



**TELANGANA TRIBAL WELFARE RESIDENTIAL DEGREE COLLEGE FOR
WOMEN, THANGALAPALLY, RAJANNA SIRICILLA**

TEACHING – LEARNING PRACTICES DEPARTMENT OF MICROBIOLOGY

AY-2022-23



Science knows no country, because knowledge belongs to humanity,
and is the torch which illuminates the world.

- Louis Pasteur

FIELD VISIT TO BREAD INDUSTRY, KARIMNAGAR ON 15-11-2022

ABOUT THE PROGRAM:

The department of Microbiology took all the three years Microbiology students to the field visit to bread industry, Karimnagar for more understanding the subject what they are learning.

OBJECTIVES:

- To make the students understand the process of Bread making.
- To make the students understand the industrial operations and large scale production.
- To involve the students in the live conditions of Industrial microbiology.



VISIT DETAILS:

- Students were taken to the Mayur Bread Company located in the Karimnagar.
- Through the entire visit students have participated very interestingly.
- Students have interacted with the workers and the Microbiologists working in the industry asked questions.
- Students also observed the quality control measures they are practicing.
- Students have noted all the activities.

Teaching Learning Practice:

Collaborative Learning: Through the field visit all the students have discussed with each other about the topic what they learned and what they are observing, they are correlating. By this field visit they are learning collaboratively.

Experiential Learning: Students have learned through real world example and they also involved in the process.

FEEDBACK:

- The tour is very helpful to us to understand the industrial production of Bread and we also came to know about the other processes like storing, packing, and marketing.

-Guguloth Lavanya.

STUDENT SEMINAR 03-01-2023 ON THE TOPIC MALARIA PARASITE

ABOUT THE PROGRAM:

As a part of encouraging the students involvement in the class room student seminar was conducted by the department of Microbiology on the Topic MALARIA PARASITE which is a part of the Medical Microbiology and Immunology and invited Interested students to participate. The student K.Akhila from MZC 2nd Year came forward and gave the seminar.

OBJECTIVES:

- To involve the students in the subject.
- To implement experiential learning.
- To encourage the teaching skills in the students.

PROGRAM OUTLINE:

- The student prepared the material for the seminar with the help of the department and also by referring the books.
- On the Day of seminar the student gave the lecture by using PPT as well as black board.

TEACHING-LEARNING METHOD INVOLVED:

- **Experiential Learning-** By performing the test for number of times students experienced the topic by practicing it and understood very clearly.
- **Collaborative Learning-** As the Students performed the tests in a collective manner they have learned by discussing with each other.

TEACHING-LEARNING PRACTICES:

- **Active Learning-**Students involved in the program by making their own notes, PPTs and through Q &A session they have participated in the session.

Q & A SESSION:

- Students asked their doubts and the speaker cleared doubts and the faculty also helped to clear the student's doubts.

ICT-PPT CLASS 25-01-2023

ABOUT THE PROGRAM

On January 25, 2023, the Department of Microbiology conducted ICT – PPT class on Tuberculosis for 2nd year microbiology students. As the Tuberculosis subject was more difficult and needed visuals for understanding the topic to enable the students to understand the topic, the PPT class was taken to the students.

OBJECTIVES

- To educate students about the species of Mycobacterium
- To utilize ICT tools to make the learning process more engaging and effective.
- To highlight the staining procedure of tubercle bacilli, the symptoms of the disease, clinical significance, epidemiology, and prevention.

PROGRAM OUTLINE:

- The class prepared by the faculty U. Swathi of the Department of Microbiology. A detailed PowerPoint presentation was created,

incorporating images, charts, and diagrams of the Tubercle bacteria.

The class includes

- Introduction to the bacteria
- Classification
- Epidemiology
- Symptoms
- Pathogenesis
- Treatment
- Preventive Measures
- At the end of the class students asked the doubts and were clarified.

TEACHING-LEARNING METHOD INVOLVED:

- **Blended Learning-** By performing the test for number of times students experienced the topic by practicing it and understood very clearly.
- **Collaborative Learning-** As the Students performed the tests in a collective manner they have learned by discussing with each other.

POSTER PRESENTATION PROGRAM ON THE VACCINATION DAY ON 16-03- 2023

INTRODUCTION:

In appreciation of the frontline healthcare workers who are vaccinating every child in the country, the Government of India declared 16 March as national Vaccination day. On the occasion of vaccination day department of Microbiology conducted awareness program to the students about the Vaccine discovery, Vaccine preparation and different types of vaccines.



OBJECTIVES:

- To provide deep information on Vaccines discovery and history.

- To give information on the role of Microorganisms in vaccine preparation.
- To increase awareness among students about the significance of National Vaccination Day.
- To provide information about the benefits and safety of vaccines.
- To motivate students to actively participate in vaccination drives.

ACTIVITIES CONDUCTED:

- **Poster Exhibition:** A poster exhibition was organized showcasing the importance of vaccines in avoiding the diseases, History of Vaccines and role of microbes.
- Orientation session.

TEACHING-LEARNING METHOD INVOLVED:

- **Active Learning-** By presenting the posters as a group students are actively involving in the presentations.
- **Collaborative Learning-** As the Students in a collective manner they have learned by discussing with each other they are learning in a collaborative manner.

STUDENT SEMINAR ON 27-03-2023 ON THE TOPIC: PLATING TECHNIQUES

ABOUT THE PROGRAM:

As a part of encouraging the students involvement in the class room student seminar was conducted by the department of Microbiology on the Topic PLATING METHODS which is a part of the General Microbiology and invited interested students to participate. The student Miss. G.Pavani from MZC 1st Year came forward and gave the seminar.

OBJECTIVES:

- To involve the students in the subject.
- To implement experiential learning.
- To encourage the teaching skills in the students.

PROGRAM OUTLINE:

- The student prepared the material for the seminar with the help of the department and also by referring the books.
- On the Day of seminar the student gave the lecture by using PPT as well as black board.
- The students explained the following topics.
- Pour plate technique
- Streak plate technique
- Spread plate technique.

TEACHING-LEARNING PRACTICES:

- **Active Learning**-Students involved in the program by making their own notes, PPTs and through Q &A session they have participated in the session.

Q & A SESSION:

- Students asked their doubts and the speaker cleared doubts and the faculty also helped to clear the student's doubts.



RANGOLI COMPETITION ON VIRUSES ON 05-04-2023

ABOUT THE PROGRAM:

As a part of implementing creative methods to enrich the teaching learning process the Department of Microbiology is collaboration with the Department of Botany, Zoology, took the initiative of introducing the Rangoli competitions on Viruses.

