

Ecological Anatomy Hydrophytes

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Hydrophytes

- They are plants growing in water or soil covered with water.
- Submerged hydrophytes Eg. Hydrilla
- These plants grow completely submerged below the water surface. The anatomical peculiarities of their different organs are as follows

- **Root**
- Root system very much reduced.
- Root hairs absent.
- The cuticle absent or poorly developed.
- Cortex is wide and possess air spaces.
- Vascular tissues are thin walled and poorly developed.
- **Stem**
- Cuticle absent
- Epidermis single layered
- Hypodermis not differentiated.
- Cortex with wide air spaces.
- Endodermis and pericycle not differentiated.
- The cells of the conducting tissue are thin walled

- Leaf
- Cuticle absent or poorly developed.
- Epidermal cells have chloroplast.
- Stomata are absent.
- Mesophyll has air spaces and undifferentiated
- Vascular system is reduced.

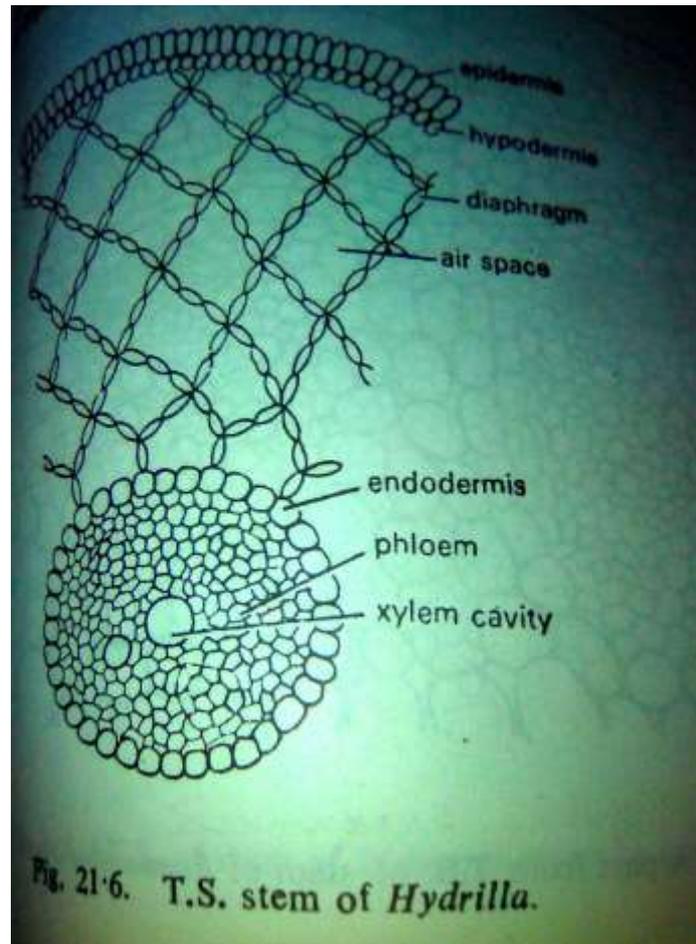
Amphibious plants Eg. Typha, Sagittaria.

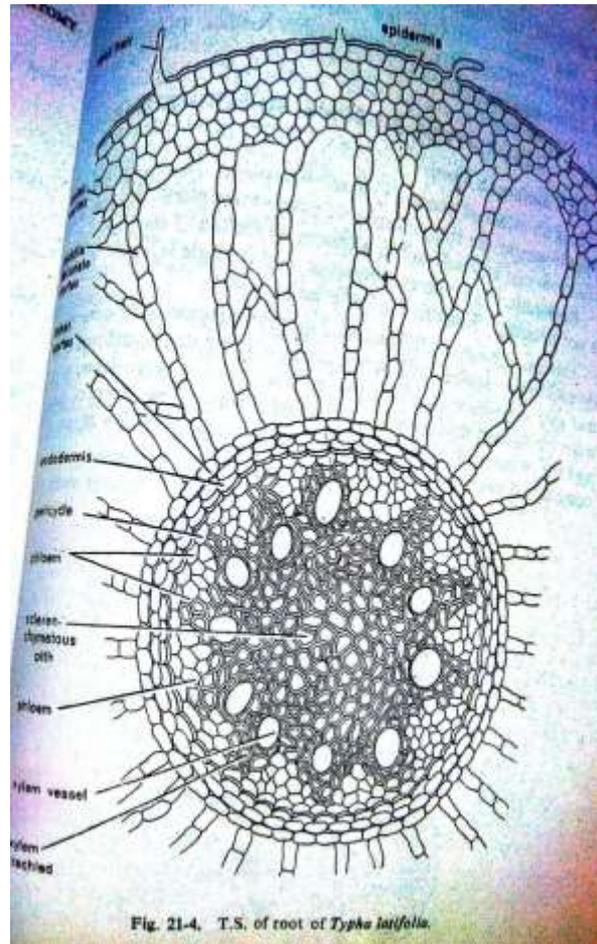
- These plants exhibit both hydrophytic and mesophytic characters depending upon whether they are aquatic or terrestrial.
- **Roots**
- Root hair present
- Cortex has air spaces and is broad.
- Endodermis and pericycle present
- Vascular bundles are well developed in mud plants.

- **Stem**
- Cuticle present.
- Chloroplast absent in epidermis.
- Cortex shows aerenchyma in aquatic conditions and presence of sclerenchymatous strands under terrestrial conditions.
- Vascular tissue well developed.
- Xylem has thick walled tracheids and vessels.
- Cambium present.

Leaf

- Internal st. of the leaf is quite variable.
- In submerged leaves cuticle and stomata are absent.
- Aerial leaves have cuticle and stomata.
- Mesophyll differentiated into spongy and palisade tissue.
- Aerenchyma with stellate cells.
- Submerged leaves lack such differentiation.
- Vascular system well developed in aerial leaves.





Suggested References

- Plant Anatomy by B.P. Pandey
- Plant Anatomy by Pijush Roy
- A Textbook of Botany Vol II by Bhattacharya, Hait, Ghosh
- Studies in Botany Vol I by Mitra, Mitra, Choudhury.
- Plant Anatomy by M.S.Tayal