

*Botany B.Sc I Semester I*  
*“Bryophytes, Pteridophytes and Gymnosperm”*

*Unit I- 16- Pteridophytes*

*By Dr. A. R. Alvikar*



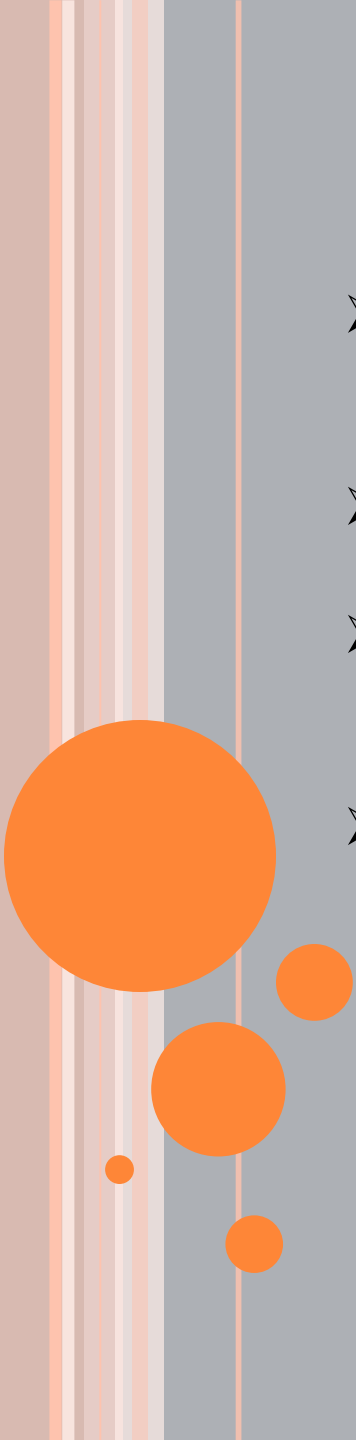

# Pteridophytes

- The term Pteridophyte first introduced by Haeckel.
- Which comes from Greek language (Pteron-feather, Phytion- plant)
- Plants bearing feather like leaves.
- First land vascular cryptogams.
- First terrestrial plants (400 living species and 10,500 fossil).

## General Characters of Pteridophytes



- Mostly herbaceous growing at moist and shady places.
- *Azolla* is smallest petridophyte (aquatic)

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- The plant body is well differentiated into root, stem, leaves as a sporophyte.
  - Root system-Adventitious
  - Stem system – Underground rhizome few species have aerial branched stem.
  - Leaves – two types scaly and foliage
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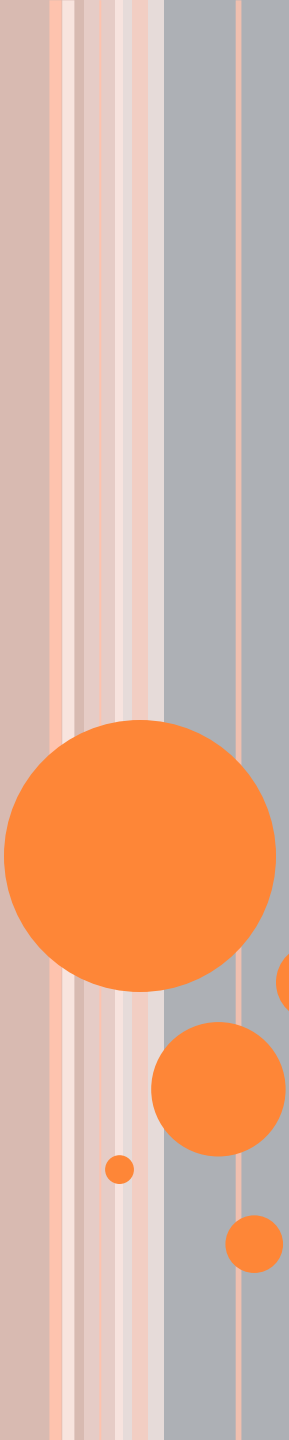

# Reproduction

Sporophytic foliage leaves produces haploid spores in sporangia at their ventral surfaces known as **sporophyll**.