OBJECTIVES:

- Imbibing creativity in the microbiology.
- Creating enthusiasm in the subject
- Involving students in the subject.



PROGRAM OVERVIEW:

- Students of Life sciences came with different colours and started the rangoli with their choice virus diagrams.
- Students have participated very actively in the entire program and enjoyed a lot.
- For coloring the viruses students dive deep in to the subject and they have drawn every minute detail.

TEACHING-LEARNING METHOD INVOLVED:

- **Active Learning-** Students engaged in the program through the entire program.
- **Collaborative Learning-** As the Students participated in the groups they have learned by discussing with each other.

FEEDBACK:

- The program was very excited and helped us to know more about the details of virus that we chosen.

-A.Navya 3rd MZC

- The program was very nice and as a group we have participated very enthusiastically.

-M.Anjali and Group Life Science 1st Year.







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TEACHING – LEARNING PRACTICES DEPARTMENT OF MICROBIOLOGY

AY-2021-22



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- Louis Pasteur

Teaching the topic: DNA Damage Using ICT- PPT On 20-07-2021

Introduction:

As a part of teaching in the online mode on the lockdown period, the department of Microbiology has conducted the online class through ZOOM using PPT. As the topic is very important and student has to understand in depth, it was decided to teach using PPT.

Objective:

- To make the students understand the topic more in depth.
- To show the 3D images and more visuals on the topic.
- To provide more information on the topic

Key Topics Covered:

1. Introduction to DNA Damage

- Definition and significance
- Overview of the structure of DNA

2. Types of DNA Damage

- Single-strand breaks
- Double-strand breaks
- Base modifications

- Cross-linking

3. Causes of DNA Damage

- Endogenous sources
 - Reactive oxygen species (ROS)
 - Replication errors
- Exogenous sources
 - UV radiation
 - Chemical mutagens
 - Ionizing radiation

4. Mechanisms of DNA Repair

- Direct repair
 - Photoreactivation
 - Alkyltransferases
- Excision repair
 - Base excision repair (BER)
 - Nucleotide excision repair (NER)
- Mismatch repair (MMR)
- Double-strand break repair
 - Homologous recombination (HR)

- Non-homologous end joining (NHEJ)

5. Consequences of DNA Damage

- Mutations
- Cancer
- Aging
- Genetic diseases

6. Detection and Measurement of DNA Damage

- Comet assay
- TUNEL assay
- γ -H2AX foci formation

7. Research and Clinical Implications

- DNA damage in cancer therapy
- Role of DNA repair mechanisms in aging and longevity
- Genetic engineering and CRISPR-Cas9 technology

TEACHING-LEARNING METHOD INVOLVED:

- **Blended Learning-** By performing the test for number of times students experienced the topic by practicing it and understood very clearly.

- Collaborative Learning-** As the Students performed the tests in a collective manner they have learned by discussing with each other.

MIS MATCH

No mismatched base pairs

strand 1
T A C G G T T C G C

↓ ↓ ↓ ↓ ↓

strand 2
A T G C C

With mismatched base pairs

strand 1
T A C G G T T C G C

↓ ↓ ↓ ↓ ↓

strand 2
T T C C G

↓ ↓

00:00:19.2

00:00:45.0

strand 1
strand 2

MIS MATCH

No mismatched base pairs

strand 1
T A C G G T T C G C

↓ ↓ ↓ ↓ ↓

strand 2
A T G C C

With mismatched base pairs

strand 1
T A C G G T T C G C

↓ ↓ ↓ ↓ ↓

strand 2
T T C C G

↓ ↓

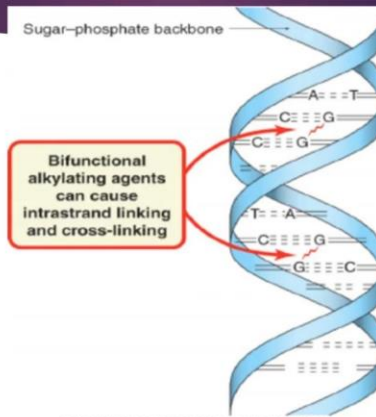
strand 1
A T G C C

strand 2

strand 1

strand 2

CROSS LINKS

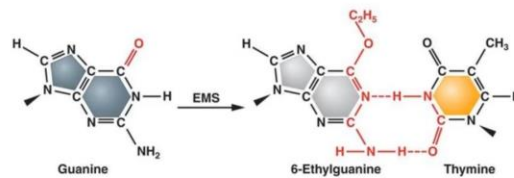


DAMAGE DUE TO ALKYLATING AGENTS

15.3 Induced Mutations Arise from DNA Damage Caused by Chemicals and Radiation

Alkylating Agents:

- Mustard gas is an example of an alkylating agent that adds alkyl groups to the purine or pyrimidine of the nucleotide.



WHAT IS DNA DAMAGE ???

- ▶ THE CHEMICAL ALTERATIONS OCCURRED ON DNA IS CALLED DNA DAMAGE.
- ▶ DNA DAMAGE MAY BE CAUSED NATURALLY DURING CELL DIVISION OR CAUSED INTENTIONALLY USING MUTAGENS.
- ▶ MOST DAMAGES ARE CORRECTED BY THE CELL ITSELF.
- ▶ RARE CASES UN TREATED DAMAGE BECOME AS THE MUTATION.

DNA DAMAGE

K.RAJANIN DL IN MICROBIOLOGY
TTWRDC(W)
SIRICILLA

3:43

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LTE1 ↓↑ Vol) LTE+
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2 Nd Yr

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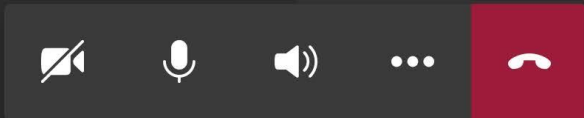
Badanapuram.Bhargavi (...)



Dakshanadi.Lavanya (Gue...)



Guguloth.Sneha (Guest)



STUDENT SEMINAR 24-09-2021 ON THE TOPIC BIOREACTOR

ABOUT THE PROGRAM:

As a part of encouraging the students involvement in the class room, student seminar was conducted by the department of Microbiology on the Topic BIOEREACTOR which is a part of the Industrial Microbiology and invited Interested students to participate. The student Bhargavi from MZC 3rd Year came forward and gave the seminar.

