Xylem Element

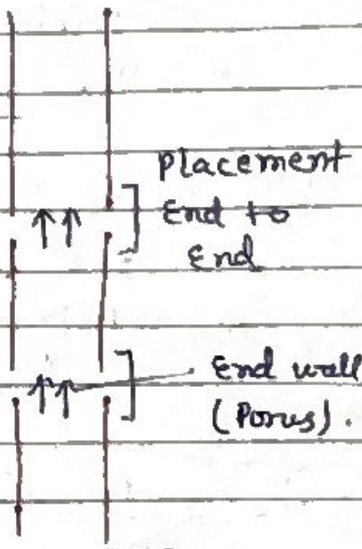
→ Xylem is composed of 4- kinds of elements :-
(I) Xylem vessels (II) Xylem trachids (III) Xylem parenchyma (IV) Xylem fibre (Sclerenchyma)

(I) Xylem Vessels :-

→ Vessels are tubular, continious structure.
→ They are well adapted for the conduction of water i.e best suited for Ascent of sap.
→ Vessels are absent in gymnosperm & Pteridophyta.

Exceptional Pteridophyta :- Pteris, Selaginella

Exceptional gymnosperm :- Gnetum Ephidra, Widwitschia.



(II) Xylem tracheids →

→ Tracheids are not tubular str. it is discontinious str.
→ Its end wall is overlapping & tappered.
→ Its placement is not end to End.
→ So, they are not best suited for Ascent of sap.
→ Entire conduction of water takes place through tracheids in Pteridophytes & gymnosperm a where etylem vessels are absent.

Lignification of xylem (vessel + Tracheids) :-

→ The tracheary elements are highly lignified cell wall & its lignification are hard & woody.

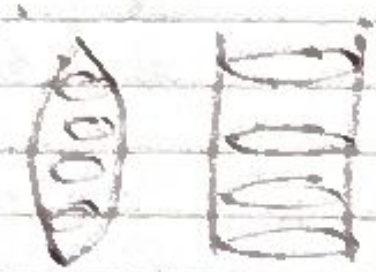
→ Depending upon the thickening the tracheary element (VAT) are of 6 types & divided in 2 - category.

(i) Spiral →

→ Maximum deposition of lignin is spiral thickening.
→ Its category is continious.

(ii) Scalariform →
→ Its thickening is discontinious
→ Appearance like transverse bond.

(iii) Annular → Thickening in the form of ring.
→ Maximum deposition of lignin.
Its thickening is discontinious.



(iv) Reticulate :→

maximum deposition of lignins in continious manner

(v) Border pit → It is advanced type of thickening.
→ In bordered pits the pit cavity in form of flask.
→ Thickening is discontinious.

(VI) Simple pitted → Minimum decomposition of lignin.

→ Thickening is discontinious