

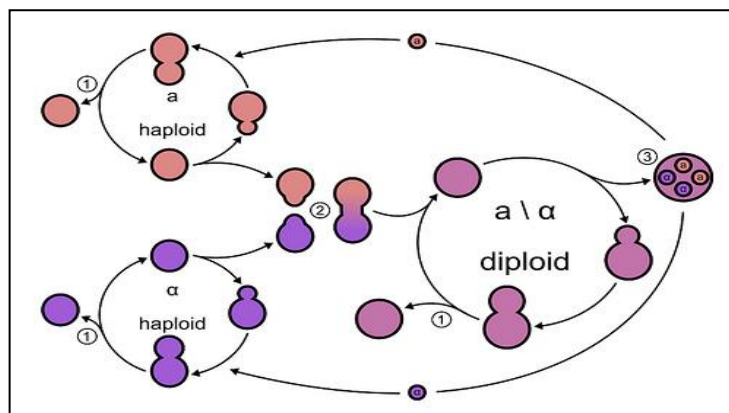
Mycology

Answer the following questions

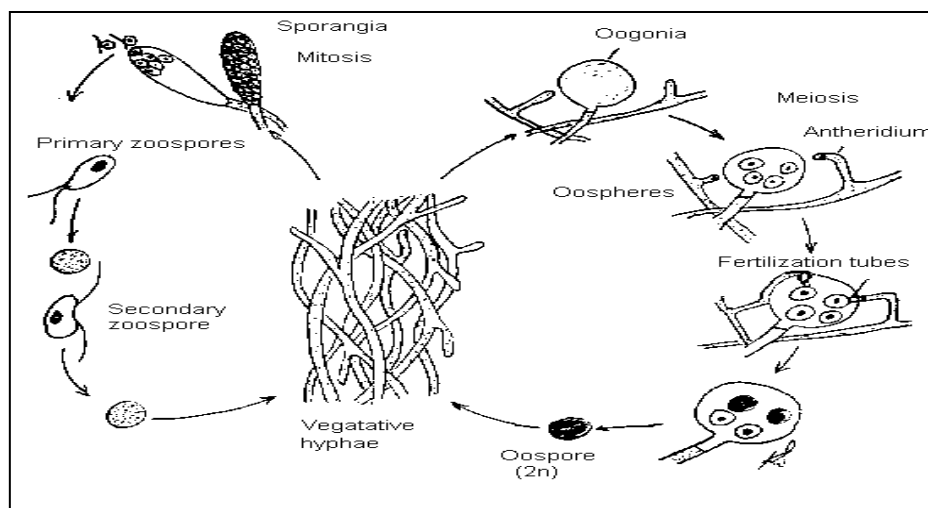
1- Explain with drawing one only of the following:

A- Different methods of reproduction in yeast

Yeasts have asexual and sexual reproductive cycles. The most common mode of vegetative growth in yeast is asexual reproduction by budding. Here a small bud, or daughter cell, is formed on the parent cell. The nucleus of the parent cell splits into a daughter nucleus and migrates into the daughter cell. The bud continues to grow until it separates from the parent cell, forming a new cell. Some yeasts, including *Schizosaccharomyces pombe*, reproduce by binary fission instead of budding.



B- Life cycle of *Saprolegnia sp*



2-Write the basis of classification of two only of the following

A-Oomycetes

It consists of Biflagellatae: Sporangiospores are motile by two flagella.

It is classified into 2 orders:

- Order: Saprolegniales
Family :Saprolegniaceae
- Order: Peronosporales

The order is divided into 3 families as follows:

- Species living as parasites or saprophytes, sporangiophores differing little from vegetative hyphae Pythiaceae
- Sporangia in chains, club-shaped sporangiophores crowded beneath the epidermis of the hostAlbuginaceae.
- Sporangia may be function as conidiosporangia and are borne singly at the ends of branched sporangiophores which emerge from the host in early stages of developmentPeronosporaceae.

B-Ascomycotina

They are classified on the basis of presence or absence of an ascocarp.

- Asci arising naked: no ascogenous hyphae
or ascocarp producedProtoascomycetes.