OBJECTIVES:

- To involve the students in the subject.
- To implement experiential learning.
- To encourage the teaching skills in the students.



PROGRAM OUTLINE:

- The student prepared the material for the seminar with the help of the department and also by referring the books.
- On the Day of seminar the student gave the lecture by using black board.
- The topics covered in the seminar
- Design of a fermentor/ Bioreactor.
- Parts of Bioreactor
- Working Procedure
- Maintaining aeration and agitation
- Precautionary Measures to be taken while using Bioreactors.

TEACHING-LEARNING PRACTICES:

- **Active Learning**-Students involved in the program by making their own notes, PPTs and through Q &A session they have participated in the session.

Q & A SESSION:

- Students asked their doubts and the speaker cleared doubts and the faculty also helped to clear the student's doubts.

QUIZ COMPETITION ON THE TOPIC HISTORY OF MICROBIOLOGY ON 09-11- 2021

Introduction

The Department of Microbiology organized a quiz competition on September 11, 2024, focused on the topic of Microbial Nutrition. The competition aimed to enhance students' understanding of History of Microbiology and to encourage a healthy competitive spirit among them. This interactive event provided an engaging platform for students to showcase their knowledge and learn more about the History of microorganisms.

Objectives

- To reinforce students' knowledge of History of Microbiology.

- To encourage active learning and participation among microbiology students.
- To foster a spirit of healthy competition and teamwork.

Program Summary

a. Preparation and Organization

The quiz competition was meticulously planned by the faculty members of the Department of Microbiology. The quiz content was designed to cover various aspects of History of Microbiology like Evolution of Microbiology, contributions of Scientists, and Different discoveries and inventions. Students were informed about the competition in advance and were encouraged to prepare thoroughly.



b. Participants

The competition was open to all 3 Years microbiology students, and a total of 46 students participated. The participants were divided into 06 teams, each consisting of 6 members. This team-based approach encouraged collaboration and collective problem-solving.

c. Quiz Format

The quiz was structured into multiple rounds, each testing different aspects of the topic:

Quiz Rounds

- Round 1: Basic Concepts - Questions on the fundamental concepts of microbial nutrition.
- Round 2: Scientists and their Contributions
- Round 3: Chronological order of History of Microbiology

TEACHING-LEARNING PRACTICES:

- **Collaborative Learning-** As the students are participating as a team and discussing on the topic they are learning collaboratively.
- **Peer learning and Active learning-** by conducting the quiz we are enabling the peer learning and as well as active learning.

FIELD VISIT TO KARIMNAGAR DIARY INDUSTRY IN KARIMNAGAR ON 09-02- 2022

Introduction:

As a part of enabling the Experiential learning to the students, the department of Microbiology took the students to field visit to the Dairy Industry, Karimnagar. The purpose of the trip was to provide students with practical insights into the dairy industry, its operations, and its significance in the local economy.

Objectives:

1. To observe the various processes involved in dairy production, from milking to packaging.
2. To understand the technological advancements and best practices employed in dairy farming and processing.
3. To learn about the economic and social impact of the dairy industry on the region.
4. To interact with industry professionals and gain insights into career opportunities in the dairy sector.

Activities:

Upon arrival at the dairy industry, students were greeted by the management team who provided an overview of the facility and its operations. The itinerary included the following activities:

1. Facility Tour: Students were taken on a guided tour of the entire facility, including the milking parlors, processing units, quality control labs, and packaging section. First they observed the various stages involved in dairy production, from raw milk collection to the final product.

2. Interactive Sessions: Industry experts conducted interactive sessions where they explained the technological innovations and best practices adopted in dairy farming and processing. Students had the opportunity to ask questions and engage in discussions on topics such as hygiene standards, and product diversification.





3. Quality Assurance Demonstration: A demonstration on quality assurance and food safety measures was conducted, highlighting the importance of maintaining high standards throughout the production process. Students learned about quality control tests conducted at different stages to ensure the safety and purity of dairy products.

4. Career Guidance: The trip also included a career guidance session where students learned about the diverse career opportunities

available in the dairy industry, including roles in production management, quality control, marketing, and research & development.

Conclusion:

The field trip to the dairy industry in Karimnagar proved to be an enriching and educational experience for the students of TTWRDC College. It provided them with valuable insights into the dairy production process, technological advancements, and career opportunities in the industry. The trip also underscored the importance of the dairy sector in the local economy and its role in providing livelihoods to rural communities. Overall, it was a memorable learning experience that complemented the theoretical knowledge gained in the classroom.

Teaching – Learning Practices:

1. **Experiential Learning:** Learning through direct experience and reflection.

Activities: By observing the dairy processes in real-time, engaging in hands-on activities, and participating in quality control tests.

Benefits: Provides a deeper understanding of concepts through practical application, enhances retention, and fosters critical thinking.

2. **Observational Learning:** Learning by watching others and noting behaviors, processes, and outcomes.

Activities: Watching employees operate machinery, observing the milk processing stages, and seeing quality control checks in action.

Benefits: Helps students to understand procedures and protocols, allows them to visualize theoretical concepts, and provides real-world context.

3. Inquiry-Based Learning- Learning driven by questioning, investigation, and problem-solving.

Activities: Asking questions about processes, investigating how different machinery works, and exploring the reasons behind specific quality control measures.

Benefits: Encourages curiosity, develops problem-solving skills, and fosters a deeper understanding of the subject matter.

4. Collaborative Learning-Learning through interaction and collaboration with peers and industry professionals.

Activities: Group discussions during and after the visit, collaborative note-taking and joint presentations.

Benefits: Enhances communication and teamwork skills, allows for diverse perspectives, and improves understanding through peer learning.

STUDENT SEMINAR 24-03-2022 ON THE TOPIC TYPES OF IMMUNE CELLS

ABOUT THE PROGRAM:

As a part of encouraging the students involvement in the class room, student seminar was conducted by the department of

Microbiology on the Topic TYPES OF IMMUNE CELLS which is a part of the Medical Microbiology & Immunology and invited Interested students to participate. The student L.Lakitha from MZC 2rd Year came forward and gave the seminar.

OBJECTIVES:

- To involve the students in the subject.
- To implement experiential learning.
- To encourage the teaching skills in the students.



PROGRAM OUTLINE:

- The student prepared the material for the seminar with the help of the department and also by referring the books.
- On the Day of seminar the student gave the lecture by using black board.
- The topics covered in the seminar
- Introduction to immune cells
- Types of Immune cells
- Normal range within the body
- Importance of the Immune cells

TEACHING-LEARNING PRACTICES:

- **Active Learning**-Students involved in the program by making their own notes and through Q &A session they have participated in the session.

