

Pellia

(It has been named after a lawyer in Italy L. Pelli-lebbioni)

Systematic Position:-

DIV: - BRYOPHYTA  
 CLASS: - HEPATICOPSIDA  
 ORDER: - METZGERIALES.  
 FAMILY: PELLACEAE  
 GENUS: PELLIA.

Total No. of Species: 04

No. of Indian species: 03.

<sup>x1</sup>  
 Habit & Habitat: Herbaceous in habit & cosmopolitan in distribution. The plants are usually found growing on moist soil, shady rocks by the sides of streams, ditches & spring in the form of green patches.

<sup>x1</sup>  
 Common Indian species: - Pellia epiphylla (Sikkim & East. Himalaya)  
P. calycina (West. Himalaya like Kulu, Simla, Mussoorie etc.)  
P. nesiiana

Archegonium: i) Archegonia are developed in clusters (4-12) near the apex of the thallus on dorsal side.

ii) Each archegonial group is covered by an involucre which may be cylindrical or flap like.

iii) Each mature archegonium consists of a short multicellular stalk, a broad venter and a long neck.

iv) Neck & venter are surrounded by a single layered sterile jacket (Coc)

v) Neck is composed of 4-8 neck canal cells & the venter encloses a ventral canal cell (Cvcc) and a basal large egg

vi) At the top of neck are present 4 cover cells

Fertilisation :- It takes place in the usual manner in the presence of water. The swimming antherozoids enter into archegonial neck and ultimately reach to the egg where it fuses and forms the diploid (2n) Zygote.

Structure of the sporophyte :- The structure of sporophyte of Pellia is relatively more complex than that of Riccia & Marchantia.

ii) It consists of a foot, long stem and a capsule.



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Reproduction :- Fellia reproduces by means of Vegetative and Sexual reproduction.

② vegetative reproduction :

It takes place by the following two methods:

- (a) By adventitious branches &
- (b) by fragmentation.

③ Sexual reproduction

Oogamous type of sexual reproduction is found in Fellia. Thallus may be homothallic or heterothallic. Homothallic forms are protandrous in nature. Male and female sex organs are known as Antheridium & archegonium respectively.

Antheridium :

- i) Antheridia are present on the dorsal side of the thallus

- ii) They are borne in the Antheridial Cavity which opens to the exterior by means of antheridial pore.

- iii) Each antheridium consists of a short multicellular stalk and a nearly spherical body.

- iv) Body of the antheridium is covered by a single-layered sterile jacket which encloses androcytes.

- v) Each androcyte finally transformed into biflagellate spirally coiled - antherozoid.



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iv) Neck & venter are surrounded by a single layered sterile jacket (CWC)

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Structure of the Sporophyte :- The structure of sporophyte of Pellia is relatively more complex than that of Riccia & Marchantia.

i) It consists of a foot, long stalk and a capsule.



- i) It arises from the dorsal surface of the thallus surrounded by the involucre at the base.
- ii) Capsule is the terminal part of the sporophyte and spherical in shape.
- iii) It (capsule) is surrounded 2 or 3 layered jacket
- iv) External to capsular wall jacket, both calyptra and involucre are present <sup>respectively</sup> as coverings.
- v) A large number of spores intertwining with elaters are present inside the capsule.
- vi) Columella is absent but at the base of the capsule, elaterophore is present.
- vii) Elaters are long, spindle shaped <sup>& provided with</sup> with 2 or 3 spirally coiled bands which are hygroscopic in nature.
- viii) Spores are arranged in tetrahedral - form (i.e. spore tetrad)

Dehiscence of the Capsule: At the time dehiscence, the seta elongates rapidly pushing out capsule by the rupture of calyptra. subsequently the capsule wall splits from apex to base into 4 valves which bend back exposing mass of spores and elaters.

Germination of spore & development of new gametophyte:

Spores of fellia germinate while still remain within the capsule. Each spore forms a small, few celled - chloroplast containing globose protonema which - ultimately (falling on suitable substratum) gives rise - to a new gametophyte.

Life Cycle of fellia : -

From any text book.