O.Endomycetales

F.Endomycetaceae

- Asci produced in an ascocarp from
Ascogenous hyphaeEuascomycetes

On the basis of the shape and structure of the ascocarp; Euascomycetes are divided into 3 series :

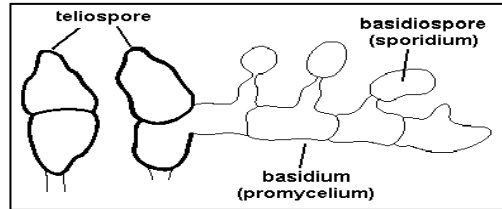
- Plectomycetes : The ascocarps are generally of cleistothecium type
- Pyrenomycetes :The ascocarp is either a globose or flask-shaped
- Discomycetes : The ascocarp are generally apothecium type(cup shape)

C-Basidiomycetina

The classification of Basidiomycetes is based on the structure of the basidium which septated or non-septated into two subclasses:

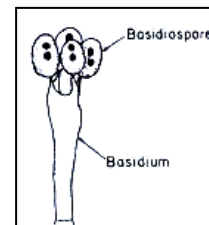
1-The heterobasidiomycetes, in which the basidia are divided and results from the germination of a spore

Order Uredinales



2-The homobasidiomycetes, in which the basidia are non-septate developed directly from a vegetative terminal cell of dikaryotic hyphae

Order Hymenomycetales



3-Compare and contrast between two pairs only of the following

A-Pycnidium & Perithecium

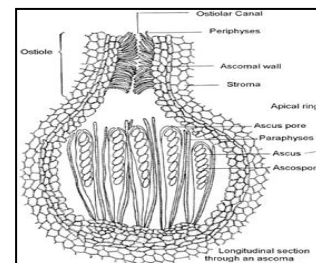
Pycnidium

A fruit body resembling a perithecium, flask-shaped or somewhat irregular in shape. Unlike perithecia, pycnidia do not contain asci, but are lined with very short conidiophores.



Perithecium

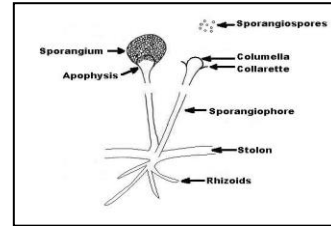
It is a small rounded or flask-shaped ascocarp. It has an apical pore or opening the ostiole. Through this opening the ascospores escape. The hymenium lines the inner surface of the cavity of the perithecium either throughout or only at the base. It is enclosed by the peridium. The thin-walled asci are intermingled with the paraphyses. The ostiole region also develops sterile hair the paraphyses.



B-Rhizopus & Phycomyces

Rhizopus

Stolon arched, richly branched rhizoids occur at the nodes of the Stolon. Opposite rhizoids arises groups of Sporangiohores



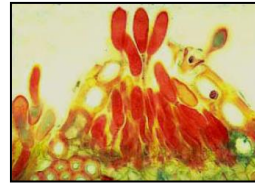
Phycomyces

Sporangiophore unbranched and solitary

C-Uredospores & Teleutospores

Uredospores

- Uredospores are red or orange colour
- They are binucleate cell stalked
- Thick wall with many spines



Teleutospores

- Teleutospores are elongated, black and are two-celled with an outer smooth thick wall.
- They are stalked



4-What do you know about two only of the following:

A-Peronosporaceae

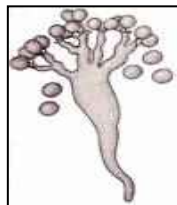
All members of this family are obligate parasites on higher plants such as onion, grape, beet, tobacco.

The mycelium is branched, tubular and coenocytic, it is strictly intercellular and absorbs nutrition by branched finger-like haustoria. The sporangiophore are distinct and branch characteristically. Each branch bears a few many short, delicate branchlets, a single sporangium is formed at the tip of an ultimate branchlet called a strigmate.