Q & A SESSION:

- Students asked their doubts and the speaker cleared doubts and the faculty also helped to clear the student's doubts.

**TEACHING THROUGH ICT-PPT ON THE
TOPIC HIV VIRUS STRUCTURE
ON 02-04-2022**

ABOUT THE PROGRAM

As a part of integrating technology on the academics for facilitating the easy understanding of the subject the Department of Microbiology conducted ICT – PPT class on HIV Virus for 1st year microbiology students. As the subject was complex in nature and needed visuals for understanding the topic to enable the students to understand the topic, the PPT class was taken to the students.

OBJECTIVES

- To educate students about the species of Mycobacterium
- To utilize ICT tools to make the learning process more engaging and effective.
- To highlight the staining procedure of tubercle bacilli, the symptoms of the disease, clinical significance, epidemiology, and prevention.



PROGRAM OUTLINE:

- The class prepared by the faculty U. Swathi of the Department of Microbiology. A detailed PowerPoint presentation was created, incorporating images, charts, and diagrams of the Tubercle bacteria.

The class includes

- Introduction to the virus
- Classification
- Epidemiology
- Symptoms

- Pathogenesis
- Treatment
- Preventive Measures
- At the end of the class students asked the doubts and were clarified.

TEACHING-LEARNING METHOD INVOLVED:

- **Blended Learning-** By performing the test for number of times students experienced the topic by practicing it and understood very clearly.
- **Collaborative Learning-** As the Students performed the tests in a collective manner they have learned by discussing with each other.

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ABOUT THE PROGRAM:

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students to participate. The student L.Lakitha from MZC 2nd Year came forward and gave the seminar.

OBJECTIVES:

- To involve the students in the subject.
- To implement experiential learning.
- To encourage the teaching skills in the students.



PROGRAM OUTLINE:

- The student prepared the material for the seminar with the help of the department and also by referring the books.

- On the Day of seminar the student gave the lecture by using black board.
- The topics covered in the seminar
- Introduction to immune cells
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TEACHING-LEARNING PRACTICES:

- **Active Learning**-Students involved in the program by making their own notes and through Q &A session they have participated in the session.

Q & A SESSION:

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TEACHING THROUGH ICT-PPT ON THE TOPIC HIV VIRUS STRUCTURE ON 02-04-2022

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PROGRAM OUTLINE:

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The class includes

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WOMEN, THANGALAPALLY, RAJANNA SIRICILLA**

**TEACHING – LEARNING PRACTICES
DEPARTMENT OF MICROBIOLOGY**

AY-2020-21



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and is the torch which illuminates the world.

- Louis Pasteur

**Online Student Seminar in the College
YouTube Channel on the
Topic: Sterilization**

Date: 24-05-2020

Student: D.Lavanya MZC 3rd Year.

Introduction

In the Covid lockdown period as part of conducting the academics in the possible effective ways, we are conducting classes through Zoom meetings and Google meet apps. As a part of that to encourage the students in the subject and also to create interested environment the department of Microbiology invited the interested students to give online seminar on their interested topic. One of the students from 3rd MZC Lavanya came forward and given the seminar on the topic STERILIZATION.

Objectives

- To provide knowledge on Sterilization techniques
- To discuss the role of sterilization in controlling infections.
- To engage students in interactive learning in the lockdown period.
- To utilize online platforms effectively to reach to the students of most interior aeras.

student lecture by Lavanya

Wings to LEARN
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Content Overview

The seminar covered the following key points:

1. Introduction to Sterilization:

- Definition and significance.
- Historical background.

2. Methods of Sterilization:

- Physical methods: Heat (dry and moist), radiation, filtration.
- Chemical methods: Disinfectants, antiseptics, ethylene oxide gas.

Link for the Online Seminar:

https://youtu.be/WY7zavrWnGg?si=joU7FKDSwo_uncGN

TEACHING-LEARNING METHOD INVOLVED:

Participative Learning- By making the presentation and by sharing with other students the students gain more knowledge on the topic and she also experienced the real life teaching experience.

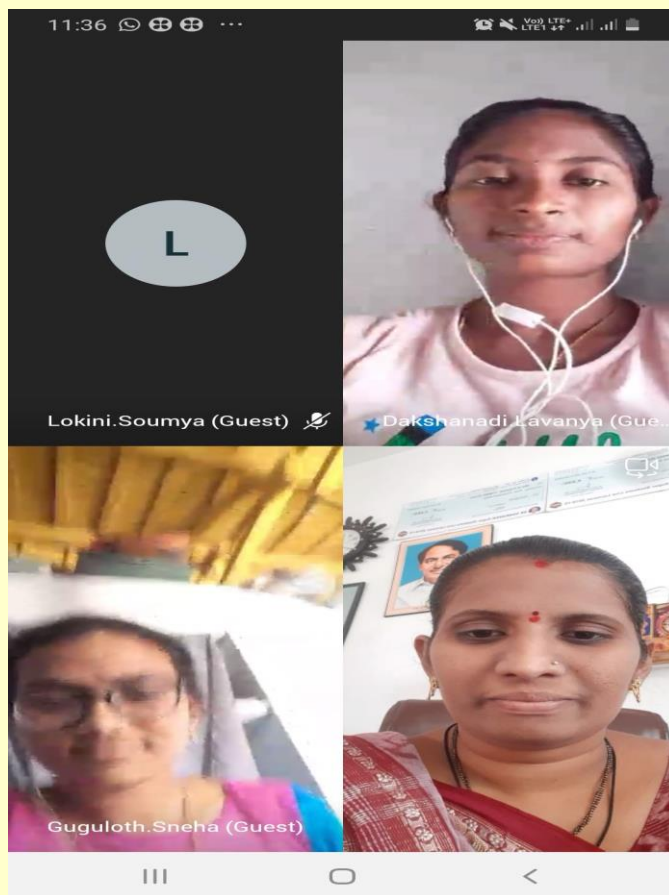
STUDENT WEBINAR ON INDUSTRIAL PRODUCTION OF BEER

Date: May 28, 2020

Presenter: Miss. Sneha , 3rd Year MZC Student

Introduction

In the lockdown period the Department of Microbiology, hosted a student webinar on the topic industrial production of beer, presented by Guguloth Sneha, a Third-year MZC student. The webinar aimed to provide an in-depth understanding of the beer production process, covering the fermentation, technological advancements in brewing, and the industry's economic impact



Webinar Content

Overview of Beer Production

Sneha began the webinar with a brief history of beer and highlighting its cultural significance over the centuries.

