

STELAR VARIATIONS IN LYCOPODIUM

PAPER-I

Group-B

Introduction:

Stele refers to the central vascular cylinders of tracheophytes circumscribed by the endodermis and having pith at the centre or even without pith. Lycopodium, a simple and relatively primitive member of Pteridophyta, has basically a protostelic condition, but on account of widely differing morphology and arrangement of xylem and phloem in different species, a good range of variations are encountered.

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Forms of stelar variations in Lycopodium:

Basically three forms or variations of protostelic condition have been observed in different species of Lycopodium.

1. Actinostele - is the central core of xylem has a stellate (star-shaped) appearance with radiating arms.
(i) Phloem surrounds the xylem core and phloem elements are packed often in the spaces in between the radiating arms of xylem. e.g., L. Shligmaria, L. serratum.

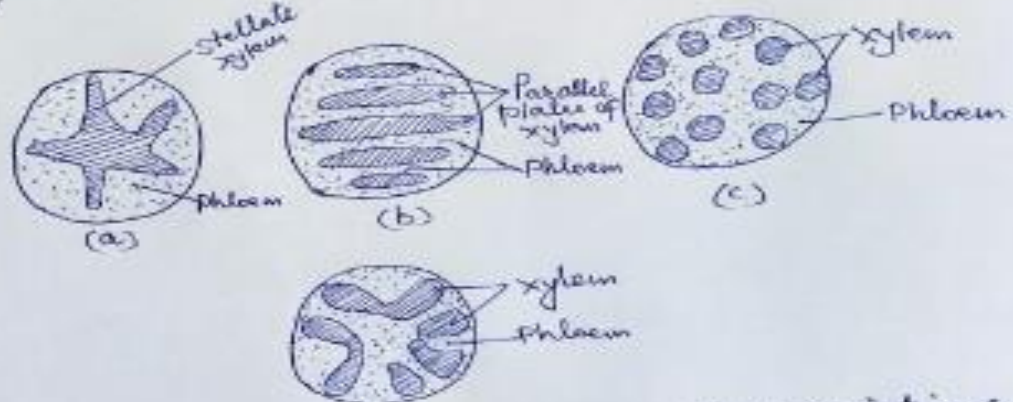
L. selago, etc.

2. Plectostele - (i) xylem plates are arranged in the form of parallel plates at the centre.
(ii) Phloem lies in between the plates of xylem as well as surrounds the xylem plates.
(iii) These xylem plates seem to be embedded in the phloem mass. e.g., L. Lavatum, L. complanatum, L. volubile, etc.

3. Mixed Protostele - (i) Here in this condition xylem and phloem are uniformly distributed into smaller groups.
(ii) Xylem elements break up into smaller groups which seem flooded around or embedded within the phloem. ...Contd. 3.2

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 e.g., L. caeruleum
 4. Stellate form – Stellate xylem cylinder is irregularly broken up into several strands.
 e.g., L. annotinum, L. lucidulum, etc.

With the exception of ferns, Lycopodium is the lone vascular plant which exhibits such variations in its stellar organization.



(d)
 Figs. (a)-(d): Different forms of stellar variations in Lycopodium; (a) Actinostele (b) Plectostele (c) Mixed Protostele (d) Broken plates of xylem flooded in phloem