Peronospora



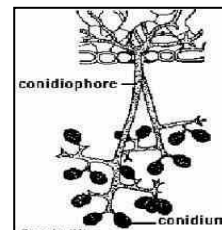
Sclerospora



Bremia

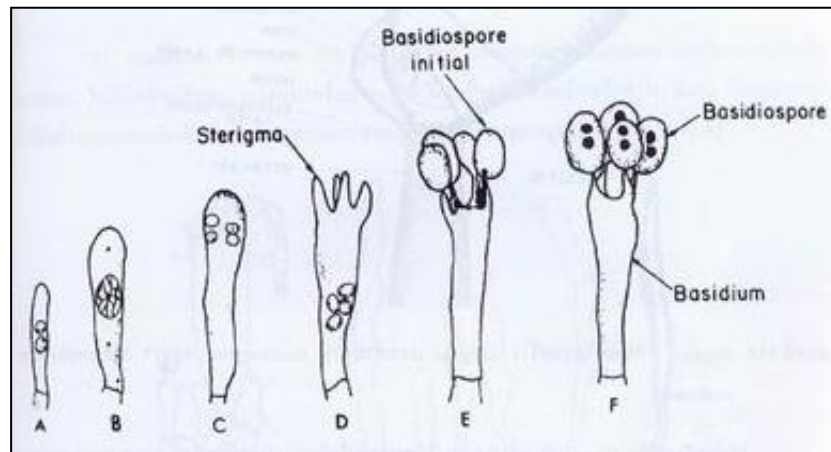


Plasmopara



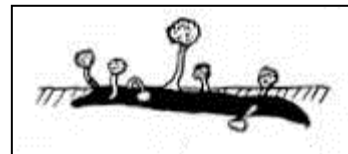
B-Development of basidium and basidiospores

It is a terminal cell of binucleate hypha and is separated from the rest of the hypha by a septum over which a clamp connection is formed. The terminal cell gradually enlarges and the two nuclei soon fuse to form diploid nuclei. From the apex of enlarging basidium 4 protrusions arise then expand terminally and a nucleus passes into each of these protrusions. The tip of protrusion containing the haploid nucleus gradually enlarges to form a basidiospore.



C-Sclerotium

Sclerotium is a compact globose or elongated structure formed by aggregation and adhesion of hyphae. They are hard resting bodies resistant to adverse conditions. It may remain dormant for long periods of time, sometimes for several years, and thus represent the resting stage of the fungus. On the return of favorable conditions, the sclerotia usually germinate to form hyphae or may form reproductive structures.



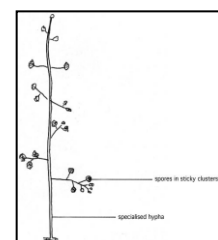
5-Compare between moniliaceae and dematiaceae with examples

Moniliaceae

Hyphae septate, usually prostrate, hyaline or bright colored. eg.

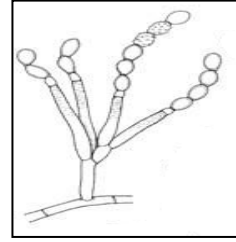
Trichoderma :

Conidiophores erect, branching oppositely, not swollen at the apex. Conidia produced in clusters at the tips.



Scopulariopsis :

Colonies never green, conidial apparatus *Penicillium* like. Phialides are either in clusters or reduced to single phialides scattered along aerial hyphae.

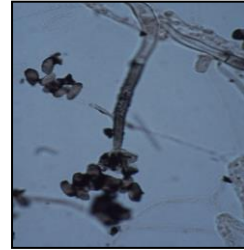


Dematiaceae

Hyphae septate, mycelium dark coloured.eg.

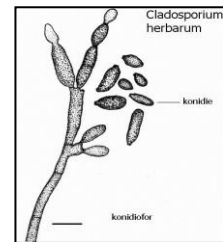
Stachybotrys:

Conidiophores erect, variously branched, septate, dark coloured and bearing at the apex small phialides. conidia are borne singly on the phialides.



Cladosporium:

Conidiophores erect septate, brown variously branched. Conidial chains are acrogenous and born on the branches of conidiophores. Conidial chains are also branched.



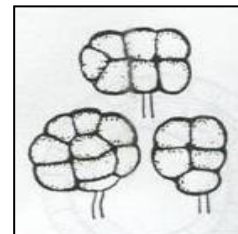
Drechslera:

Conidiophores erect. Usually unbranched. Conidia are born terminally or laterally.



Stemphylium:

Conidia are borne singly and terminally on conidiophores. Conidia are muriform with transverse and longitudinal septa.



Alternaria:

Conidia are pointed at apex and broad at base, muriform, born in chains with transverse and longitudinal septa.

