Kingdom: Fungi

Phylum: Ascomycota

General characteristics

1- Sexual reproduction through ascospores inside asci.
2- Some symbionts with lichens.
3- Used in antibiotics, fermenting bread, alcoholic beverages and cheese.
4- Pathogens on animals, humans, and plants.

Ascocarp:

The fruiting body contains millions of asci, each of which typically contains **eight ascospores**, and contains **hymenium layer** the tissue layer on a fungal fruiting body where the cells develop into asci, which produce spores. In some species this layer is permeated by threads called **sterile threads.**

Ascocarps types:

1. Cleistothecium
2. Perithecium [slide on *Endothia parasitica (Cryphonectria parasitica)*]
3. Apothecium (slide on *Physica* sp. And *Peziza* sp.)
4. Ascostroma (pseudothecium)

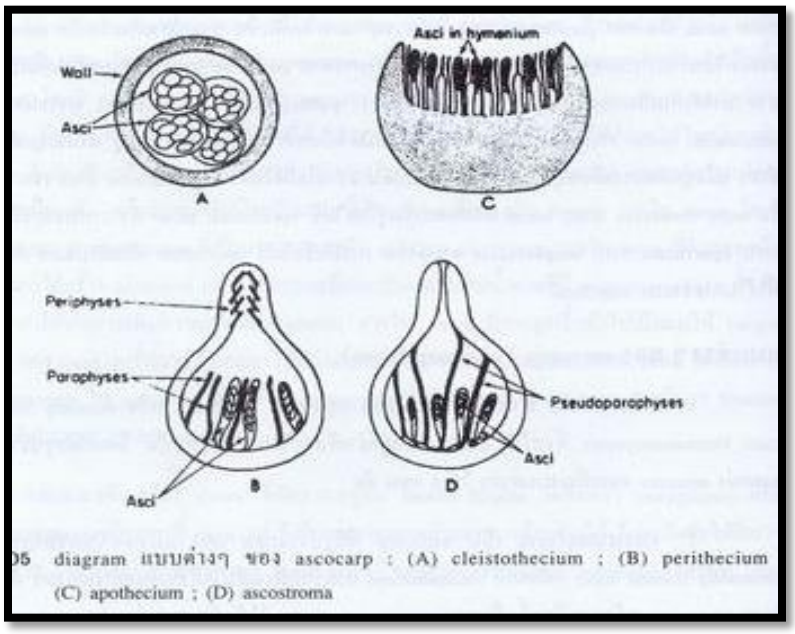

Figure (1) types of ascocarps

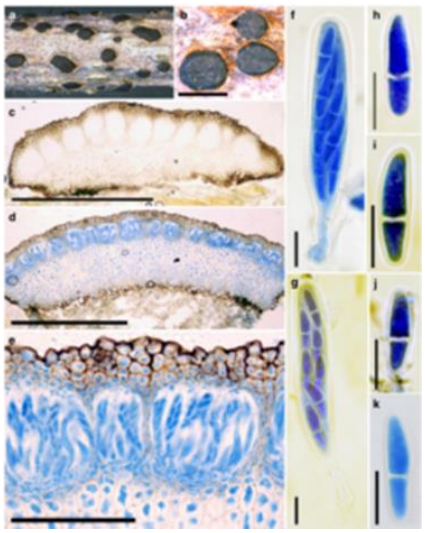

Figure (2) Ascostroma

Class 1: Sordariomycetes

Fruiting body generally perithecium or cleistothecium and sometimes inside ascostroma. Members of this group can grow in soil, dung, leaf litter, and decaying wood as decomposers, as well as being fungal parasites, and insect, human, and plant pathogens.

Order1: Diaporthales

Family: Cryphonectriaceae

Genus: *Cryphonectria parasitica* (*Endothia parasitica*) Slide available

Perithecial fungus, necrotrophic fungus caused chestnut blight canker

Order 2: Hypocreales

Family1: Clavicipitaceae

Genus: *Claviceps purpurea* Slide available

Perithecial fungi, parasitic on grains, especially wheat, barley and oats, causes a disease known as Ergotism, Consumption of grains or seeds contaminated with the sclerotium, can cause ergotism in humans, which produces some toxic alkaloids (Ergot) that cause health problems for humans and animals when consumed.

Class2: Pezizomycetes

Apothecial fungi, meaning that their spore-producing/releasing bodies (ascoma) are typically disk-like, bearing on their upper surfaces a layer of cylindrical spore-producing cells called asci, from which the spores are forcibly discharged**.**

Order: Pezizales

Family: Pezizaceae

Genus: *Peziza* sp. Slide available

Saprophytic apothecium fungi that grow on the ground, rotting wood, or dung.

Class 3: Lecanoromycetes

The largest class of lichenized fungi. The asci (spore-bearing cells) most often release spores by rostrate dehiscence.

Order: Caliciales

Family: Physciaceae

Genus: *Physcia* sp. Slide available

Lichen-forming fungi usually with *lobate* lichens.

Class 4: Dothideomycetes

Mostly produce pseudothecia, the best-known members of this class are important plant pathogens, majority are either found as endophytes (endosymbiont) or saprobes growing on woody debris, decaying leaves or dung. A smaller number exist as lichens and one single species form mycorrhizal associations with plant roots.

Order1: Venturiaceae

Genus: *Venturia inaequalis* *Slide available*

Causes apple scab disease led to fruit deformation.

Class 5: Saccharomycetes

Ascomycete yeasts reproduced by budding or fission; saprotrophic or pathogenic in plants and humans; asci form singly or in chains; saprotrophic yeasts lived as decomposers, feeding on dead and decaying wood, leaves, litter, and other organic matter.

Order: Saccharomycetales

Genus: *Saccharomyces cerevisiae* ***Slide available***

Produce pseudothecia (ascostroma), yeast reproduced by a division process known as budding or forming spores called blastospores.

Class 6: Eurotiomycetes

Many members produce an enclosed structure cleistothecium within which they produce their ascospores.

Order: Eurotiales

Genus1: *Penicillium sp.* Slide available

Worldwide species, isolated from environments such as air, soil, food waste, fruits, vegetables, fodder, and enclosed environments. and have ability to attack food products, fruits and fodder.

Genus2: *Aspergillus niger* **Slide available**

Characterized by black spores and called **black mold**.