

Vivekanand College, Kolhapur (Autonomous)

Department of Botany

B.Sc. II

Topic: Selaginella

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Study of *Selaginella*

Classification:

Kingdom: Plantae

Subkingdom: Cryptogams

Division: Lepidophyta

Class: Lycopodineae

Order: Selaginellales

Family: Selaginellaceae

Genus: *Selaginella*



Occurrence: *Selaginella* grows on moist and shady places during rainy season. Some species are cultivated as ornamental plant due to its feathery appearance.

Vegetative Character:

External Morphology: (Fig. 1a)

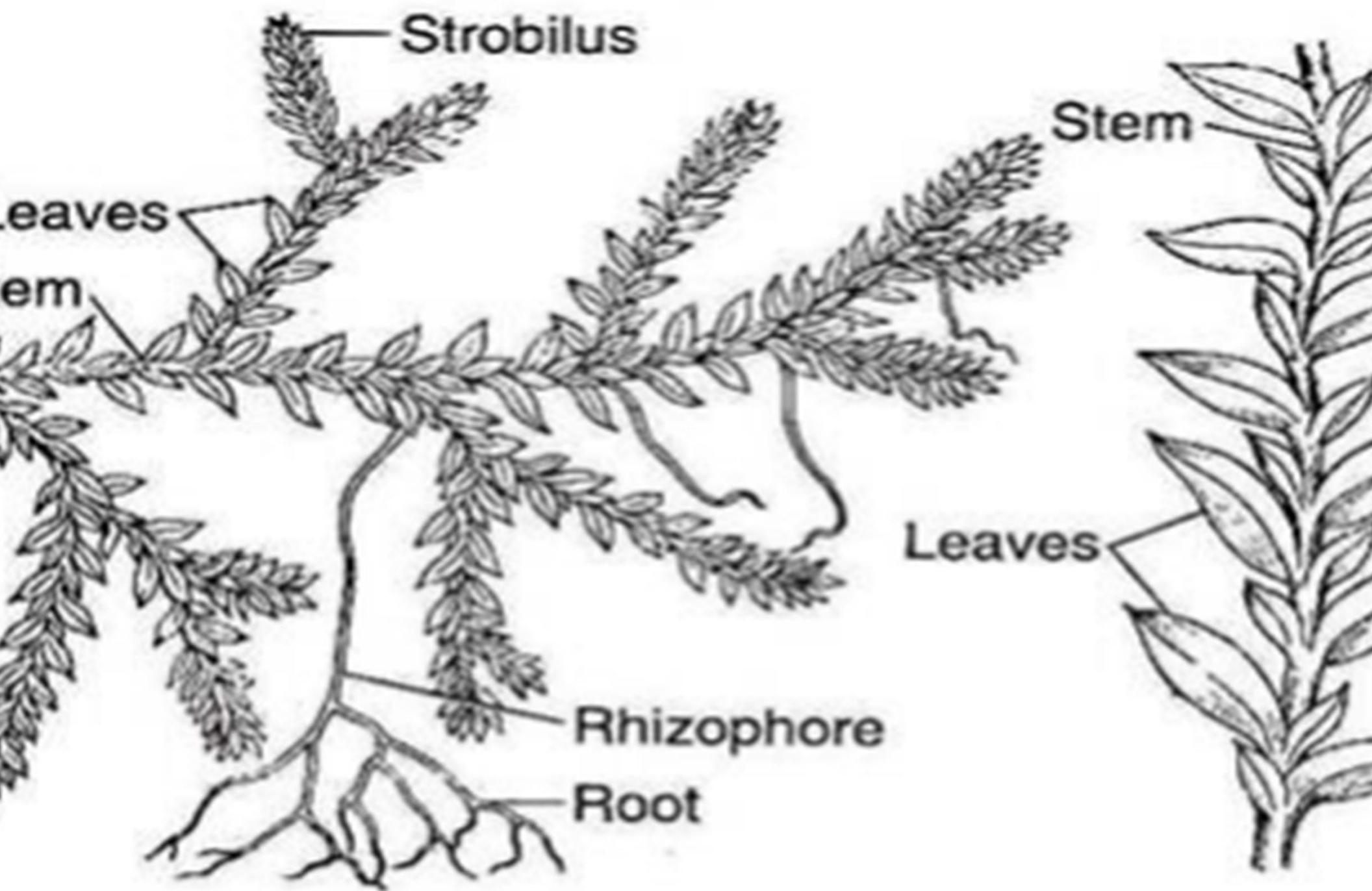
The plant body is a sporophyte differentiated into root, stem and leaves.

