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B.Sc. PART- I
PAPER- II, GROUP- [B]

**(i) THE SPORE PRODUCING
ORGAN OF EQUISETUM.**

The spore producing organ
of
Equisetum

The strobilus or the cone is situated at the apex of the fertile aerial branch. It consists of a thick and stout central axis on which the whorls of densely crowded petiole appendages are arranged. The appendages are the sporangiophores which bear sporangia. Each whorl contains many sporangia.

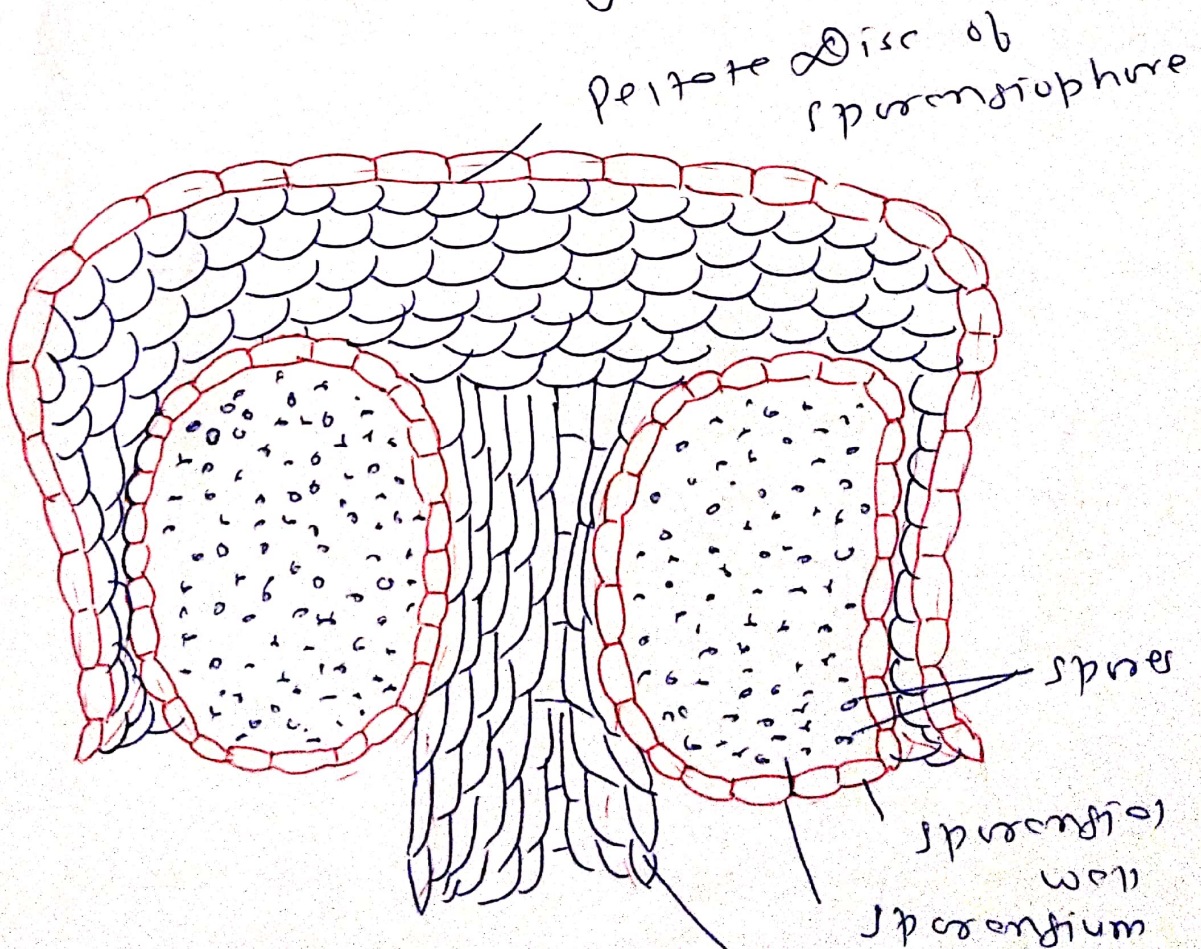


Figure - 1.5 of Sporangiophore

of Equisetum with two mature sporangia with spores.

