''बेटी बचाओ, बेटी पढ़ाओ''

JAYOTI VIDYAPEETH WOMEN'S UNIVERSITY, JAIPUR

(Format for Preparing E Notes)

Faculty of Education and Methodology

Faculty Name- **JV'n DR ANUPAMA GOYAL**

Program- B.Sc. B, Ed ZBC IST SEMESTER Semester / 23

Course Name - Diversity Of Microbes

Session No. & Name – 27th 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 ; Mycelium of Penicillium and asexual reproduction in penicillium……...

Introduction & Brief Discussion aboutthe Topic……

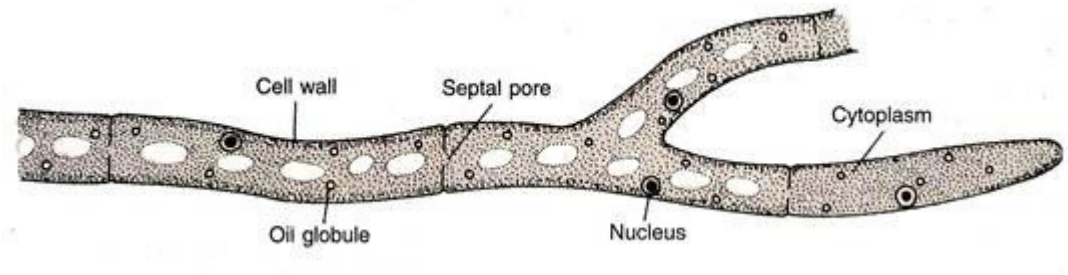
…… **Mycelium of Penicillium:**

The mycelium is well developed and copiously branched. It is composed of colourless, slender, tubular, branched and septate hyphae. The hyphae run in all directions on the substratum and become intertwined with one another to form a loose network of hyphae constituting the mycelium.

Some of the hyphae may even grow into the interior of the substratum and the rest spread on the surface. The former secrete enzymes and absorb food materials from the substratum. These are the haustorlal hyphae.

The aerial hyphae receive nourishment through the haustorial hyphae and produce reproductive structures. Baker (1944) observed anastomosing between hyphae of two mycelia resulting in a heterokaryotic mycelium.

The mycelium in a few species may develop into a sclerotium. The hyphae constituting the mycelium are septate and the cells are short. The septa between the cells have each a central pore. Through the pores the protoplasm flows from cell to cell.



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Reproduction in Penicillium:

Penicillium reproduces both asexually and sexually. The asexual stage however, is dominant and constitutes the usual mode of reproduction. Sexual stage is rare.

1. Asexual Reproduction:

It takes place by vegetative methods and sporulation.

(i) Vegetative Reproduction

It is accomplished by the most common method of fragmentation. The hyphae break up into short segments. Each segment or fragment grows by repeated division into a full-fledged mycelium.

(ii) Sporulation:
Normally it takes place by the formation of non-motile, asexual spores, the conidia which are produced exogenously at the tips of long, erect special septate hyphae called the conidiophores. Penicillium multiplies repeatedly by this method during the growing season.

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In some species, the mycelium forms compact resting bodies, the sclerotia. Sclerotia enable the species to survive periods of stress or to hibernate. On the onset of conditions favourable for growth each sclerotium germinates to form a new mycelium. The sclerotia thus serve primarily as a means of perennation rather than multiplicat

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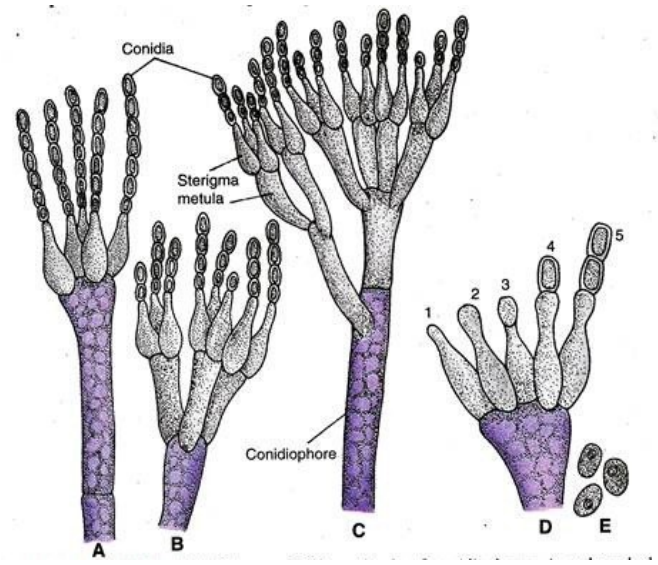
Conidiophores
Different kinds of conidiophores
A conidiophore arises as an erect, tubular hyphal outgrowth from any cell of the mycelium and not from a specialised cell (foot cell) as in Aspergillus. After some period of vegetative growth upright hyphae arise from the older portions of the mycelium.

They are negatively geotropic and arise singly from any cell of the mycelium. Each grows up in length vertically. Reaching a certain height the septate conidiophore branches once or twice or even more times.

These are termed as primary, secondary or tertiary branches, respectively. Only rarely are the conidiophores unbranched (Penicilliumthomii). The unbranched axis of the latter bears a tuft of flask-shaped sterigmata

Conidia are abstricted from the tips of the phialides or sterigmata and are borne in long, unbranched chains. Baker (1944) reported that the phialides and the upper cells of the conidiophore are uninucleate.



Structure of Conidia

The conidia are tiny spore-like structures globose to ovoid in form. The pigmented spore wall is differentiated into two layers, outer exine and inner intine. The exine is comparatively thick, smooth or spiny. The inline is thin. Under electron microscope it appears to consist of 3 or 4 layers. There is the outermost layer (W_1) with an irregular, undulating contour. It is electron-dense.

Embedded in the cytoplasm of the conidium are the mitochondria and ribosomes. The endoplasmic reticulum strands are not discernible. The vacuoles are absent. However, Martin et al. (1973) reported the presence of a single large vacuole in the resting conidium of P. notatum. The conidium cytoplasm contains oil globules. Usually the conidium contains a single nucleus. The nuclear membrane is two-layered and is poriferous

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- University Library Reference-
- A text book of Botany by Singh Pandey and Jain

➢ …….

➢ …….. Journal

➢ Online Reference if Any.

- Suggestions to secure good marks to answer in exam-

Q1 Write in brief about the Mycelium of Penicillium.

Q2 Write in brief about the asexual reproduction in Penicillium

- Questions to check understanding level of students-
- Small Discussion About Next Topic-
- Academic Day ends with-

National song' Vande Mataram'