School of Basic and Applied Sciences

Course Code: MSMB6004 Course Name: Algal and Fungal Microbiology

SLIME MOLD

Protozoan fungi

GALGOTIAS UNIVERSITY

Introduction

- > Slime moulds were formerly included amongst mycetozoa or fungus-animals.
- ➤ However, they are included in the division of gymnomycota by mycologists.
- ➤ Because of their protistan nature, these microbes are also called protistan fungi.

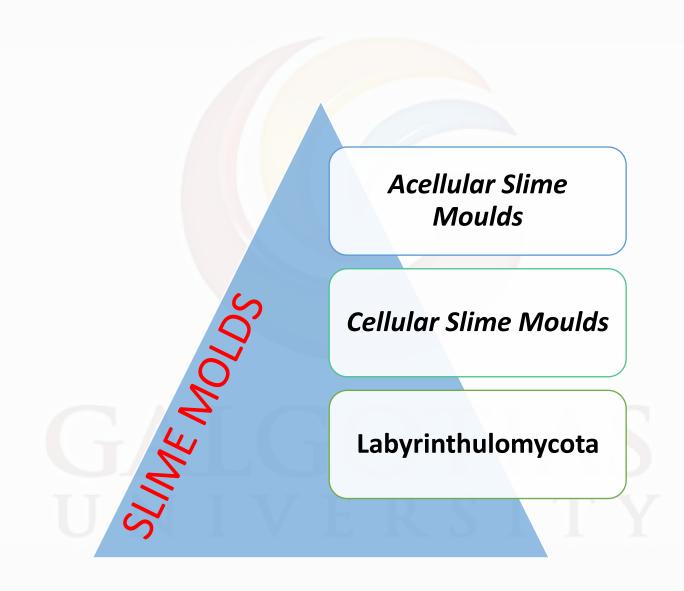
Characters

- ➤ They lack chlorophyll.
- They are surrounded by the plasma membrane only; vegetative phase lacks cell-wall. However, the spores have the cellulose cell walls.
- At one stage of the life cycle they have amoeboid structure (i.e., vegetative body plasmodial).
- The slime moulds live usually amongst decaying vegetation. They commonly occur on lawns and moist fields.
- They exhibit wide range of colouration.

Characters

- They are saprophytes and have phagotrophic mode of nutrition. Parasitic forms are not known (Bold et al., 1987).
- ➤ Both asexual and sexual modes of reproduction are present. They produce spores within sporangia. A spore possesses a cell wall of cellulose.
- The slime moulds resemble both protozoa and the true fungi.
- They are like protozoa in their amoeboid plasmodial stage and similar to true fungi in abundant spore formation.

Types



Structure and Life Cycle

Habitat:

- The acellular slime moulds are commonly found on dead and decaying leaves, twigs, logs of wood and the other decaying vegetable matter.
- They prefer to grow in damp places rich in decaying vegetable matter in the forests a little after and during the rainy seasons.

Acellular Slime Moulds (Plasmodial Slime Moulds)

- Somatic diploid phase is wall-less multinucleate protoplasm called Plasmodium.
- > It may be coloured variously.
- > Plasmodium creeps over the surface of substratum with the help of pseudopodia.
- The chief mode of nutrition of Plasmodium is saprotrophic, absorbing the organic food from the decaying organic matter (substratum of Plasmodium).
- ➤ Plasmodium also feeds on bacteria, protozoa, spores of fungi and other microorganisms through ingestion and engulfing (i.e., phagotrophic or holozoic nutrition).

- > Under unfavorable conditions such as drought or too much cold, the Plasmodium divides to form many multinucleate cysts.
- Sometimes even whole plasmodium forms a hard dormant structure called sclerotium.
- >On the return of favorable conditions, the cyst or the sclerotium liberates the multinucleate diploid plasmodium.
- > Thus, these structures serve for perennation.

Life Cycle

- > Formation of Sporangia:
- > Formation of Spores:
- > Liberation of Spores from the Sporangia:
- > Germination and Sexual Reproduction:
- > Formation of Plasmodium:

Formation of Sporangia

- > Formation of Sporangia:
- > Formation of Spores:
- > Liberation of Spores from the Sporangia:
- > Germination and Sexual Reproduction:
- > Formation of Plasmodium:

References:

- Landecker ME (1996). Fundamentals of the fungi, 4th edition, Benjamin Cummings, San Francisco.
- ➤ Moore D, Robson GD, Anthony P, Trinci J (2011). 21st Century Guidebook to Fungi, Cambridge University Press, UK.
- https://www.biologydiscussion.com/fungi/slime-moulds-characters-types-and-economic-importance/54823



GALGOTIAS UNIVERSITY