



**Centurion**  
**UNIVERSITY**

*Shaping Lives...  
Empowering Communities...*

# **Anatomical adaptations of Hydrophytes**

***Facilitator :Dr. Sagarika Parida***

***Dept. of Botany,***

***School of Applied Sciences***

***Centurion University of Technology and Management***

***Bhubaneswar***



**Centurion**  
**UNIVERSITY**

*Shaping Lives...  
Empowering Communities...*

## **Anatomical adaptations of Hydrophytes**

- Cuticle which is very thin or absent.
- Epidermis is usually a single layer of thin walled cells, not protective in function.
- Cortex is well developed. It has numerous air chambers. It helps in buoyancy and rapid gaseous exchange.
- Mechanical tissues are generally absent.
- In the vascular tissue, xylem vessels are less common.
- Only tracheids are present in submerged forms



**Centurion**  
**UNIVERSITY**

Shaping Lives...  
Empowering Communities...

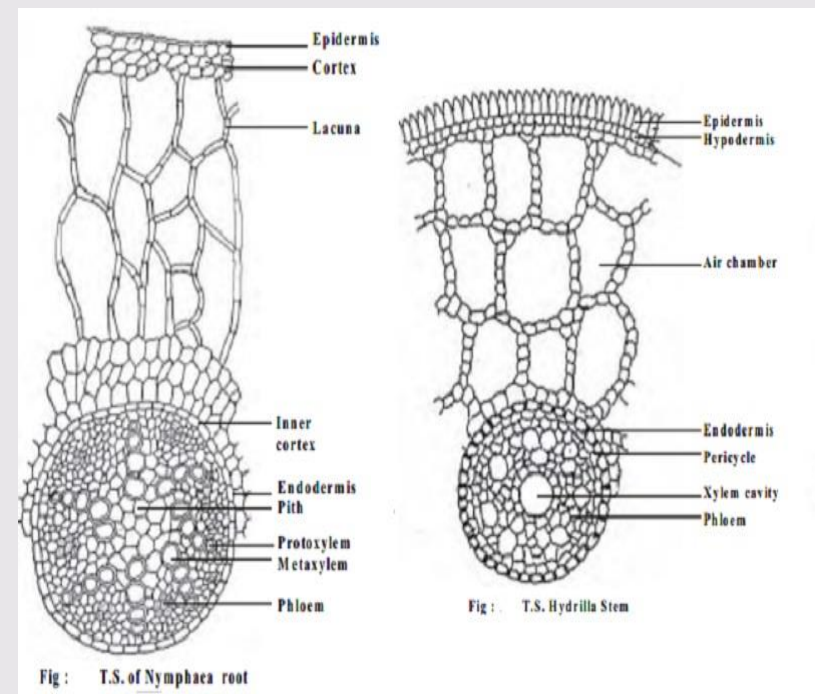
- In amphibious form, the xylem and phloem are well developed (e.g.) *Limnophylla heterophylla* or vascular bundles may be aggregated towards the centre (e.g. *Jussiaea*)
- Stomata are totally absent in submerged, but in floating leaves, stomata are confined only to the upper surface



**Centurion**  
**UNIVERSITY**

*Shaping Lives...  
Empowering Communities...*

- In amphibious plants stomata may be scattered on all the aerial parts
- In submerged leaves, air chambers are filled with respiratory and other gases and moisture
- Mucilage cells and mucilage canals secrete mucilage to protect the plant body from decay under water





**Centurion**  
**UNIVERSITY**

*Shaping Lives...*  
*Empowering Communities...*

***Thank You***