Each spermatophore consists of a short cylindrical stalk which expands as a flattened petiole disc at right angles to the central axis of the strobilus. The petiole disc is hexagonal in outline and bears six like sperangia on lower surface. The sperangia are 5-10 in number and hanging vertically at right angles to the petiole disc towards the axis of the strobilus.

Development of Sperangium

A single superficial cell around the row of developing spermatophores near the margin gives rise to all the essential parts of the sperangium; though the adjacent tissues also take part in the further growth of sperangium. Active growth in the centre of spermatophore pushes the sperangial initials laterally and over the edge, so that they become inverted and come to point with the apices towards the axis. The sperangial initial divides by periclinal wall into an outer cell and inner cell. The inner cell divides repeatedly and gives rise to a portion of sporogenous tissue. The outer cell undergoes repeated divi-

sions and forms several layered tissue (3)
 The outer cell of it forms the jacket
 wall of many layers. The inner part
 of its form tapetum. The sporogenous
 cells are round and separate from
 each other forming spor mother cells.
 About $\frac{1}{3}$ of spor mother cells and the
 tapetal cells disintegrate and form
 a pleomorphic fluid. The remaining
 $\frac{2}{3}$ spor mother cells undergo meiotic
 divisions and form tetrad of haploid
 spores. The spores are all alike
 (homosporous) and get separated from
 each other. The wall of sporangium
 is 3-4 layered at first but finally
 reduces to only one layer.

