanara Surti	Associate Professor, Head of Department
Dr. Gianni Erevelles Mapara	Associate Professor
Ms Suparna Dugal	Associate Professor
Dr. Rajbinder Kaur Dehiya	Associate Professor
Ms. Shraddha Prabhu	Assistant Professor
Ms Jyoti Mantri	Associate Professor
Mr. Vijay Vig	Assistant Professor

II Courses/Papers taught

SEMESTER I

Course code	Name of Unit	Credits
SBSMCB101	FUNDAMENTALS OF MICROBIOLOGY	2 Credits
SBSMCB102	BASIC TECHNIQUES IN MICROBIOLOGY	2 Credits
SBSMCBP1	PRACTICALS	2 Credits

SEMESTER II

Course code	Name of Unit	Credits
SBSMCB201	EXPLORING MICROBIOLOGY	2 Credits
SBSMCB202	ADVANCED AND APPLIED MICROBIOLOGY	2 Credits
SBSMCBP2	PRACTICALS	2 Credits

SEMESTER III

Course Code	Name of the Unit	Credits
SBSMCB301	MICROBIAL DIVERSITY, MICROBIAL TAXONOMY & INSTRUMENTATION	2
SBSMCB302	ENVIRONMENTAL MICROBIOLOGY	2
SBSMCB303	INTRODUCTION TO MICROBIAL METABOLISM AND BIOSTATISTICS	2
SBSMCBP3	PRACTICALS	3

SEMESTER IV

Course Code	Name of the Unit	Credits
SBSMCB401	MEDICAL MICROBIOLOGY & IMMUNOLOGY	2
SBSMCB402	APPLIED MICROBIOLOGY	2
SBSMCB403	BASICS IN GENETICS AND MOLECULAR BIOLOGY	2
SBSMCBP4	PRACTICALS	3

SEMESTER V

Course code	Name of the Unit	Credits
SBSMCB501	MICROBIAL GENETICS	2.5
SBSMCB502	MEDICAL MICROBIOLOGY AND IMMUNOLOGY: PART-I	2.5
SBSMCB503	MICROBIAL BIOCHEMISTRY: PART-I	2.5
SBSMCB504	BIOPROCESS TECHNOLOGY: PART I	2.5
SBSMCB5	PRACTICALS	. 06

Course code	Name of Unit	Credits
SBSAPC503	FOOD PRODUCTION AND PROCESSING (General Principles)	2 Credits
SBSAPCP503	PRACTICALS	2 Credits

SEMESTER VI

Course code	Name of the Unit	Credits
SBSMCB601	rDNA TECHNOLOGY, BIOINFORMATICS AND VIROLOGY	2.5
SBSMCB602	MEDICAL MICROBIOLOGY AND IMMUNOLOGY: PART-II	2.5
SBSMCB603	MICROBIAL BIOCHEMISTRY: PART-II	2.5
SBSMCB604	BIOPROCESS TECHNOLOGY: PART II	2.5
SBSMCBP6	PRACTICALS	06

Course code	Name of Unit	Credits
SBSAPC603	FOOD PRODUCTION AND PROCESSING (Advanced methods, Applications and Quality Assurance)	2 Credits
SBSAPCP603	PRACTICALS	2 Credits

POST GRADUATE:

SEMESTER I

Course code	Name of the Unit	Credits
SMSMCB101	VIROLOGY AND CELL BIOLOGY-I	4
SMSMCB102	GENETICS-I	4
SMSMCB103	MICROBIAL BIOCHEMISTRY	4
SMSMCB104	MEDICAL MICROBIOLOGY AND IMMUNOLOGY	4
SMSMCBP1	PRACTICALS	
SMSMCBP101	VIROLOGY AND CELL BIOLOGY-I	2
SMSMCBP102	GENETICS-I	2
SMSMCBP103	MICROBIAL BIOCHEMISTRY	2
SMSMCBP104	MEDICAL MICROBIOLOGY AND IMMUNOLOGY	2

SEMESTER II

Course code	Name of the Unit	Credits
SMSMCB201	VIROLOGY AND CELL BIOLOGY-II	4
SMSMCB202	GENETICS-II	4
SMSMCB203	MICROBIAL BIOCHEMISTRY	4
SMSMCB204	MEDICAL MICROBIOLOGY AND IMMUNOLOGY	
SMSMCBP2	PRACTICALS	
SMSMCBP201	Virology and Cell Biology-II	2
SMSMCBP202	Genetics –II	2
SMSMCBP203	Microbial Biochemistry	2
SMSMCBP204	Medical Microbiology and Immunology	2

SEMESTER III

Course code	Name of the Unit	Credits
SMSMCB301	TOOLS AND TECHNIQUES: RESEARCH METHODOLOGY	4
SMSMCB302	FOOD MICROBIOLOGY	4
SMSMCB303	ADVANCES IN BIOTECHNOLOGY	4
SMSMCB304	APPLIED AND ENVIRONMENTAL MICROBIOLOGY	4
SMSMCBP3	PRACTICALS	
SMSMCBP301	Literature Survey and Research project proposal	2
SMSMCBP302	Food Microbiology	2
SMSMCBP303	Advances in Biotechnology	2
SMSMCBP304	Applied and Environmental Microbiology	2

