

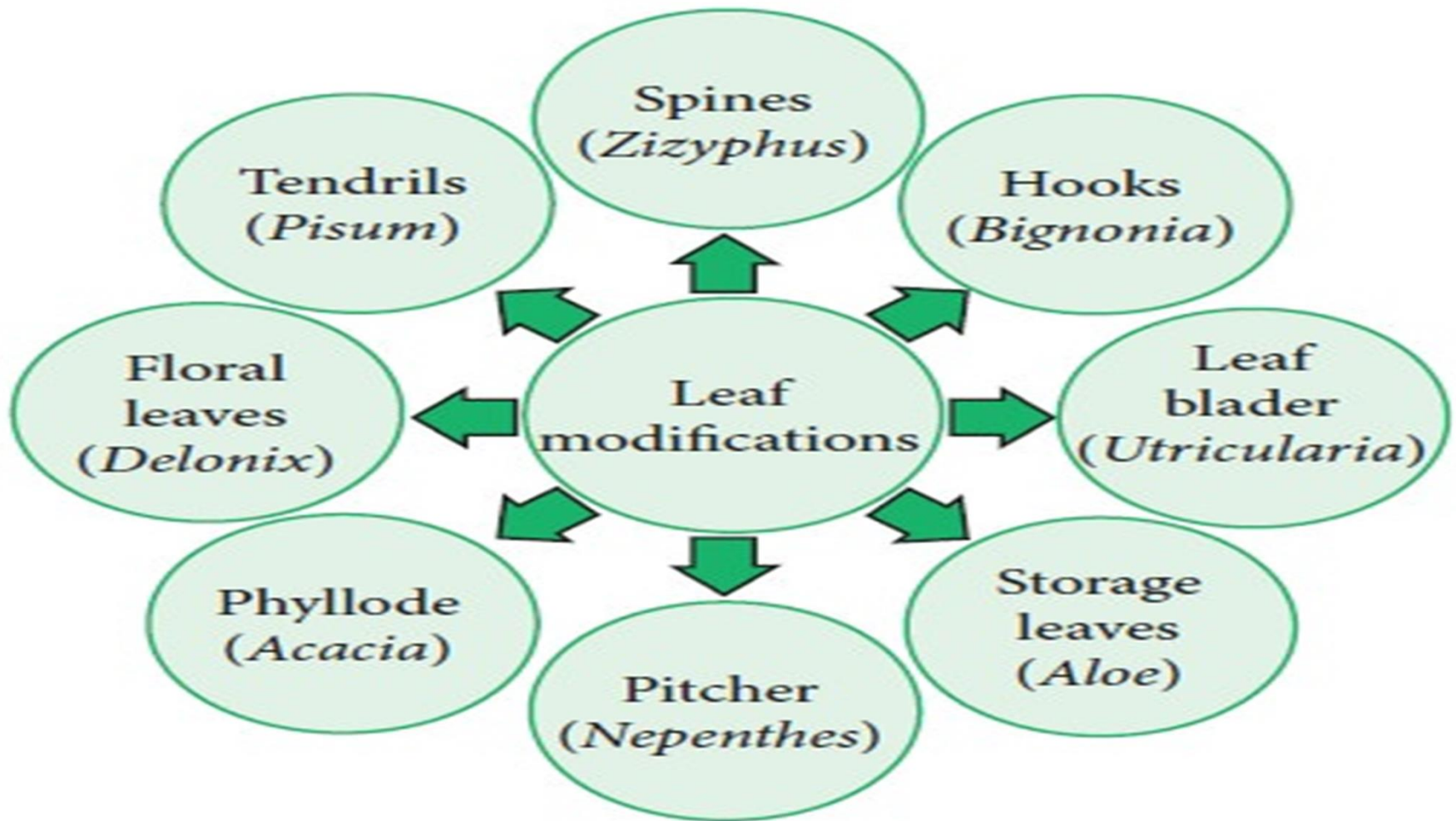
Vivekanand College, Kolhapur
(Empowered Autonomous)

DEPARTMENT OF BOTANY

B.Sc. I: Open elective

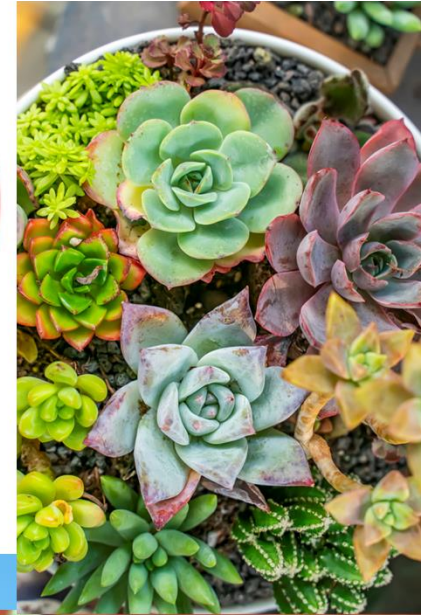
Topic: Leaf Modification

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Storage Leaves

- The xerophytic plants and plants belonging to the Crassulaceae family have thick and succulent leaves that store water in their tissues.
- The parenchymatous cells of these leaves have large vacuoles filled with hydrophilic colloid.
- This modification helps the plant to resist desiccation.