Ingredients Used in Beer Production

Water: The most significant component, constituting about 90-95% of beer.

Malt: Typically barley, which is germinated and dried to convert starches into fermentable sugars.

Hops: Added for bitterness, flavor, and aroma, and also acts as a natural preservative.

Yeast: The microorganism responsible for fermentation, converting sugars into alcohol and carbon dioxide.

Brewing Process

Malting: Soaking barley to germinate and then drying it to produce malt.

Mashing: Mixing malt with hot water to extract fermentable sugars.

Boiling: Boiling the wort and adding hops.

Fermentation: Adding yeast to the wort to produce alcohol and CO₂.

Conditioning: Maturing the beer to develop flavor and carbonation.

Packaging: Bottling or canning the finished beer for distribution.

TEACHING-LEARNING PRACTICES:

- **Active Learning**-Students involved in the program by making their own notes, PPTs and through Q &A session they have participated in the session.

Q&A Session

Students have participated very actively in the entire session and also asked questions at the end of the webinar. The presenting student answered the questions.

ONLINE STUDENT LECTURE ON STRUCTURE OF DNA BY MISS. SOUMYA MZC III YR

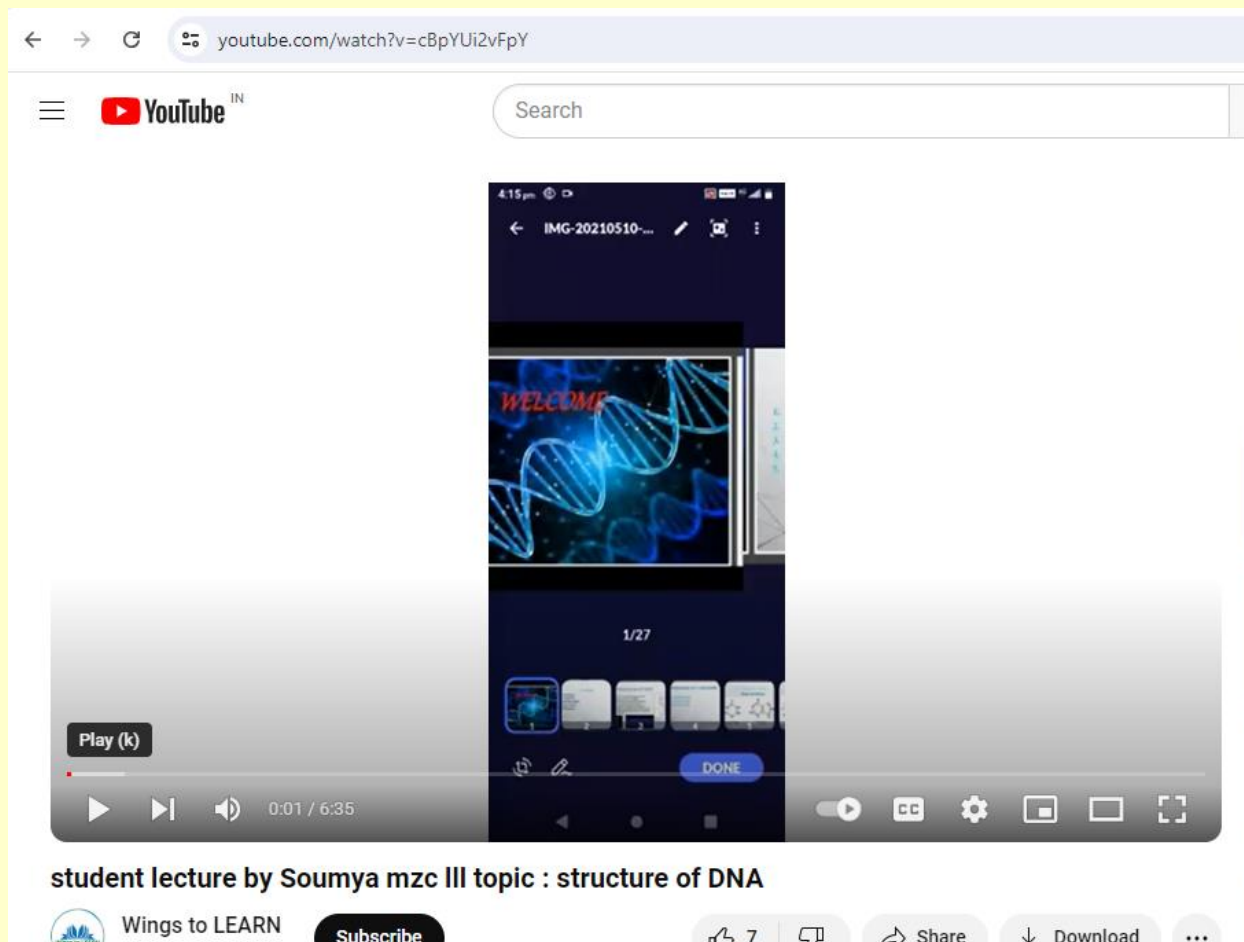
Introduction

In the lockdown period the Department of Microbiology has conducted student lecture series with interested students. As a part of the series MZC III Yr students Miss. Soumya has given online lecture on the Topic: Structure of DNA.

Objectives:

- To involve the students participation the subject.
- To create collaborative environment among the students for presentation of the topic.

- To encourage the students to participate in the teaching process.



Program Overview:

The student Miss. Soumya has prepared for the lecture by collecting the required data and prepared the video using the software kinemaster. We also helped her for the content and video making. On the day of presentation she has recorded her video and we have uploaded the video in the college YouTube channel. The link was shared in all the students' Whatsapp groups and instructed them to make the notes. Later a zoom meeting was conducted with the students and all together have discussed about the topic in the video.

TEACHING & LEARNING PRACTICES:

- **Active Learning-** Student involved in the preparation of class and presentation of class so that students actively participated and learnt the topic more quickly.

LINK : <https://youtu.be/cBpYUi2vFpY?si=sAHtBrQWNwaGWptJ>

Teaching the topic: Viruses- Introduction, discovery and Morphology Using ICT- PPT On 11-05-2021

Introduction:

As a part of teaching in the online mode on the lockdown period, the department of Microbiology has conducted the online class through ZOOM using PPT. As the topic is very basic knowledge required by the Microbiology students and needed more visuals to understand the topic, we used the PPT for the class.

