Course- B.Sc. Botany Honours
Part 1 , Paper – 1

Topic - Life Cycle of Peziza
(FUNGI)

Prepared by Prof. (Dr.) Jainendra Kumar
Co- ordinated by Prof. (Dr.) Shyam Nandan. Prasad

Peziza is a fleshy fungus of Ascomycetes. It contains about 50 widespread species. It produces cup-shaped fruiting bodies like mushrooms on the rotting wood or manure in summer. Its modern classification can be written as –

Kingdom: Fungi

Division: Ascomycota

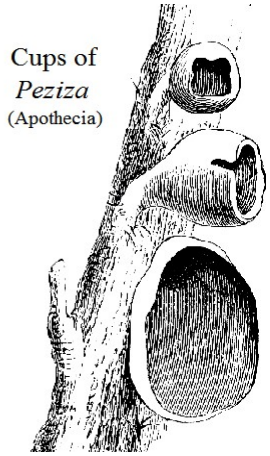
Class: Pezizomycetes

Family: Pezizaceae

Genus: *Peziza*

The mycelium of *Peziza* consists of a dense network of branched and septate hyphae with uninucleate cells.

Hyphae lie inside the substratum from which they get nutrition. They from fruiting bodies above the substratum after the sexual process is completed.



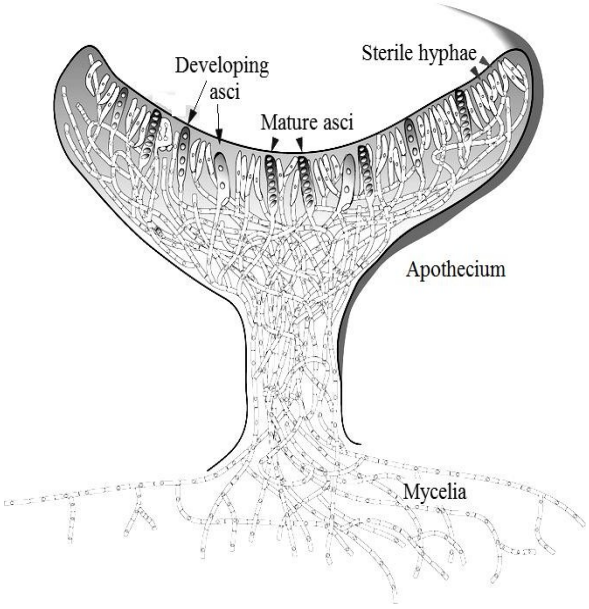
Asexual reproduction is absent in most of the species of *Peziza*. In few species, asexual Reproduction takes place by the formation of exogenous conidia on the conidiophores and chlamydospores. Each conidium is capable to germinate into a new mycelium. The chlamydospores are thick-walled resting cells and formed singly or in series within the hyphae. After tiding over unfavourable conditions, they germinate and give rise to new mycelia.

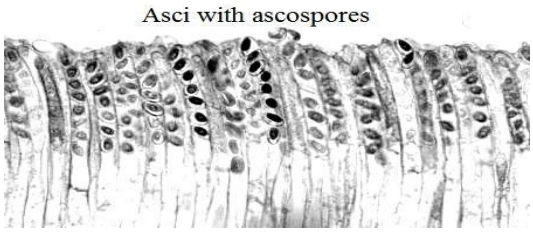
Sexual Reproduction -

Without any sexual apparatus, the sexual process occurs. It is simplified and results in the association and fusion of two vegetative nuclei.

The nuclei arrange in pairs to form dikaryons. It occurs by autogamous pairing or by somatogamous copulation between the cells of the adjacent hyphae.

The cells with the dikaryons give rise to the ascogenous hyphae. The latter become multicellular with cross walls. All their cells are binucleate. The terminal binucleate cell of each ascogenous hypha functions as an ascus mother cell. Formation of croziers during the development of asci is usually absent.
The two haploid nuclei of the ascus mother cell fuse to form the diploid nucleus. The young ascus represents the diplophase. Later, the diploid nuclei undergo meiotic division followed by a mitosis. The process forms eight haploid nuclei which organize into eight ascospores in each ascus.





The fruiting bodies (ascocarps) comprising the asci within are cup-like apothecia. The erect asci lie side by side lining the cavity of the cup-shaped apothecia. Interspersed between the asci are the Sterile hyphae called paraphyses. The rest of the apothecium consists of densely interwoven, branched hyphae forming a pseudoparenchymatous tissue which supports the hymenium.
The apothecia are sessile or with short stalk and large in size varying from 2 cm to several inches in diameter.
The longitudinal section of an apothecium shows:

(i) Hymenium which is an innermost region containing asci, ascospores and paraphyses,
(ii) Sub-hymenium which is the middle region of apothecium and is composed of thin walled and light-coloured hyphae, and

(iii) Excipulum: It is the outermost region of the apothecium, composed of sterile hyphae.

(iv) Peridium: it is the name of the sterile covering of the ascocarps.

Life cycle of *Peziza* can be diagrammatically represented as follows –