The stem is herbaceous, prostrate or erect and shows dichotomous branching.

A rhizophore develops at the point of branching and it produces clump of roots in the soil.

The leaves may be homophyllous i. e. similar in size or heterophyllous i. e. different in size.

Heterophyllous leaves form four longitudinal rows. Two rows of smaller leaves arise on dorsal side and two rows of larger leaves arise on ventral side of the axis. Leaves are sessile, ovate, lanceolate and ligulate.



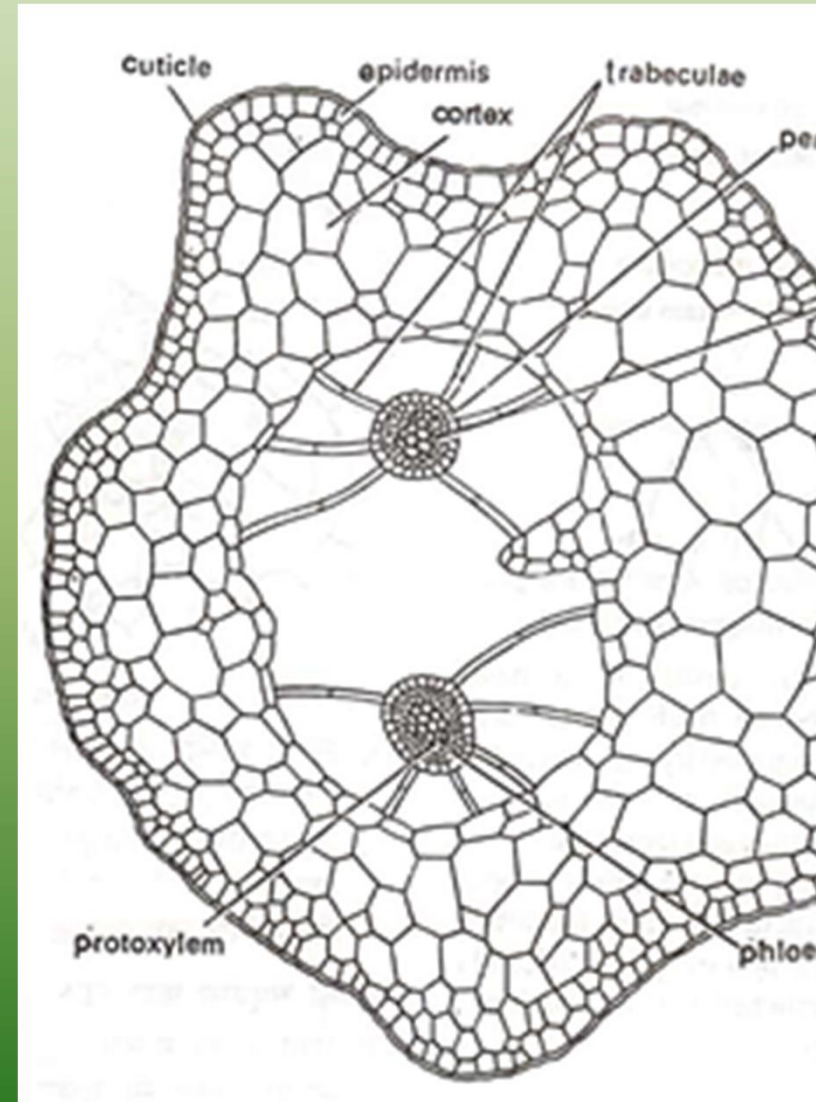
T. S. of Stem: (Fig. 1b)

The T. S. of stem is differentiated into epidermis, cortex and stele.

