

SPOROCARP OF AZOLLA

PAPER-I

Group-B

Introduction:

TDC Part-I(Hons.)

(2019-22)

Azolla is a free-floating aquatic fern inhabiting freshwater pools, tanks and back water. Sporangia are produced within specialized structures called sporocarps, which are small globular nut-like bodies formed on the submerged lobe of the lowermost leaf of a branch. The detailed structure and development of the sporocarp show several unique features.

Sporocarp structure and development:

(i) Each submerged lobe of the leaf gives rise to two sporocarps.

(ii) Sporangia in each sporocarp arise on a raised placenta and injected by an indusium.

(iii) Thus each sporocarp is nothing but a sorus consisting of clustered sporangia.

(iv) In the early stages of development, a sporocarp contains both microsporangia and a single large terminal megasporangium.

(v) Later on the sporocarps are differentiated into microsporocarps and megasporocarps respectively.

Thus, of the two sporocarps in a submerged lobe, the larger one is the micro-sporocarp bearing microsporangia only with abortive megasporangium and the smaller one is the megasporocarp bearing a megasporangium with abortive microsporangia.

(vi) Sporangia are shortly stalked and the wall contains a layer of tapetum, and these are distinctly leptosporangiate in origin.

(vii) In the megasporangium, there is only one functional megaspore mother cell which

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megaspores of which three degenerate and only one persists.

(viii) In the microsporangium, 64 microspores are formed in tetrads as a result of reduction division of microspore mother cells.

(ix) Tapetal cells in the microsporangium usually degenerate and cytoplasm organizes into 2-8 masses known as massulae embedding the microspores.

(x) Massulae are invested on the surface by hairy appendages with zagettate tips known as glochidia.

(xi) In megasporangium, four massulae are formed of which one in the basal layer contains the functional megaspore.
With reduction division and formation of spores, the gametophytic generation begins.

(xii) Glochidia help in the attachment of the microspore massulae to the megaspore massulae.

— X —
(N.B. - Fig. below)

