

(Named in honour of Florentine Politician P.A. Riccia)

Systematic position:

Div : ARYPHYTA
 Class: HEPATICOPSIDA
 ORDER: MARCHANTIALES
 FAMILY: RICCIACEAE
 GENUS: Riccia

Total No of species : About 200

No. species found in India : About 39.

Common Indian species: Riccia gangetica
R. discolor
R. parthasarathensis
R. fluitans (Aquatic sp).

Habit & Habitat :- Herbaceous in habit & cosmopolitan in distribution. Prefer to grow on moist & shady rocks and damp soil.

Str. of Plant body (Adult Gametophyte) :-

- i) Pl. body represents the gametophyte which dorsiventral, prostrate, dichotomously branched green thallus forming rosette.
- ii) Median longitudinal furrow on the dorsal surface of the thallus.
- iii) Scales & rhizoids (smooth walled & pegged) are present on the dorsal surface of the thallus.

Anatomy of the thallus :-

- i) Internally the thallus shows two distinct regions :-
 - (a) Dorsal assimilatory region ^{Consists of}
 - (b) ventral storage region
- (a) vertical tiers of green cells constitutes the photosynthetic region &
- (b) ventral storage region made up of parenchymatous tissue.
- (c) Air pores are present in between the green cells.
- (d) ventral surface provided with w/c smooth walled &

pegged rhizoids & multicellular scales. - 2 -

ii) Rhizoids perform the function of roots & scales help to retain water.

Fig

Apical Growth :- Takes place by the activities 3-5 apical cells (ciliated) situated in the apical notch of the thallus.

Reproduction : Riccia reproduces by means of vegetative & sexual methods.

- ① veg. Repro :-
- (a) By the progressive growth of the apical region followed by gradual death & decay of the older part of the thallus.
 - (b) By the formation of adventitious branches
 - (c) By tuberos
 - (d) By rhizoids.

② Sexual Repro : is oogamous type. Riccia is mainly hermaphroditic but may be heterostalkic. The male & female sporogone is known as antheridium & archegonium respectively and borne on the dorsal surface of the thallus.

- Str. of Antheridium :
- i) Antheridium is found in the antheridial chambers.
 - ii) It consists of a lower stalk & an upper pear shaped multicellular body.
 - iii) Body is surrounded by a single layered sterile jacket.
 - iv) Inside the body androgonial cells are present which later give rise to bi-flagellate ciliate antherozoids.

Fig

Str. of Archegonium:

- i) Archegonium is found embedded in the archegonial cavity on the d.s. of the thallus.
- ii) Each archegonium is a flask shaped body & it is provided with short stalk, swollen venter & upper long neck.
- iii) Both neck & venter are surrounded by a single layered sterile jacket.
- iv) At the top of neck 4 cover cells are present.
- v) Neck is composed of 4-6 neck canal cells (NCC) the venter with a single ventral cell & a basal egg.

Fertilisation: - water is essential for fertilisation.

Just before fertilisation all the neck canal cells & ventral canal cell ^{of the archegonium} disorganise resulting in the formation of a hollow passage or matricle. Meanwhile the cover cells separate with each other leaving a pore / passage for the antherozoids to reach the venter but only one of them unites with the egg to form a diploid (2n) Zygote / oospore.

Structure of mature sporophyte:

- i) Nature of sporophyte of Riccia is simply a globose capsule like structure without any foot & seta.
- ii) Capsule wall is provided with a single sterile jacket wall.
- iii) Inside the capsule, a large number of spore tetrad (S/T) & a few nurse cells are present.

- iv) Elaters & Columella are absent.
- v) Each spore is uninucleate, pyramidal or rounded in shape & is covered by a 3-layered wall (Exosporium, mesosporium & endosporium).
- vi) Mature sporophyte is achlorophyllous & completely parasitic on the gametophytic plant body.

Dehiscence of the Capsule & liberation/dispersal of Spore:
In Riccia, liberation of spores does not take place by the dehiscence of the capsule. Spore dispersal takes place by the death & decay of the thallic tissue followed by the capsular wall.

Formation of Gametophyte:
Spore is the first cell of the gametophytic generation. Each spore under favourable condition germinates to produce a germ tube which develops into a thread like protonema from which ultimately new Riccia thallus arises.

Life Cycle: —

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