SEMESTER IV

Course code	Name of the Unit	Credits
SMSMCB401	TOOLS AND TECHNIQUES: BIOMOLECULAR ANALYSIS	4
SMSMCB402	PHARMACEUTICAL MICROBIOLOGY	4
SMSMCB403	ADVANCES IN BIOTECHNOLOGY	4
SMSMCB404	APPLIED AND ENVIRONMENTAL MONITORING & MANAGEMENT	4
SMSMCBP4	PRACTICALS	
SMSMCBP401	Dissertation based on Research Project and poster presentation	2
SMSMCBP402	Pharmaceutical Microbiology	2
SMSMCBP403	Advances in Biotechnology	2
SMSMCBP404	Applied And Environmental Monitoring & Management	2

III BOS composition

Dr. Arjumanara Surti - Chairperson, Board of Studies

Ms Miriam Stewart - Vice-Chancellor's nominee

Dr. Jyoti Kode - Subject expert from outside the Parent University (ACTREC)

Dr. Annamma Odaneth - Subject expert from outside the Parent University (ICT Matunga)

Mr. Sivan K- Representative from industry

Ms Nidhi Tomar- Postgraduate alumnus

- Other Members of Faculty

Ms Suparna Dugal

Dr. Gainni E. Mapara

Dr. Rajbinder Kaur Dehiya

Ms Shraddha Prabhu

Ms Jyoti Mantri

Mr. Vijay Vig

IV Dates of BOS meetings

17 th October 2020
27th March 2021

1. Activities Conducted by the department:

ACTIVITY 1

Exploring and Understanding Covid-19 Vaccines

Guest/Speaker – MSc-I Students

Venue - Zoom (Online)

Date - 10 February 2021

Number of students attended : 119

Name of the students and topic (vaccine) presented:

1. Zainab - Covishield
2. Maaeda and Sadiya - Covaxin
3. Tanisha - Pfizer
4. Nafiya - Comparison of Vaccines

REPORT

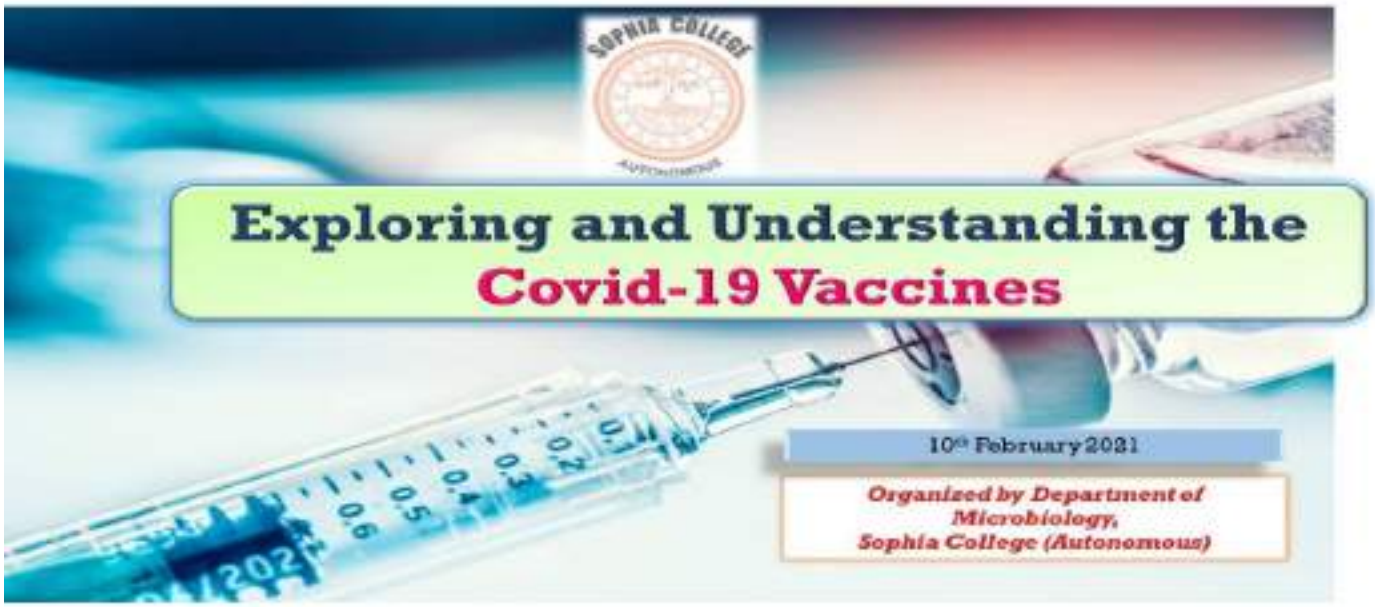
After the welcome address by Ms. Ayesha the event started. At first, Dr.Arjumanara Surti (Head of the Microbiology Department) explained to the participants the reason for arranging an online webinar on various Covid-19 vaccines available in the market.

