

(1).

Spore producing organ of Equisetum.

→ Equisetum is homosporous. The sporangia are borne on sporangiophores which are very different from the ordinary leaves and are grouped together in strobili that are terminal in position.

Organisation of the strobilus

→ The chief function of the strobilus is the formation and liberation of the spores. The strobili are always terminal and solitary. In majority of the species there is no segregation between sterile and fertile shoots and every main aerial shoot bears a terminal strobilus. In such case the aerial shoots perform the dual function of photosynthesis and reproduction.

→ In some other species there is segregation between fertile and sterile aerial shoots. The former are short, unbranched, yellowish and bear a terminal strobilus, whereas the latter are robust, green and profusely branched.

→ The strobilus may be apiculate when the strobilus axis grows a little beyond the upper whorl of sporangiophores and becomes pointed. In others the strobilus has a rounded apex and bears sporangiophores at its apex.

(2)

Structure

Abnormalities

→ In some cases it has been noticed that in addition to the terminal cone borne on the main axis there are present lateral branches arising from the nodes and each bearing a terminal cone. In some cases two separate cones are borne terminally whereas in certain plants bifurcated cones have also been reported.

Structure of Strobilus

→ The cone of Equisetum is peculiar. It consists of a central thick axis which bears a number of densely crowded, P-shaped peltate scales called the sporangiophores.

→ The sporangiophores are arranged on the axis in successive whorls alternating, though somewhat irregularly with one another. The number of sporangiophores in each whorl varies from few to many.

(3)

Structure of Sporangiphore

- The sporangiphore has two regions: (i) a small proximal cylindrical and stalk-like portion attached at right angles to the cone axis, and (ii) a shield-shaped peltate disc attached to the distal or outer end of the stalk.
- The peltate disc bears on its under-surface close to its edge, a ring of several usually 5-10 sac-like pendent sporangia. They extend inwards towards the axis of the cone and fill up all the space that is left between it and the sporangiphores.
- The peltate heads of the sporangiphores fit closely together so that the sporangia are concealed.
- At the base of the cone, the central axis bears a ring-like outgrowth the annulus. Occasionally there are two such rings.

Sporangia

- A mature sporangium is an elongated sac-like structure full of large number of haploid spores. The spores of equal size (homosporous).
- The mature sporangium has a single layer of wall cells. The cell walls of this layer are spirally thickened. A young sporangium has 2-4 layered thick wall.
- The innermost wall layer is derived from the outermost sporogenous cells and is called the tapetum. The inner wall layers and the tapetum disorganise as the spores are formed.

Dehiscence

- At maturity the strobilus axis elongates slightly and thus loosens its compactness. The tightly fitting sporangiophores separate from each other. Later due to loss of water the sep sporangiophores shrink and fall apart.
- The sporangia are now exposed. The sporangia open by longitudinal slits, down the side next to the sporangiophore stalk and the spores sift out. They are light and fluffy and are carried away singly or in clusters by the air currents.