

BTY331:MICROBIOLOGY LABORATORY

L:0 T:0 P:2 Credits:1

Course Outcomes: Through this course students should be able to

CO1 :: Understand good laboratory practices and biosafety management

CO2 :: Assess the significance of sterilization and aseptic techniques in microbiology

CO3 :: Demonstrate the handling and operation of a light microscope to examine the morphology of various microorganism

CO4 :: Apply techniques to determine total and viable microbial counts and to purify bacterial cultures

CO5 :: Analyze the microbial staining techniques and microbial growth under varying physical and chemical conditions

CO6 :: Categorize the biochemical characteristics and antibiotic sensitivity of microbes

List of Practicals / Experiments:

Microbial good laboratory practices and biosafety

- To learn the good microbiology laboratory practices and biosafety

Media preparation, sterilization and disinfection

- To prepare the nutrient media and sterilize the glassware to be used for media preparation

Microscopic examination of different groups of microorganisms

- To microscopically examine bacteria, yeast and mold (fungi)

Total count and viable count determination

- To determine total count of bacteria by spread plate technique

Purification of bacterial culture

- To purify the bacterial culture by streak plate method

Microbial simple and differential staining methods

- To execute simple and gram staining of given bacterial culture

Microbial growth-curve determination

- To study and plot the growth curve of Escherichia coli by turbidimetric method

Effect of physical and chemical environment on growth

- To study the effects of temperature and carbon source on bacterial growth

Biochemical tests for microbial identification

- To determine the ability of microorganisms to ferment different sugars for biochemical characterization

Antibiotic sensitivity of microorganism

- To study the antibiotic sensitivity pattern of microorganisms

References:

1. MICROBIOLOGY: A LABORATORY MANUAL by JAMES G. CAPPUCCINO, CHAD T. WELSH, PEARSON

