



"बेटी बचाओ, बेटी पढ़ाओ"

## JAYOTI VIDYAPEETH WOMEN'S UNIVERSITY, JAIPUR

### Faculty of Education and Methodology

**Faculty Name-** JV'n DR ANUPAMA GOYAL  
**Program-** B.SC. BED. IST SEMESTER Semester / 23  
**Course Name -** Diversity of Microbes.....  
**Session No. & Name –** OCTOBER 23

Academic Day starts with –

Greeting with saying 'Namaste' by joining Hands together following by 2-3 Minutes Happy session, Celebrating birthday of any student of respective class and **National Anthem**.

Lecture Starts with-

Review of previous Session- .....

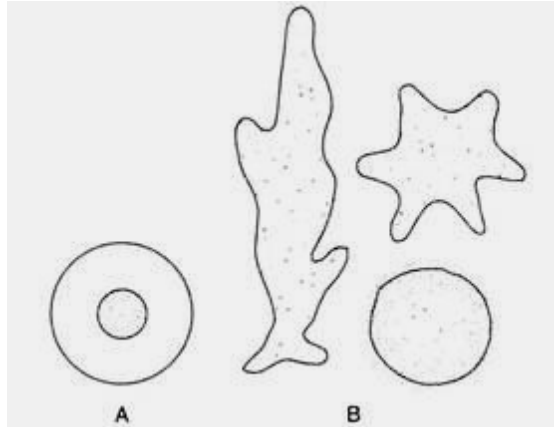
Topic to be discussed today- Today We will discuss about ...MYCOPLASMA.....

Introduction & Brief Discussion about the Topic.....

#### **Discovery of My coplasmas:**

Mycoplasmas are the smallest among the known aerobic prokaryotes (Fig. 2.50). They were first discovered by Pasteur in 1843, during his work on the possible causal agent of pleuropneumonia of cattle. Thus they were called pleuro- pneumonia-like organism (PPLO).

Pasteur was unable to isolate them in pure culture. Later, No card and Roux (1898), the French microbiologists, were successful in growing them in pure culture-medium containing serum and confirmed . by inoculation and subsequent expression of disease in healthy cattle.



Mycoplasmas are commonly found in soil, hot spring, sewage water and also in plants and animals including man. Borrel (1910) named these organisms *Asterococcus mycoides*. Later, in 1929, Nowak placed them under the genus *Mycoplasma*.

### ***Classification of Mycoplasmas:***

**Based on nutritional requirement, mycoplasmas are divided into the following three genera:**

#### **1. Mycoplasma:**

They require cholesterol for their growth. They parasitise on animals including man by causing damage to the mucous membranes and different joints of the body.

#### **2. Acholeplasma:**

They do not require cholesterol for their growth. They are available in sewage water and soil as saprophytes and in vertebrates and also in plants as parasites.

#### **3. Thermoplasma:**

They also do not require cholesterol for their growth. They are aerobic microorganisms showing good growth in acidic pH between 0.96-3.0, with an optimum temperature of 59°C.

### ***Morphology of Mycoplasma:***

Since mycoplasmas pass through many filters and grow on media without living tissues, these are considered to be intermediate between bacteria and viruses.

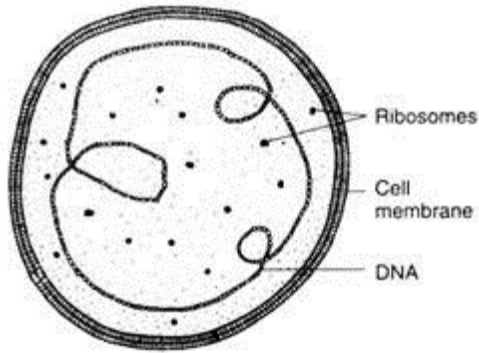
1. Mycoplasma are very small unicellular, usually non-motile, procaryotic organisms.
2. They can grow in cell free media forming, typical “fried egg” shaped colony.

3. They are highly pleomorphic (variable in shape) showing small coccoid bodies, ring forms and five filamentous forms which may be branched.
4. Mycoplasma cells are bounded by triple layered unit membrane without a rigid cell wall. They lack ability to synthesize cell wall material.
5. They are filterable through bacterial filter.
6. They are highly resistant to penicillin but inhibited by tetracyclines.
7. They are inhibited by specific antibody.
8. They require sterols for growth.
9. Mycoplasma have no history of reversion to or derivation from a bacterial parent.
10. Mycoplasma cells contain both DNA & RNA. They do not require cholesterol for their growth. They are available in sewage water and soil as saprophytes and in vertebrates and also in plants as parasites.

***Structure of Mycoplasmas:***

The cell is devoid of cell wall which makes them readily deformable showing irregular and variable shapes. They may be ring-like, granular, coccoid, pear-shaped, filamentous, etc. (Fig. 2.50). The filaments are of two types: unbranched or branched. The cells are very small and measure 0.3-0.9  $\mu\text{m}$  in diameter.

The cells are covered by cytoplasmic (lipoprotein) membrane (Fig. 2.51). Cell membrane covers the cytoplasm which contains nucleoplasm like structure and ribosomes. The genetic material is composed of DNA and RNA. It is about less than 50%, the amount present in other prokaryotic organisms. The amount of RNA (8%) is more than DNA (4%).



They are usually non-motile, but some forms show gliding movements. They reproduce by vegetative means i.e., by binary fission and budding.

They are sensitive to antibiotics like chloramphenicol, streptomycin, erythromycin etc., but are insensitive to penicillin, ampicillin etc., due to the absence of cell wall.

My coplamas cause different serious diseases in plants and animals including man.

**Some of these are:**

**(a) Plant Diseases:**

- (i) Little leaf disease of brinjal,
- (ii) Bunchy top of papaya,
- (iii) Big bud of tomato,
- (iv) Witches broom of legumes,.....

University Library Reference-

- ...A TEXTBOOK OF Microbiology by Rashid.....
- ..... Journal
- Online Reference if Any.

Suggestions to secure good marks to answer in exam-

Explain answer with key point answers

Questions to check understanding level of students-

Small Discussion About Next Topic-

Academic Day ends with-

National song ' Vande Mataram '