The first presentation was on Covishield by Zainab Shahiwala: She first gave an overview of Covid-19, thereafter she described the vaccine Covishield -it's preparation, formulation, clinical trials along with advantages and disadvantages.Covacin was jointly presented by Maaeda Ansari and Sadiya Banu: after started giving an overview of Covid-19 virus, they presented key attributes of Covaxin, its firmulation, working, clinical trials and efficacy.The third presentation was on vaccine developed by Pfizer by Tanisha Chouhan: After a brief overview of other Covid-19 vaccines, she started her presentation by explaining about Pfizer and BioNTech Vaccine, it's formulation, working, clinical trials, and FAQs.The last presentation was by Nafiya Zahidi: she compared the various Vaccines available against Covid-19 viz Pfizer, Moderna, Sinovac, Sputnik, EpiVac, Corona, Covaxin and Covishield

Q and A session was conducted after every session. Questions were answered satisfactorily by the presenters. At the end of the event a feedback link was posted in the chat box of the zoom which the participants had to fill to be eligible to receive an E-certificates. The event concluded at 6:30 p.m. after the Thank you note by **Gaurav Sriram (MSc- 2).**

Overall, the participants liked the event and appreciated the efforts of the presenters who simplified and explained the complex subject of various vaccines available against Covid-19 in an ilucid and interesting way.

Video link : https://www.instagram.com/tv/CLhC7qZpP-E/?igsh=eG5tNG5hdG5qb2cz



ACTIVITY 2

Introduction to Pharmacogenesis

Guest/Speaker – Dr Krishna Iyer

Venue - Zoom (Online)

Date - 22nd February 2021

REPORT

The main focus of the talk was an insight into Pharmacogenesis i.e how genes affect a person's response to drugs. The speaker for the event was Dr Krishna Iyer who is currently the Head and Professor of Pharmaceutical Chemistry, Bombay College of Pharmacy and Assistant Editor of the Indian Journal of Pharmaceutical Sciences. The webinar was conducted using the ZOOM platform at 5:00 p.m. The number of participants attending the event was 101, students from various colleges such as St Xavier's college , Wilson college, Khalsa college, SIES college, BN Bandodkar college in addition to students and faculty from various science departments of Sophia attended the event.

ACTIVITY 3

Industrial Microbes and My Industry

Guest/Speaker – Dr. Girish Mahajan [Vice president of HiMedia Pvt. Ltd]

Venue - Zoom (Online)

Date - 08 March 2021

Number of students attended : 98 (Restricted because of online platform)

REPORT

The event started with the introduction of the speaker by Mrs Jyoti Mantri (Associate professor of Microbiology Department). The speaker for the event was Dr Girish Mahajan. He is currently the vice president of HiMedia Pvt. Ltd.

The main focus of the Talk was an insight into the use of Microbes in Industry. The speaker also gave detailed explanations about the use of Microbes in Industry. Numerous microorganisms are used in the industry; these include naturally occurring organisms, laboratory selected mutants, or even genetically modified organisms (GMOs). Currently, the debate on the use of genetically modified organisms (GMOs) in food sources is gaining momentum, with more and more supporters on both sides. However, the use of microorganisms at an industrial level is deeply rooted in today's society. The isolation and identification of various types of Archaea, particularly the extremophile archaea, have allowed for analysis of their metabolic processes, which have then been manipulated and utilized for industrial purposes.

Extremophile archaea species are of particular interest due to the enzymes and molecules they produce that allow them to sustain life in extreme climates, including very high or low temperatures, extremely acid or base solutions, or when exposed to other harmful factors, including radiation. Specific enzymes which have been isolated and used for industrial purposes include thermostable DNA polymerases from the Pyrococcus furiosus. This type of polymerase is a common tool in molecular biology; it is capable of withstanding the high temperatures that are necessary to complete polymerase chain reactions. Additional enzymes isolated from Pyrococcus species include specific types of amylases and galactosidases which allow food processing to occur at high temperatures as well.

Aspergillus has become a key component in industrial microbiology, where it is used in the production of alcoholic beverages and pharmaceutical development. Aspergillus niger is most commonly used to produce citric acid, which is used in numerous products ranging from
household cleaners, pharmaceuticals, foods, cosmetics, photography and construction. Aspergillus is also commonly used in large-scale fermentation in the production of alcoholic beverages such as Japanese sake.

These microbes play a crucial role in the fermentation process to obtain several products. The two common products obtained by fermentation through industrial processes are fermented beverages, malted cereals, broths, fruit juices, antibiotics, etc.

Apart from this information, the participants were also given an insight about the Job opportunities in Industry. Overall, the webinar was very informative since it covered various aspects of Industrial Microbes and received appreciation from participants. Participation certificates were given to all the participants who attended the webinar and filled the response form.