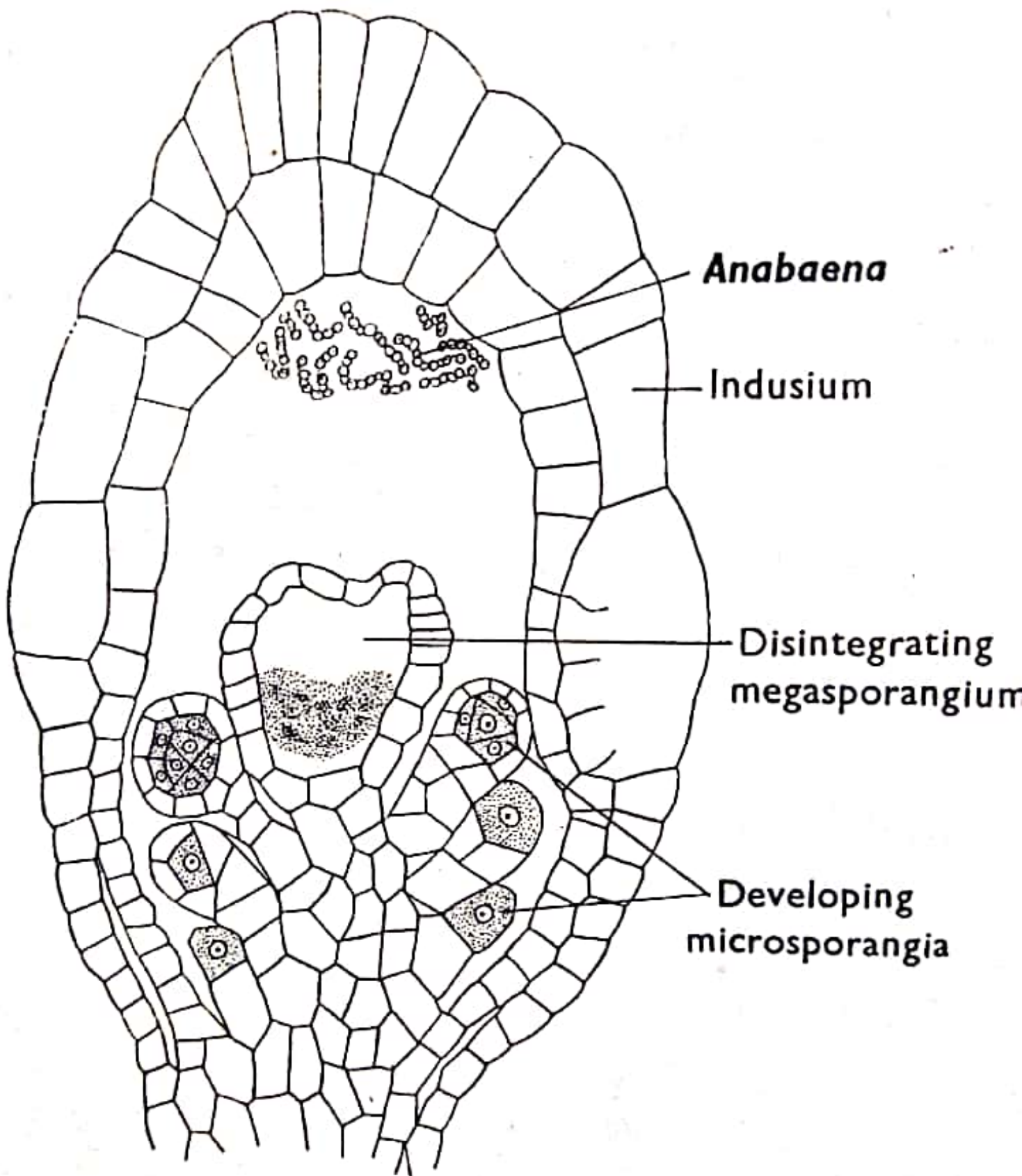


Fig. 404. *Azolla*.
L.S. through a developing microsporocarp.

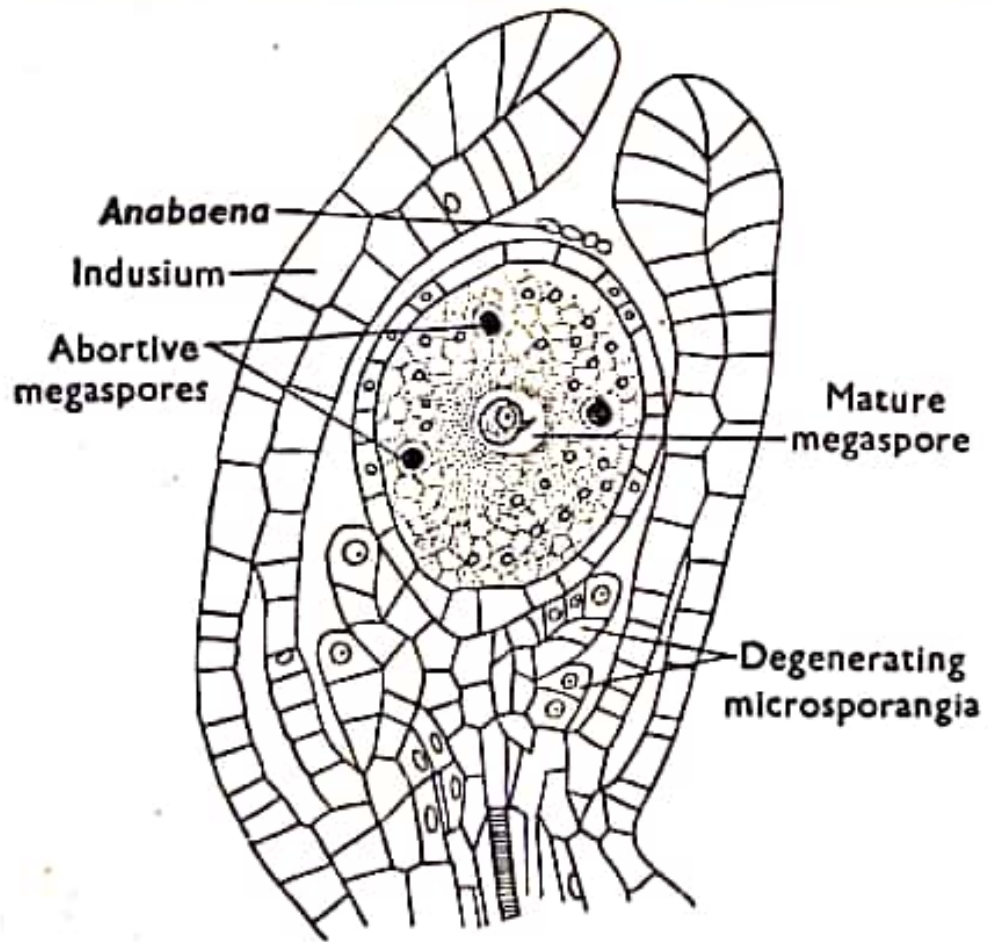


Fig. 407. *Azolla*.
L. S. through a developing megasporocarp.