



Lecture No.:13

Date: 16th May, 2020

CORE CONCEPT OF
Group A - Pteridophytes

SUB./GEN. - PART 1

LYCOPODIUM - II

Reproduction -

A. Vegetative -

1. Mainly by **Gemmae** or **Bulbils**. These are modified lateral branches detached from the mother plant.
2. **By Resting Buds** - Apical buds of rhizomes and branches having stored food material.
3. **By Fragmentation** - Death and decay of the older regions of the stem.
4. **By Root Tubercles** - Swollen small tuber like structure coming out from adventitious roots.

B. Asexual - Lycopodium species produce only one type of spores (homosporous). Spores are produced within sporangia which are borne on the adaxial (upper) surface of the fertile leaves called sporophylls. The sporangium develops from a group of cells (i.e **eusporangiate**). Numerous sporophylls are spirally arranged at the tip of the fertile branch to form a **strobilus**. The sporogenous cells of sporangium become spore mother cells which undergo meiosis to form spore tetrad . The sporangium splits along a vertical line of weakened cells called



stomium and the spores are liberated.

Gametophyte - The spores under favourable condition germinate to form green **Prothalli**. The shape and size of the prothallus vary considerably which may be cylindrical, tuberous or disc like having branches or lobes. The cortex of the prothallus becomes associated with mycorrhizal fungus. The gametophytes are fixed to the soil by unicellular rhizoids. The gametophyte is monoecious (i.e. antheridia and archegonia borne on the same prothallus). The antheridia are almost sunken in the gametophytic tissue and antherozoids are biflagellate. The mature archegonium consists of a neck (protruding out) and a sunken venter containing an egg. At the time of fertilization neck canal cells and ventral canal cell degenerate. The antherozoid fertilizes the egg in presence of water to form a zygote.

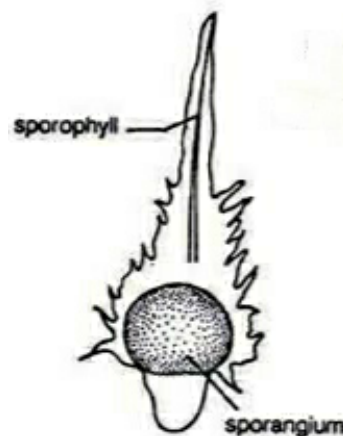


Fig. A portion of L.S of Strobilus

The zygote develops to form the new sporophyte.



In *L.cernuum*, the 8-celled embryo develops into a massive globose structure called **Protocorm** which bears rhizoids and leaf-like structures (**protophylls**) from its upper surface. The protocorm soon loses contact with the prothallus, organizes a short meristem and develops into a new sporophyte.

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