

On Line Study Material (e-content)

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College: S.S. college, Jehanabad

Department: Botany

Subject: Fungi: Structure & Reproduction

Topic: Peziza

Medium of Teaching: Whats App  
College website

Date: 17.07.2020

Time: 11.00AM-12.00

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Class: B.S. (Bot) Pt. H

Biotech Pt. - sub.

Peziza, with over 100 species, is the most common genus of Pezizaceae. According to the classification of Alexopoulos and Mims (1979) the taxonomic position of Peziza is as:

Kingdom - Fungi

Division - Amastigomycota

Class - Ascomycetes

Order - Pezizales

Family - Pezizaceae

Genus - Peziza.

1) Habit and Habitat:

Peziza is a large genus of saprophytic cup fungi that grow on the ground, rotting wood, or dung i.e. on dead & decaying organic matter.

The genus produces cup shaped Apothecia above Substratum.

2) Vegetative Structure:

• The mycelium grows below substratum as branched and filamentous hyphae. It is perennial <sup>type</sup> in nature.

• Hyphae are septate and septa are perforate.

• Each cell is uninucleate.

• The plant body produces cup shaped

fruiting bodies called Apothecia above Substratum.

④

nucleate condition. Usually two adjacent cells of these hyphae fuse to form a dikaryon. Autogamous pairing occurs. The dikaryotic cells give rise to ascogenous hyphae. It functions as ascus mother cell.

- In P. vesiculosus, the dikaryotic cell directly acts as ascus mother cell and elongates to form a cylindrical or club shaped ascus.

- The diploid nucleus divides by meiotic (1st) and mitotic divisions so that eight ascospores are formed in an ascus.

- During the <sup>dev. of</sup> asci, the surrounding monokaryotic hyphae organize to form a thick protective coat around the developing asci. The whole structure is now called an ascocarp.

### \* Apothecium of Pezizae -

- The mature apothecium is a Cup-shaped, sessile or sub-sessile structure measuring up to 1-10 cm in diameter. They may be whitish yellow or bright red or grey in colour.

- The asci are arranged in parallel rows within the apothecium. The asci have a distinct amyloid ring at their ~~base~~ apex which stains blue with iodine.

- Ascospores are large, elliptical and are discharged violently and in one lot.

- On the basis of ascospore characteristics the whole species of Pezizae are grouped in ~~to~~ two series -

- a) species having smooth-walled spores without oil drops &
- b) species having <sup>Warts or</sup> ~~ridge~~ spores with 2-3 oil drops.

The Apothecium is aerial extensions of the <sup>2.</sup> subterranean mycelial network.



Fig. Developing Apothecium

Fig- Apothecium of Peziza.

3. Reproduction :- It is of two types -

a) Asexual reproduction :-

Asexual reproduction is absent in most of the species of Peziza. But few species produce conidia and chlamydospores.

- At the time of formation of conidia, some hyphae grow upward and act as conidiophores. Conidiophores are long, cylindrical, erect and septate.

- The tip of the conidiophores swells to form a vesicle. They are hyaline, elliptical in shape and thin walled. Thus conidia are formed <sup>usually</sup> exogeu-

- Conidia germinate on the suitable substratum and produce new mycelia.

- Chlamydospores are thick-walled resting cells formed intercalary on the hyphae, either singly or in chain. In favourable conditions they germinate and produce germ tubes which eventually grow in to new mycelia.

• conidia and chlamydospores are reported in <sup>(3)</sup> the species like P. fuckeliana; P. ostracoderma; P. repens and P. vesiculosa.

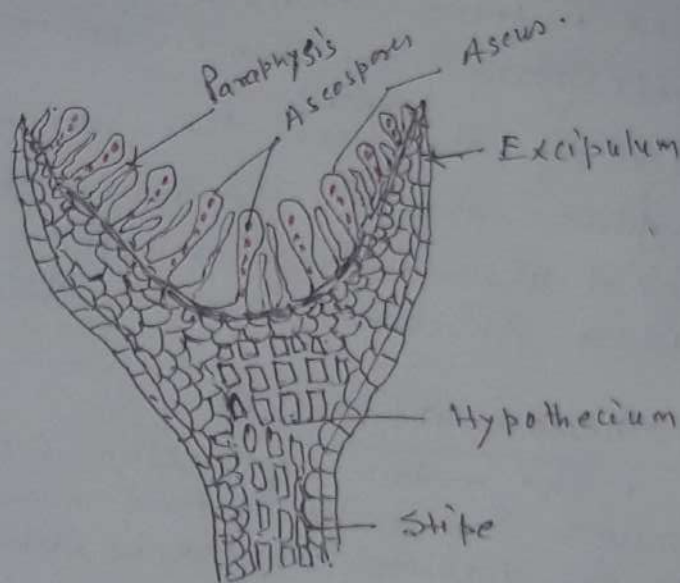
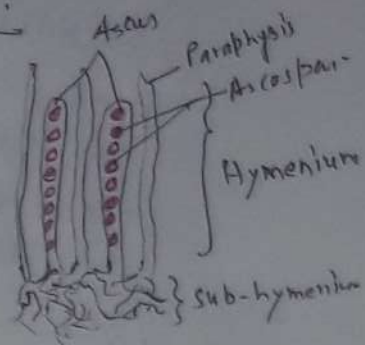
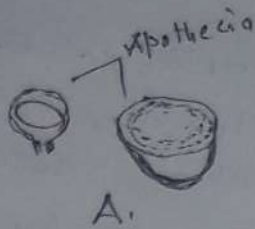


Fig. Peziza: v.s. of an apothecium.

### (b) Sexual Reproduction of Peziza:-

- In Peziza definite sex. organs, i.e., antheridium and ascogonium are not formed.
- Sexual reproduction takes place by somatogamy. The hyphae grow in all directions and form a pseudoparenchymatous mass. Some hyphae of this mass have dense protoplast with uni or multi-

(5)

Q) V.S. of Apothecium :- In v.s. following structures are seen :-

- i) Apothecium consists of mycelium with a basal hypothecium
- ii) Hymenium region consists of many fertile asci, ascospores and sterile paraphyses. It is the innermost layer of the apothecium.
- iii) Sub-hymenium is made up of <sup>thin walled and</sup> pseudo parenchymatous, light colored hyphae which later on form peridium of the cup.
- iv) In each ascus eight ascospores are found which form the new mycelium after germination.
- v) Excipulum :- It is the outermost region of the apothecium, composed of sterile hyphae.

Ascospores are released from the apothecium generally in moist environmental condition. On germination, the ascospores give rise to germ tube which develops into a new mycelium.

### Economic Importance of Peziz.

Generally no economic uses are visible, however, the species found growing on soil have tendency to increase soil fertility.

≠ The species growing on wood logs leads to deterioration of quality of the timber.

≠ The species growing indoors are potential pollutants

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