Objective:

- To make the students understand the topic more in depth.
- To show the 3D images and more visuals on the topic.
- To provide more information on the topic

YouTube

Search

Video lecture

Play (k) subscribe to our college channel

0:03 / 45:49 • Introduction >

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See more resources on Google

Viruses-Introduction, discovery and morphology of viruses

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Video preparation & Key Topics Covered:

- All the content required for the video class was gathered and the suitable images and media content was gathered.
- According to the topic all the content was arranged and voice over given and uploaded in the college YouTube channel
- Viruses Discovery
- Scientists involved in the discovery of viruses
- Morphology of different viruses

Participants:

- All three years students have viewed the video

TEACHING & LEARNING PRACTICES:

- **Online Learning-** Student watched the video shared and made the notes with the content. They also watched the related images for more deep understanding.



Online Classes to the students using Online Resources

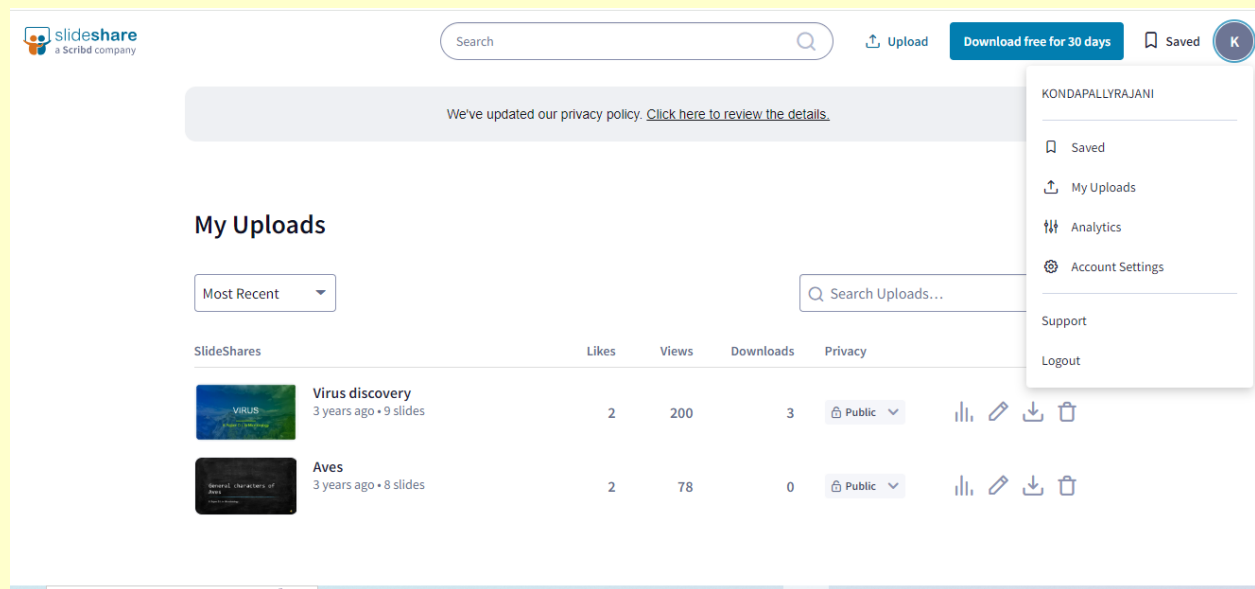
In the COVID-19 Pandemic to keep the students in active mode and to engage them with the academic activities, as per the instructions of the Gurukulam and the Principal, the department of Microbiology has conducted many online classes in the respective semester topics using black board as well as ICT PPT tools.

The following are the links for the classes taught by the faculty of the Department.

S.NO	NAME OF THE TOPIC	LINK FOR THE CLASS
1	History of Microbiology	https://youtu.be/KRPCqMCE-Sc?si=UZ-K_ucEW7yO0QAB
2	Rhizosphere Part-1	https://youtu.be/3YRoWcKLo_0?si=zWaQRcdE6sm_sgx2
3	Rhizosphere Part-2	https://youtu.be/t8rdMlyBqAA?si=ZctDUtYTpCY3ckxX
4	Immunoglobulins Part -1	https://youtu.be/qjQ-w9s5IDY?si=MjmIBhsmN2trLnXW
5	Immunoglobulins Part -2	https://youtu.be/cgkaUAWwy5k?si=ECalqo6U_cJlq196
6	Physical properties of soil Part -1	https://youtu.be/_vVbWFM00Xk
7	Physical properties of soil Part -2	https://youtu.be/zJvbvZ0Nje4
8	Fermented	https://youtu.be/g4cL7C-ZETA

	Foods -1	
9	Fermented Foods -2	https://youtu.be/3hhJ9Delr4A
10	Physical Properties of Soil	https://youtu.be/pMPIn0XEc9g
11	Chemical Properties of Soil	https://youtu.be/bcg_Qyw7Wr8
12	Rhizosphere Soil	https://youtu.be/JZc2CnAH4Gc
13	Porifera charecters	https://youtu.be/AEXZaa25Wm4

Along with the videos we also started to share PPTs through the “Slide Share” Website.



ONLINE STUDENT LECTURE ON VIRUSES By Miss.Akhila MZC II YR on 24-05-2021

Introduction

In the lockdown period the Department of Microbiology has conducted student lecture series with interested students. As a part of the series, MZC II Yr student Miss. Akhila from MZC 2nd Year has given online lecture on the Topic: VIRUSES.

Objectives:

- To involve the students participation the subject.
- To create collaborative environment among the students for presentation of the topic.
- To encourage the students to participate in the teaching process.

is called the host cell.

A virus is made up of a core of genetic material, either DNA or RNA, surrounded by a protective coat called a capsid which is made up of protein. Sometimes the capsid is surrounded by an additional spikey coat called the envelope. Viruses are capable of latching onto host cells and getting inside them.

COVID-19
Get the latest information from the Ministry of Health and Family Welfare. [Learn more](#)

See more resources on Google

student lectur by. akhila topic viruses

Wings to LEARN
204 subscribers [Subscribe](#)

1 Like [Share](#) [Download](#)

Program Overview:

Miss. Akhila has prepared for the lecture by collecting the required data and prepared the video using the mobile. We also helped her for the content and video making. On the day of presentation she has recorded her video and we have uploaded the video in the college YouTube channel. The link was shared in all the students' Whatsapp groups and instructed them to make the notes. Later a zoom meeting was conducted with the students and all together have discussed about the topic in the video. Students got more information on the Viruses.