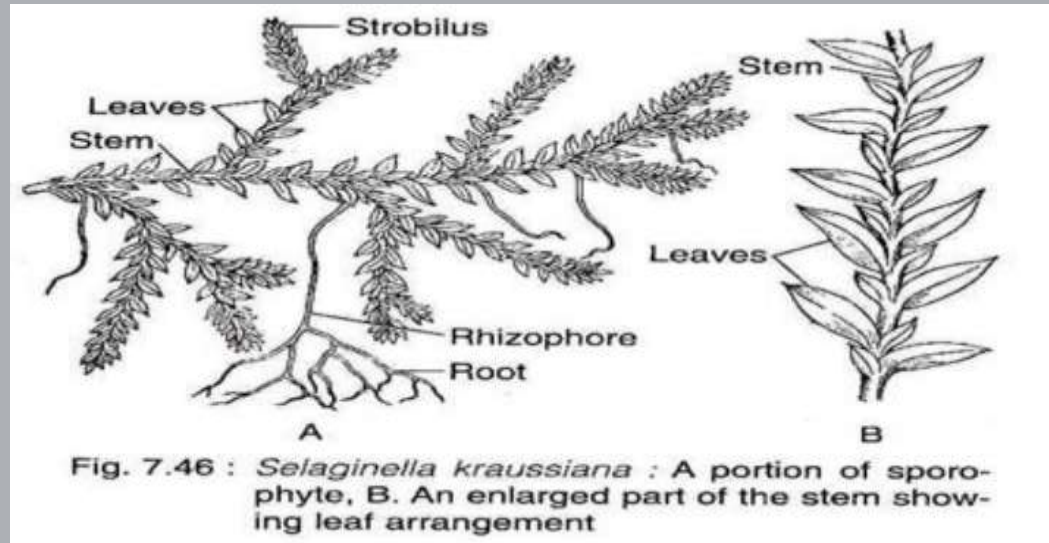
Spores these are grouped in to **homosporous** (*Equisetum, Lycopodium*) and **heterosporous** (*Marsilea, Selaginella*).

On the basis of sporangia development

1. **Eusporangiate** – sporangia developed from a **group of superficial cells** (*Lycopodium, Selaginella*).
2. **Leptosporangiate** – Sporangia developed from **single superficial cells** (*Marsilea, Dryopteris*).

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- After germination it produces gametophyte which may be monoecious or dioecious.
  - Reproductive organs on gametophyte are embedded in the prothallus.
  - Male reproductive organ (antheridium) produces motile antherozoids.
  - Female reproductive organ (archegonium) produces egg as female gamete.
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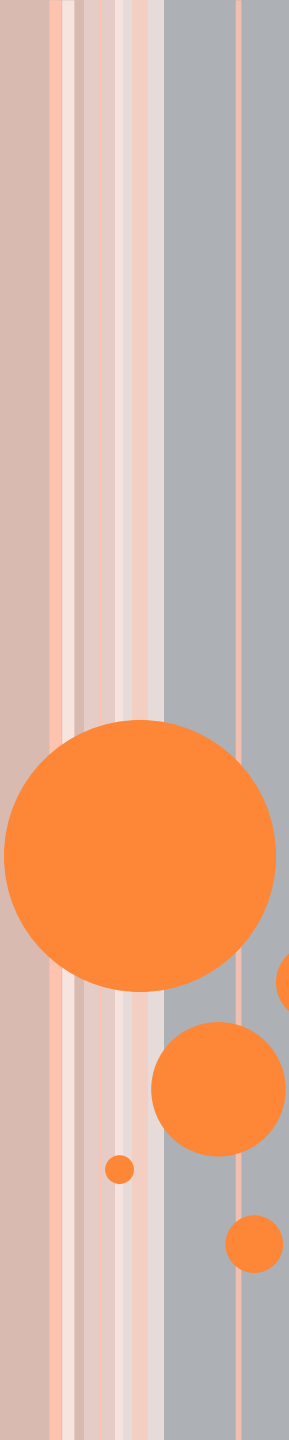