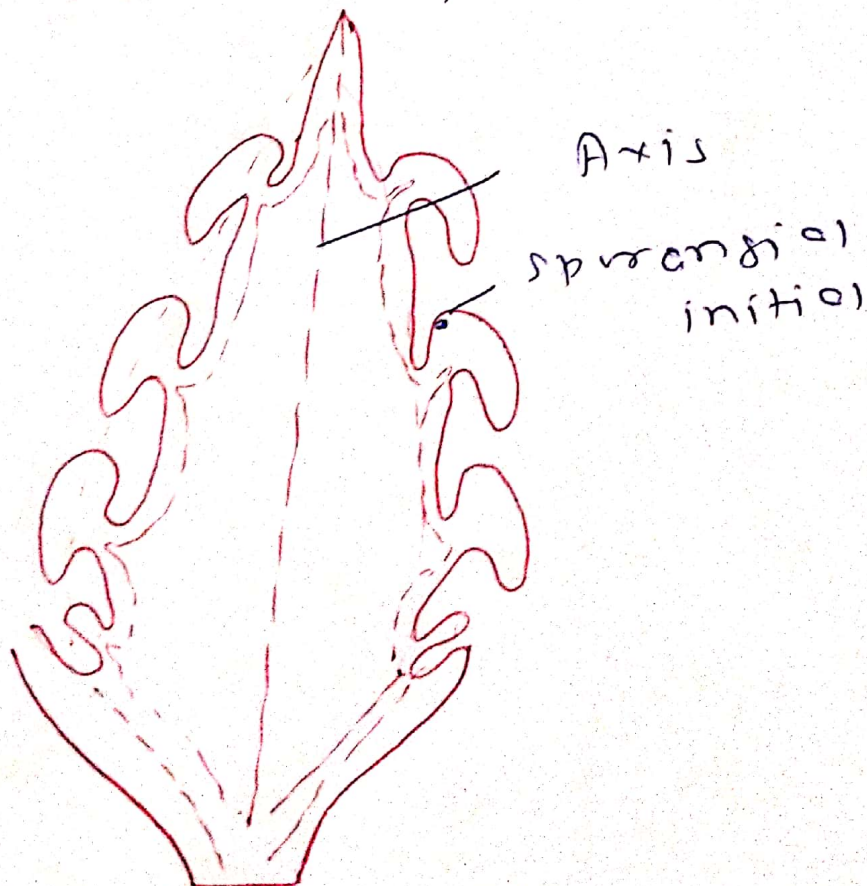


Figure - A

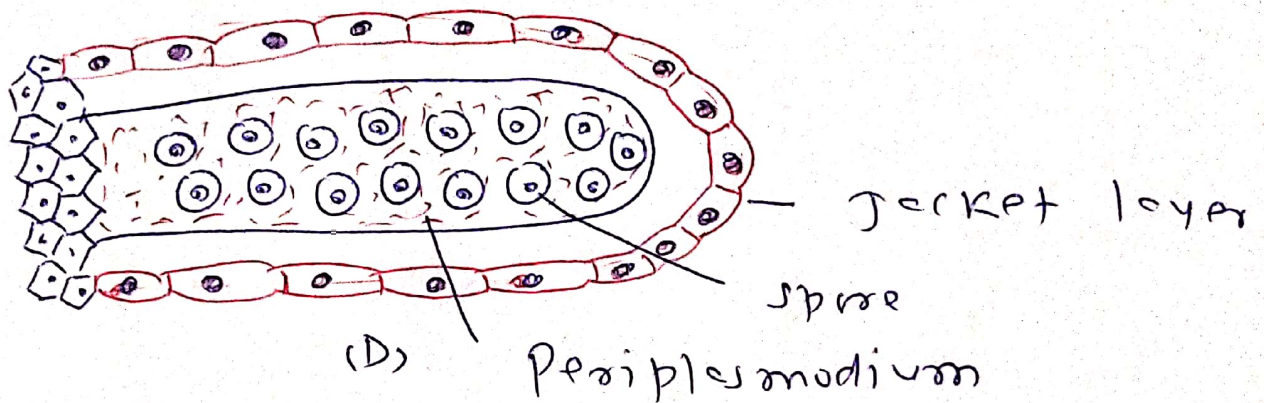
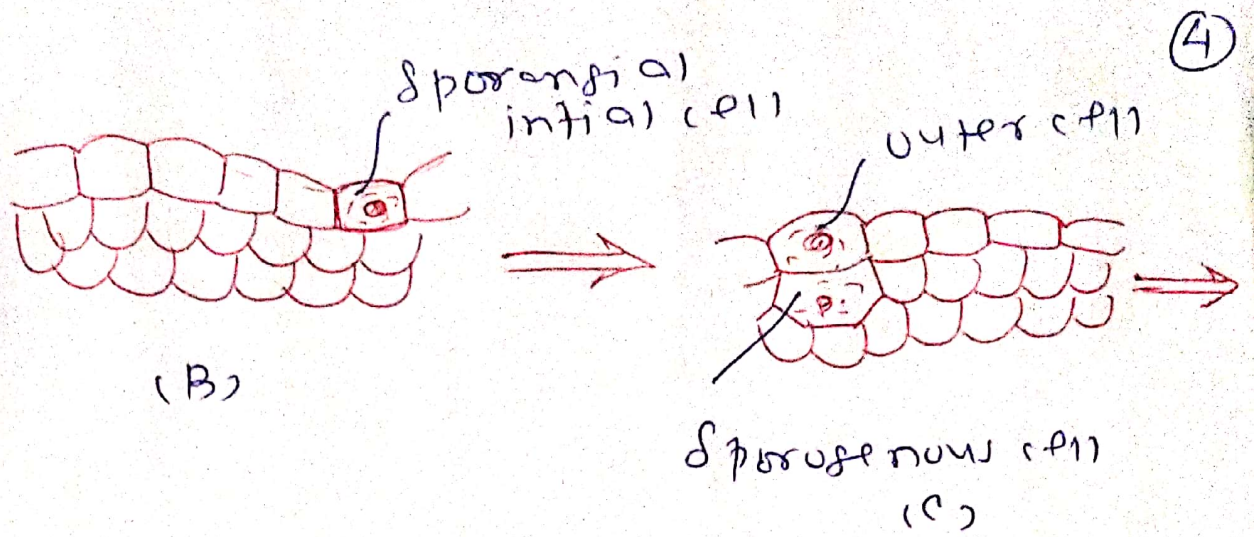


Figure → Various stages in the development of sporangium and spores of Equisetum.

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