

Riccia sp.



A.
Riccia Morphology
of gametophytic thallus.

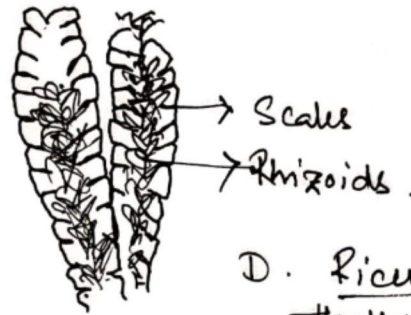


B. Riccia discolor
gametophytic thallus.
Female.

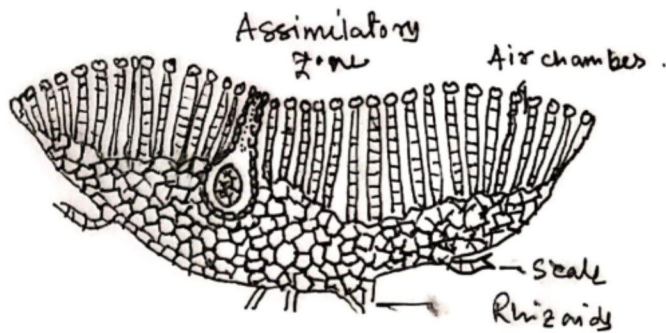
↑
Dorsal view.



↓
C. Riccia discolor
gametophytic thallus.
Male.



D. Riccia gametophytic
thallus (ventral view).



E. Riccia sp. vertical.
transverse section through
gametophyte.

Study of gamatophytic structure of Riccia

Vegetative Structure:

Plant body is thallose, dorsiventrally differentiated, prostrate with dichotomous branched.

Each dichotomy is linear to wedge-shaped and the median portion is thickened. There is a prominent longitudinal furrow on the dorsal side.

The ventral surface bears a corresponding ridge and a transverse row of scales, one cell in thickness, which are more crowded near the apex and overlap the growing point. Lower down, the scales are in two marginal rows, violet in colour. In addition, there are two types of rhizoids - smooth walled and tuberculate, being on the ventral ridge of the thallus.

In T.S. through the thallus, the following layers can be seen:

(a) Dorsal side bears a tissue in which there are a few vertical rows of chlorophyllose cells separated by narrow vertical air canals, so that the top of the thallus is porose. This is chlorophyllose or assimilatory tissue.

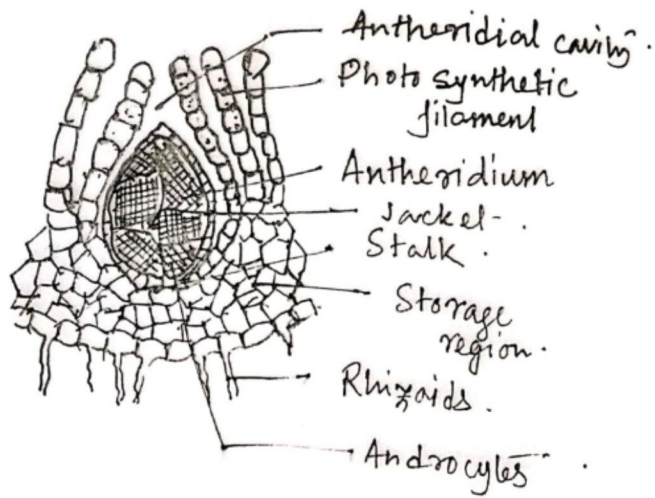
(b) Ventral region of the thallus is formed by a compact colourless parenchymatous tissue which serves as the storage region and often contains starch. One cell thick scales and unicellular rhizoids (smooth walled and tuberculate) are developed from the outermost layer of the ventral surface. Upper epidermis is one layered with colourless cells. Air pores are bounded by four epidermal cells as seen in tangential section. Lower epidermis is a continuous layer.

Reproductive Structure:

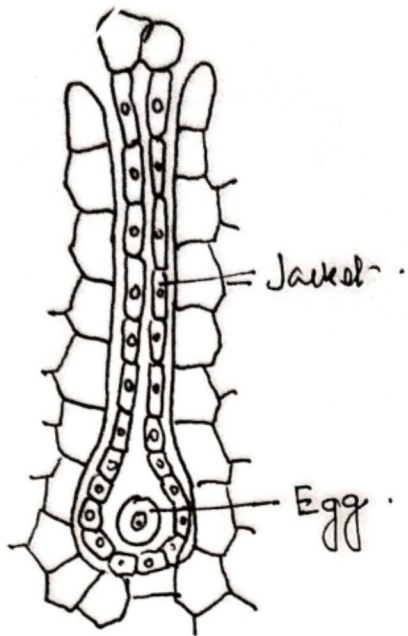
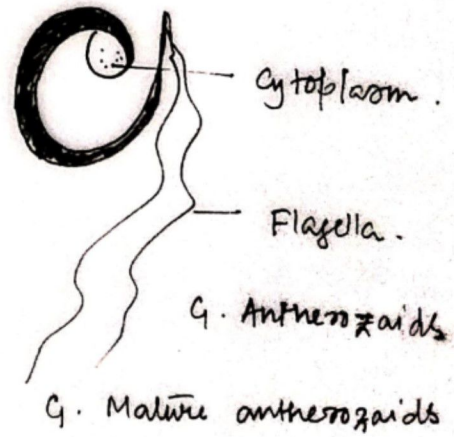
Plants are mostly monoecious but rarely dioecious. Sex organs develop singly and acropetally in a linear row on the dorsal median furrow. The mature antheridium is stalked, pear-shaped and its single layered jacket (wall) encloses a number of sperm or androcyte mother cells.

Mature archegonium is flask-shaped with a short stalk, a swollen basal venter containing the large egg together with a ventral canal cell and an elongated neck containing a row of four neck canal cells. Sex organs are embedded within the thallus and included in air chambers (antheridial and archegonial chambers).

Sporogonium is somewhat round, sac-like and embedded within the thallus. It contains a single layered jacket (gametophytic cells) enclosing many spores which are often in tetrads. Mature spores show 3 layers exosporium (outer-most), mesosporium (middle) and endosporium (innermost). Spores often remain in tetrads.



F. Riccia sp.
Structure of Antheridium.



H. Structure of Mature archegonium.



I. Mature sporogonium bearing spore tetrads.

Identification:

Thallus dorsiventrally flattened and prostrate; sporophytes simple and always of limited growth, columella absent inside capsule.

CLASS: HEPATICOPSIDA

Plant body prostrate, ribbon-shaped, dichotomously branched, dorsiventrally flattened; dorsal tissue layers green and with air canals or chambers; thallus with scales and rhizoids on ventral surface, sex organs on dorsal surface (embedded), sporophyte devoid of columella or elaterophore.

ORDER: MARCHANTIALES

Sporophyte having only sac-like capsule and embedded within the gametophytic thallus; thallus dichotomously branched with sex organs along the entire length of the median furrow.

FAMILY: RICCIACEAE

Thallus linear to wedge-shaped internally composed of vertical rows of cells on the dorsal side, air canal present in between two vertical rows of cells; sporophyte sac-like and having one-layered jacket surrounding spores and nurse cells.

GENUS: RICCIA