Epidermis: It is single layered made up of barrel shaped cells and covered by cuticle.

Cortex: It is differentiated into 3 to 4 layered thick walled sclerenchymatous hypodermis and inner layers of thin walled parenchymatous cells.

Stele: Stele consists of pericycle, xylem and phloem. Stele is eustelelic. Xylem is exarch. The central steles are connected with cortex with the help of many long elongated cells called trabeculae.



Reproductive Structure:

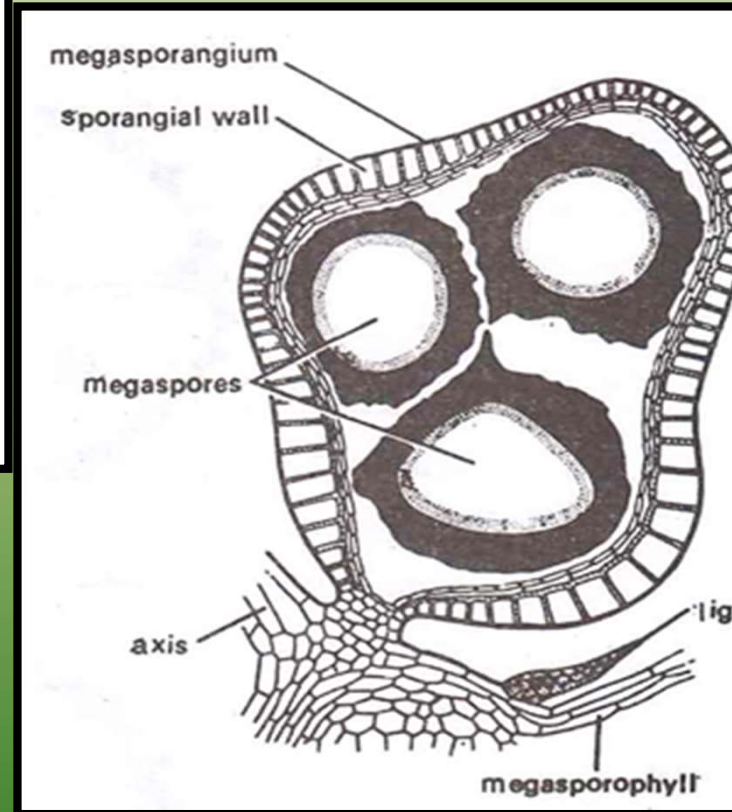
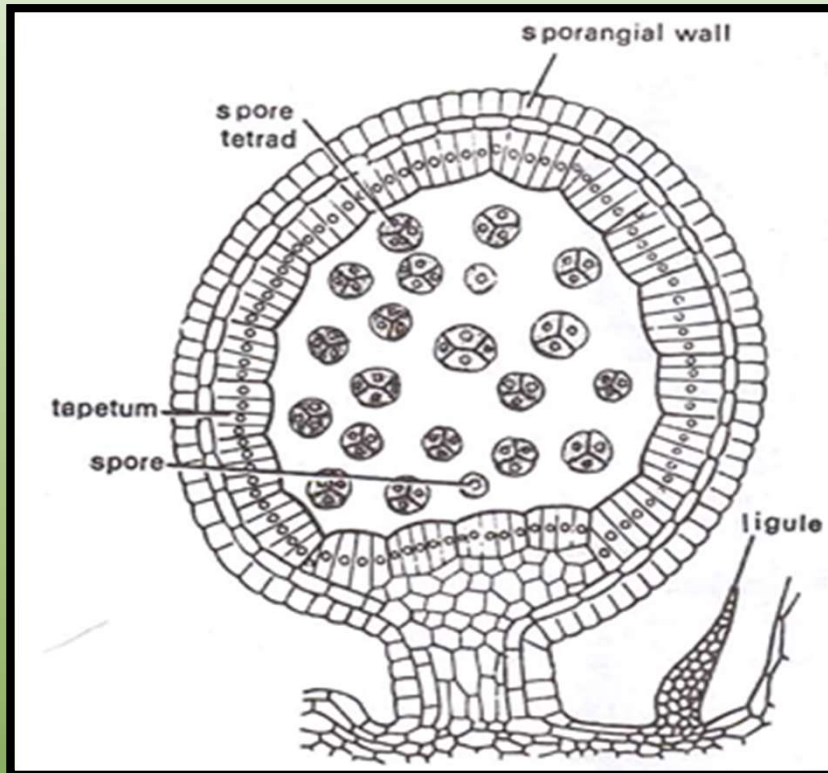
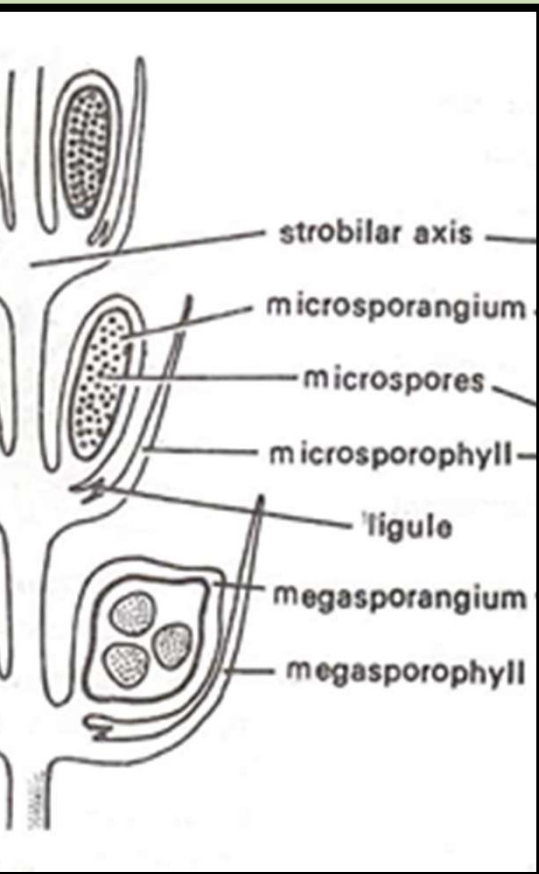
Selaginella reproduces by vegetative and sexual methods.

Sexual Reproduction:

The plants are heterosporous i.e., produce two different types of spores—megaspores and microspores.

L. S. of Strobilus: (Fig. 1c-e)

1. At the tip of each branch compact leafy structure is formed known as cone/strobilus.
2. Each strobilus shows central axis on which number of micro and megasporophylls are spirally arranged.
3. Sporophylls are modified leaves which bear sporangia in its axil.
4. There are two types of sporophylls named as microsporophyll and megasporophyll.



5. **Microsporophyll:** Sporophyll containing microsporangium is known as microsporophyll.
6. **Microsporangium:** It is small, oval/rounded and contains many microspores.
7. **Microspore:** Microspores are pyramidal in shape with thick ornamental exine and thin uniform intine.
8. **Megasporophyll:** Sporophyll containing megasporangium is called megasporophyll.
9. **Megasporangium:** Each megasporangium is club shaped and 4 lobed containing 4 megaspores.
10. **Megaspore:** It is tetrahedral in shape with thick exine and thin intine.
11. Both sporangia are with short stalk and surrounded by a sporangial wall which consist of outer two jacket layers and innermost tapetum layers.

THANK YOU...