# Selaginella (Spike moss/ Club moss)



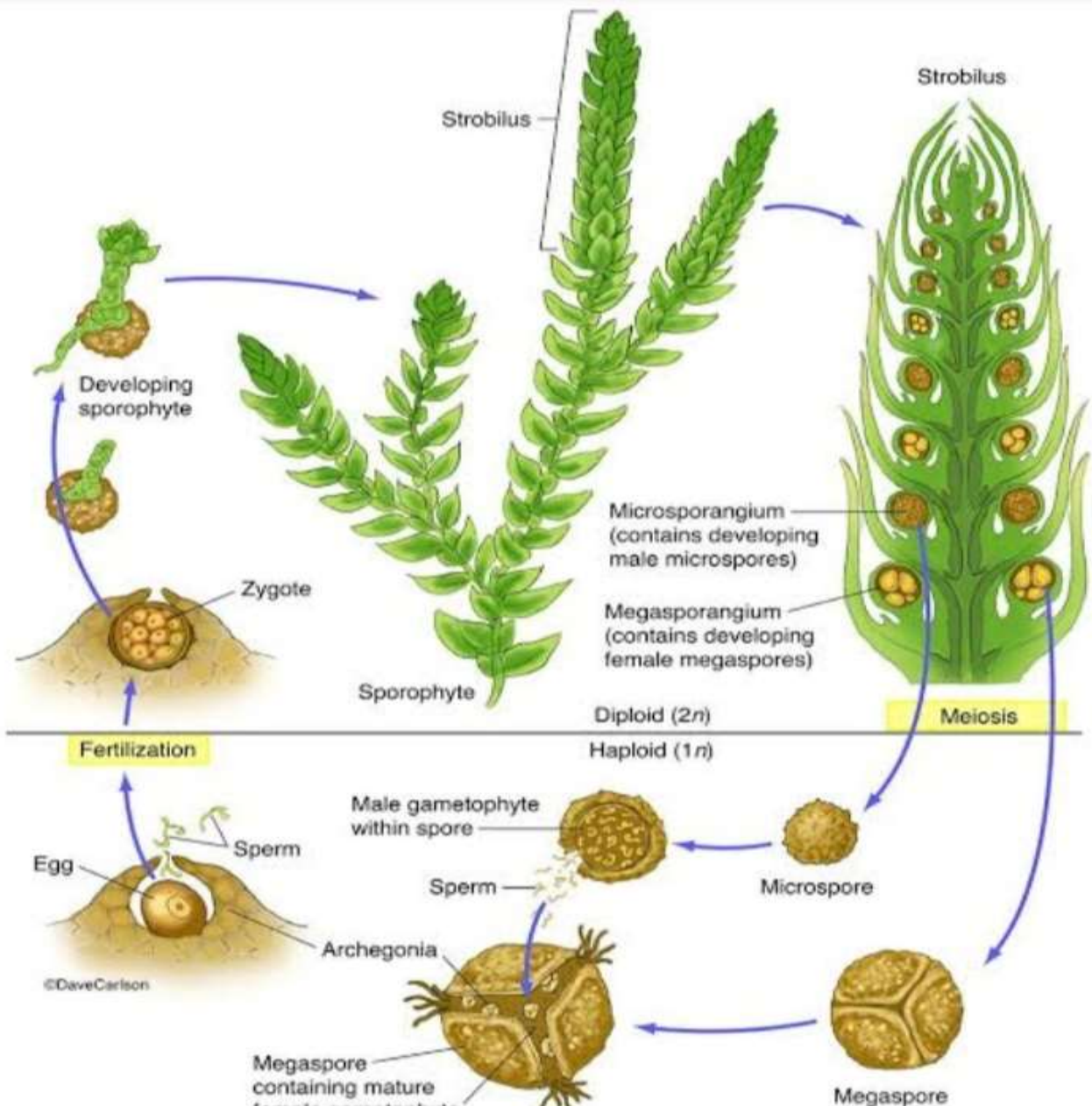
## External Morphology

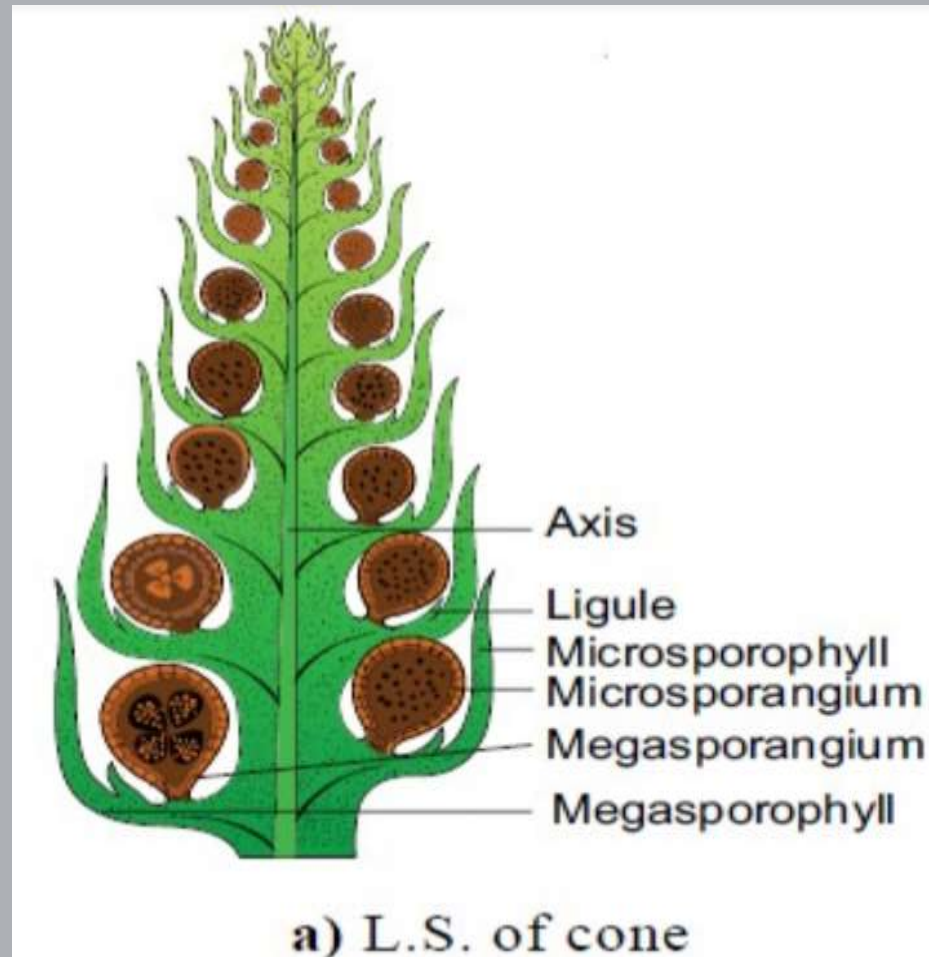
### Occurance –

- Moist rain forests of western ghats and west himalaya.
- Some are cultivated in gardens as ornamental purposes.
- Sporophyte is evergreen delicate herb.

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- Plant body well differentiated into root, stem, ligules, leaves rhizophore.
  - Homoeophyllum species are erect –e.g: *S. repestris*,  
*S. Spinulosa*.
  - Heterophyllum species are prostrate – e.g: *S. kraussiana*,  
*S. lepidophylla*.
  - Stem – Profusely branched, delicate and evergreen,  
Branching monopodial that is growing apex with single  
apical meristematic cell.
  - Leaves - small, simple, lanceolate with pointed apex,  
with single unbranched midrib.
  - Homophyllous – all leaves same size spirally arranged  
forming dense cover.
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- Leaves at apical portion of branch bearing sporangia (micro and mega) called sporophylls (micro and mega) sporophylls

- Heterophyllus – leaves dimorphic (small and big size) arranged in pairs.
- Small leaves on dorsal side of stem bigger leaves on ventral side of the stem.
- Sporophylls are arranged in to condense structure known as Strobilus.
- Ligules – on adaxial side of leaf near the base, small membranous outgrowth.

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