Link: https://youtu.be/eOGrfuC66KU?si=eL7sX_sm8H0Lfsvw

TEACHING & LEARNING PRACTICES:

- **Active Learning**- Student involved in the preparation of class and presentation of class so that students actively participated and learnt the topic more quickly.

Online MCQs on Virus Morphology on 28-05-2021

About the Program:

After giving lectures on the Topic Viruses we have also provided MCQs on the related topic which helpful to the students to assess themselves on the knowledge they gained so far.

Link: <https://youtu.be/QJm70u7xl5E?si=5e7NYwiRc4nVZtiH>

Program overview:

- By sending the MCQ video to the students through the whatsapp and the students went through the video and they evaluated themselves.
- After sharing the video, meeting was held with the students through the zoom and discussed the point.

The screenshot shows a YouTube video player interface. The address bar at the top displays the URL: [youtube.com/watch?v=QJm70u7xl5E&t=1s](https://www.youtube.com/watch?v=QJm70u7xl5E&t=1s). The YouTube logo and a search bar are visible at the top left. The video player area is mostly black, with a white overlay containing a multiple-choice question. The question is: ". A virus is made up of ____." The options are: (a) Protein coat and nucleic acid, (b) Protein coat and mitochondria, (c) Nucleic acid and cell membrane, and (d) Nucleic acid, cell wall and cell membrane. Below the video player, the video title is "MCQs on Virus morphology". The channel name is "Wings to LEARN" with 206 subscribers. The video has 7 likes and 112 views, posted 3 years ago. The description states: "No description has been added to this video."

TEACHING-LEARNING PRACTICES:

- **Collaborative Learning-** As the students are participating as a team and discussing on the topic they are learning collaboratively.
- **Peer learning and Active learning-** by conducting the quiz we are enabling the peer learning and as well as active learning.



**TELANGANA TRIBAL WELFARE RESIDENTIAL DEGREE COLLEGE FOR
WOMEN, THANGALAPALLY, RAJANNA SIRICILLA**

TEACHING LEARNING PRACTICES DEPARTMENT OF MICROBIOLOGY

AY-2019-20



Science knows no country, because knowledge belongs to humanity,
and is the torch which illuminates the world.

- Louis Pasteur

STUDENT SEMINAR

On the Topic

“Understanding Growth Phases in Bacteria”

Date: 05-09-2019

Presenter: Miss. Kavya

Topic: “Growth Phases in Bacteria”

Introduction:

The seminar on "Growth Phases in Bacteria" delivered by Miss.Kavya provided an insightful exploration into the lifecycle of bacterial growth. The presentation aimed to elucidate the various phases of bacterial growth and their significance in microbiology and biotechnology.

Key Points Covered:

1. Introduction to Bacterial Growth: The presenter commenced by introducing the concept of bacterial growth and highlighted its fundamental importance in various fields, including medicine, agriculture, and industry.

2. Exponential (Lag) Phase: The seminar delved into the initial lag phase, characterized by a period of metabolic adaptation and preparation for rapid growth. The presenter elucidated the factors influencing this phase and its implications for microbial culture.

3. Logarithmic (Exponential) Phase: The exponential phase, marked by rapid cell division and exponential growth, was thoroughly examined. The presenter elucidated the underlying mechanisms driving this phase, including nutrient availability and metabolic activity.

4. Stationary Phase: The presentation transitioned to the stationary phase, where bacterial growth reaches equilibrium due to nutrient depletion and accumulation of inhibitory by-products. The presenter discussed the physiological changes occurring during this phase and its relevance in biotechnological processes.

5. Death Phase: The seminar concluded with an exploration of the death phase, characterized by a decline in viable cell count due to cellular senescence and



environmental stress. The presenter underscored the importance of understanding this phase for microbial control and preservation.

Interactive Session:

After the presentation, the students had discussion on various aspects of bacterial growth phases. They asked Questions pertaining to factors influencing growth kinetics, and other applications.

6. Teaching-learning practices:

- **Active Learning**-Students involved in the program by making their own notes, PPTs and through Q &A session they have participated in the session.



1. **Interactive Session and Engagement:** Following the poster presentations, an interactive session provided attendees with the opportunity to engage in insightful discussions, exchange ideas, and seek clarifications from the presenters. The interdisciplinary nature of the event facilitated cross-disciplinary dialogue and collaboration, enriching the discourse on food loss and waste management.
2. **Teaching-learning method involved:**

- **Active Learning-** By presenting the posters as a group students are actively involving in the presentations.
- **Collaborative Learning-** As the Students in a collective manner they have learned by discussing with each other they are learning in a collaborative manner.

STUDENT SEMINAR ON THE TOPIC “KREBS CYCLE”

Date: January 29, 2020

Venue: Class Room

Introduction:

The Department of Microbiology organized a student seminar on January 29, 2020, focusing on the Krebs Cycle, a fundamental topic in biochemistry. The seminar aimed to enhance students' understanding of this critical metabolic pathway and provide a platform for them to present their research and insights.



Objectives

- To deepen students' knowledge of the Krebs Cycle and its significance in cellular respiration.
- To encourage research and presentation skills among students.
- To foster academic discussion and collaborative learning.

Seminar Summary

Preparation

In preparation for the seminar, the student named [redacted] took the topic Krebs Cycle. Topics included the discovery and history of the Krebs Cycle, the chemical reactions involved, its role in cellular metabolism, and its significance in health and disease. The students prepared from the reference book and we also helped her to present the topic provided.

Seminar Session

The seminar included:

- 1. History and Discovery of the Krebs Cycle** - Covered the discovery by Hans Krebs in 1937 and the historical context of the research.
- 2. Chemical Reactions and Pathway**- Detailed the step-by-step reactions in the Krebs Cycle, including the conversion of Acetyl-CoA into CO₂ and the production of ATP, NADH, and FADH₂.
- 3. Role in Cellular Metabolism**- Explored how the Krebs Cycle fits into cellular respiration and its connection with glycolysis and the electron transport chain.
- 4. Krebs Cycle and Health** - Discussed the implications of the Krebs Cycle in human health, its role in metabolic disorders, and its relevance in diseases such as cancer and diabetes.

Interactive Q&A Sessions

The Presentation was followed by a Q&A session, allowing students to engage in discussions, clarify doubts, and delve deeper into the topic

Outcomes

Enhanced Understanding: Students gained a comprehensive understanding of the Krebs Cycle, its biochemical pathways, and its importance in metabolism.

