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Diploma in Pharmacy 1st Year

Social Pharmacy

Experiment

To observe given slides of different microbes under the microscope.

Aim:

To observe given slides of different microbes under the microscope.

Reference :

Dr. Gupta G.D , Dr. Sharma Shailesh , Dr. Sharma Anshu , “ Practical Manual of Social Pharmacy ” Published by Nirali Prakashan , Pg.No 16 - 18

Material Required

Microscope, slides of different microbes-Myco**ba**cterium Serratiamarcescens, Micrococcus luteus, Staphylococcus aureus, Pseudomonas aeruginosa, Micrococcus roseus

Theory :

Microorganisms in natural environments generally exist as mixed populations
Some common chromogenic bacteria include:

1) **Micrococcus luteus (M. luteus):**

- i) It is a Gram-positive to Gram-variable, non motile, coccus, saprotrophic bacterium
- ii) Belongs to the family Micrococcaceae.
- iii) It can form in tetrads or irregular clusters but not in chains
- iv) Colonies are circular, yellow, convex and smooth
- v) This bacterium is often arranged in circular tetrads and forms bright yellow colonies on nutrient agar.
- vi) It is water insoluble

2) **Mycobacterium phlei** :

- It is a rod-shaped bacterium 10 to 2.0 micrometers in length.
- Its colonies when grown on an agar plate appear orange to yellow in colour, and are predominantly dense with smooth edges, though some smaller filamentous colonies have also been defined.
- It retains the acid-fast stain similar to other mycobacteria.
- It grows at temperature ranging from 28 °C to 52 °C.
- It is water-insoluble

3) **Serratiamarcescens** :

- It is a gram-negative rod-shaped facultative anaerobic bacterium and is extremely motile.
- Its gram stain shows short, pink-coloured dots as it stains pink with safranin dye
- It is made up of a thin peptidoglycan layer and hence it does not retain the crystal violet dye during Gram staining.
- It appears like a little pink rod under the microscope.
- It is motile and also facultative anaerobic which means it can survive in both aerobic and anaerobic environments

4) **Staphylococcus aureus** :

- ❖ It is a Gram-positive bacterium and appears in spherical shape.
- ❖ After Gram staining them they generally appear in clusters resembling bunch of grapes when observed under light microscope.
- ❖ They are Gram-positive, nonspore forming, facultatively anaerobic, nonmotile bacterium.
- ❖ It appears in gold colour and are water-insoluble

5) **Pseudomonas aeruginosa** :

- It is a gram-negative, rod-shaped, asporogenous, and monoflagellated bacterium having an inconceivable nutritional versatility
- It is a rod shape bacterium of about 1-5 um long and 0.5-1.0 µm wide,
- It appears as reddish/pink rods.
- It has a pearlescent appearance and grape-like or tortilla-like odour.
- They grow well at 25°C to 37°C.
- It appears in green/blue colours and are water-soluble.

6) **Micrococcusroseus:**

- ❖ It is a gram positive bacterium that appears in tetrad arrangement
- ❖ It has Gram-positive spherical cells ranging from about 0.5 to 3 micrometers in diameter and 1.0-1.5 mm in size
- ❖ They are catalase positive, oxidase positive, indole negative and citrate negative.
- ❖ Micrococcus has a substantial cell wall, which may comprise as much as 50% of the cell mass.
- ❖ It is slightly convex, smooth, and pink in colour.
- ❖ Optimal growth temperature is 10° Celsius.
- ❖ It is a strictly aerobic organism
- ❖ It is water-insoluble

Result : To given slides of different microbes was observed under the microscope.

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