Skill Development: The seminar provided a platform for students to develop research, presentation, and public speaking skills.

TEACHING-LEARNING PRACTICES:

- **Active Learning**-Students involved in the program by making their own notes, PPTs and through Q &A session they have participated in the session.

• QUIZ COMPETITION

• On the Topic Microbial Nutrition

- Date: January 24, 2020
- **Introduction**
- The Department of Microbiology organized a quiz competition on May 15, 2024, focused on the topic of Microbial Nutrition. The competition aimed to enhance students' understanding of microbial nutrition and to encourage a healthy competitive spirit among them. This interactive event provided an engaging platform for students to showcase their knowledge and learn more about the nutritional requirements and metabolic processes of microorganisms.
- **Objectives**
 - - To reinforce students' knowledge of microbial nutrition.
 - - To encourage active learning and participation among microbiology students.
 - - To foster a spirit of healthy competition and teamwork.

- **Program Summary**

- **a. Preparation and Organization**

-
- The quiz competition was meticulously planned by the faculty members of the Department of Microbiology. The quiz content was designed to cover various aspects of microbial nutrition, including macronutrients, micronutrients, growth factors, and metabolic pathways. Students were informed about the competition in advance and were encouraged to prepare thoroughly.

- **b. Participants**

- The competition was open to all 3 Years microbiology students, and a total of 36 students participated. The participants were divided into 06 teams, each consisting of 6 members. This team-based approach encouraged collaboration and collective problem-solving.

-

- **c. Quiz Format**

- The quiz was structured into multiple rounds, each testing different aspects of microbial nutrition:

- **1. Preliminary Round**

- - A written test consisting of multiple-choice questions (MCQs) to shortlist the top six teams for the next rounds.

- **2. Main Quiz Rounds**

- - Round 1: Basic Concepts - Questions on the fundamental concepts of microbial nutrition.
- - Round 2: Nutrient Uptake and Transport - Focused on the mechanisms of nutrient uptake and transport in microorganisms.
- - Round 3: Metabolic Pathways - In-depth questions about the metabolic pathways involved in microbial nutrition.



-
- **3. Final Round**
 - - A rapid-fire round with challenging questions to test the quick thinking and depth of knowledge of the top three teams.
 -
- **d. Judging and Scoring**
 -
 - The quiz was judged by a panel of faculty members from the Department of Microbiology and Department of Zoology. Points were awarded based on the accuracy and speed of the responses. The scores from each round were tallied to determine the winning team.
- **Teaching-Learning Methods-**
 - **Collaborative learning-** Students are learning in the peer and actively participating in the session.
- **Results and Awards**
 -
 - - First Place: Team 2

- - Second Place: Team 1
- - Third Place: Team 3
-
- The winning teams were awarded with cash prizes.

- **Outcomes**

- **Enhanced Knowledge:** The quiz competition significantly enhanced students' understanding of microbial nutrition.
- **Skill Development:** Participants improved their critical thinking, problem-solving, and teamwork skills.
- **Increased Engagement:** The interactive format of the quiz fostered greater interest and engagement in the subject matter.

- **Feedback and Future Recommendations**

- Feedback from participants and faculty was overwhelmingly positive. Students appreciated the opportunity to test their knowledge in a competitive yet supportive environment. Suggestions for future events included:
 - - Organizing similar quizzes on other microbiology topics.
 - - Increasing the frequency of such competitions.
 - - Incorporating more interactive elements, such as practical demonstrations.

QUIZ COMPETITION

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Results and Awards

- First Place: Team 2
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The winning teams were awarded with cash prizes.

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- Increasing the frequency of such competitions.

- Incorporating more interactive elements, such as practical demonstrations.

STUDENT SEMINAR ON THE TOPIC PRIMARY STRUCTURE OF DNA

Date: March 03, 2020

Introduction

On March 03, 2020, the Department of Microbiology hosted a student seminar on the topic "Structure of DNA." The seminar was presented by Bhukya Jyothi, a 2nd Yr MZC microbiology student. The objective of the seminar was to deepen the understanding of DNA's structure among students and to provide a platform for student-led learning and presentation.

Objectives

- To explain the detailed structure of DNA.

- To discuss the historical discoveries leading to the understanding of DNA structure.
- To enhance students' presentation and communication skills.

Seminar Summary

a. Preparation and Organization

The seminar was well-prepared by [Student's Name] with guidance from faculty mentors. The presentation included a PowerPoint slide deck, visual aids, and a Q&A session. The seminar was attended by students and faculty members of the Department of Microbiology.

b. Content Covered



The seminar was structured to cover the following key topics:

1. Introduction to DNA

- Basic definition and significance of DNA in living organisms.
- The role of DNA in heredity and genetic information storage.

2. Historical Background

- Discovery of DNA by Friedrich Miescher in 1869.
- Key experiments leading to the understanding of DNA structure, including the contributions of Rosalind Franklin, James Watson, and Francis Crick.

3. Chemical Composition of DNA

- Description of nucleotides, the building blocks of DNA.
- Detailed explanation of the components of a nucleotide: phosphate group, deoxyribose sugar, and nitrogenous bases (adenine, thymine, cytosine, and guanine).

4. Double Helix Structure

- Watson and Crick's model of the DNA double helix.

- Description of the antiparallel strands and the helical shape.
- Hydrogen bonding between complementary bases (A-T and C-G).



c. Interactive Q&A Session

Following the presentation, an interactive Q&A session was held. Students asked questions related to DNA structure and historical experiments.

The presenter, B.Jyothi, along with the faculty, provided detailed answers, further enriching the learning experience.

TEACHING-LEARNING PRACTICES:

- **Active Learning**-Students involved in the program by making their own notes, PPTs and through Q &A session they have participated in the session.

Participation

The seminar saw active participation from around 24 students. The engaging presentation and the subsequent Q&A session highlighted the students' interest in the topic and their eagerness to learn.

Outcomes

Enhanced Understanding: Students gained a comprehensive understanding of the structure of DNA and its biological significance.

Presentation Skill: The presenting student, Bhukya Jyothi, showcased excellent presentation skills, setting a benchmark for peers.

Interactive Learning: The interactive format encouraged active participation and facilitated a deeper exploration of the topic.

Feedback and Future Recommendations

Feedback from attendees was highly positive. Students appreciated the clarity and depth of the presentation. Some recommendations for future seminars included:

- Incorporating more interactive elements such as quizzes or live demonstrations.

- Expanding the topics to include more advanced aspects of molecular biology.