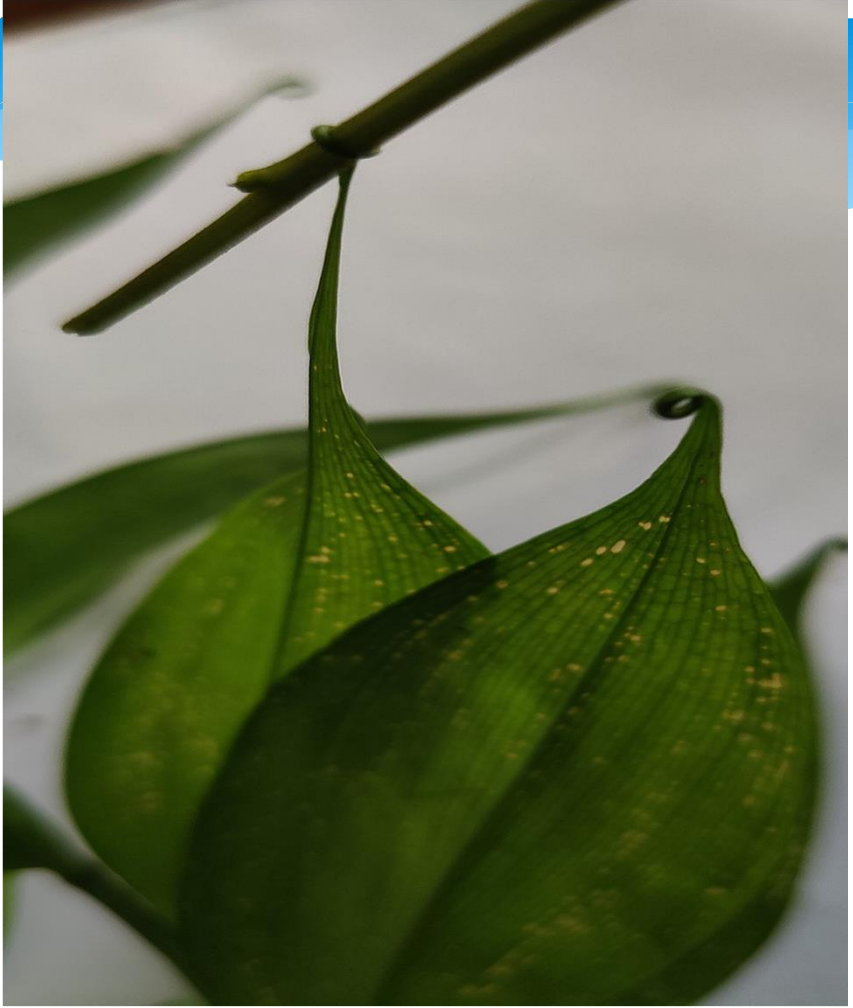


- Some plants of saline and xerophytic habitats and members of the family Crassulaceae commonly have fleshy or swollen leaves.
- These succulent leaves store water, mucilage or food material.
- Such storage leaves resist desiccation.
- Example: *Aloe*, *Agave*, *Bryophyllum*, *Kalanchoe*, *Sedum*,
Sueada, *Brassica oleracea* (cabbage-variety *capitata*).

2. Leaf Tendrils:

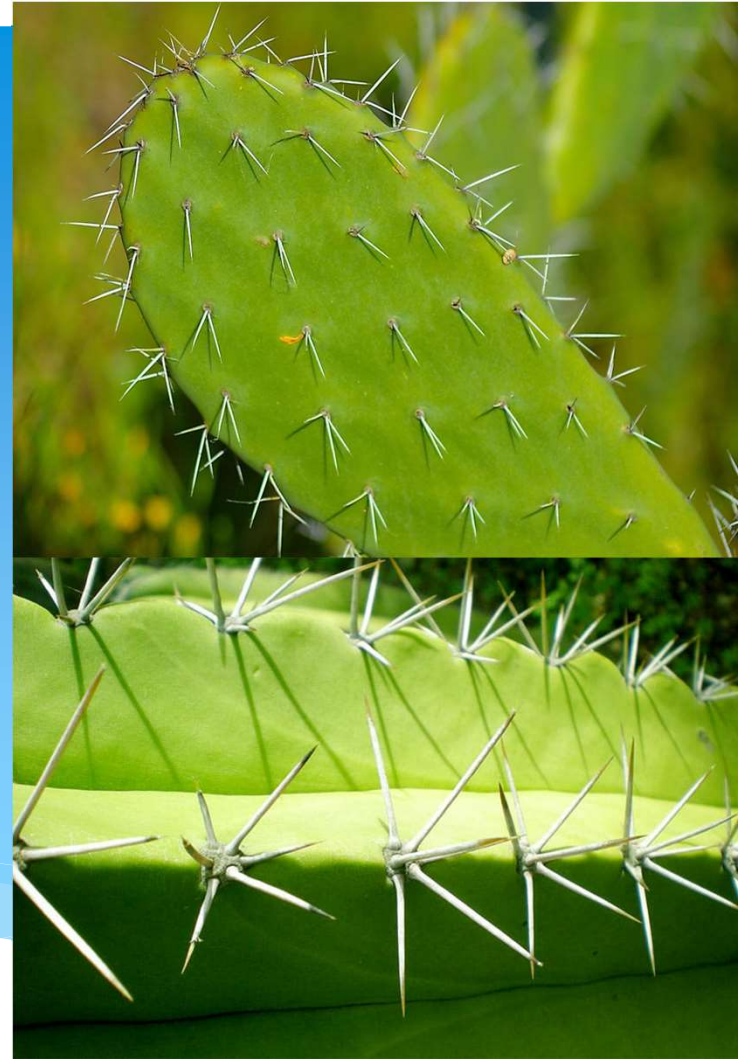
In weak- stem plants, leaf or a part of leaf gets modified into green threadlike structures called tendrils which help in climbing around the support.





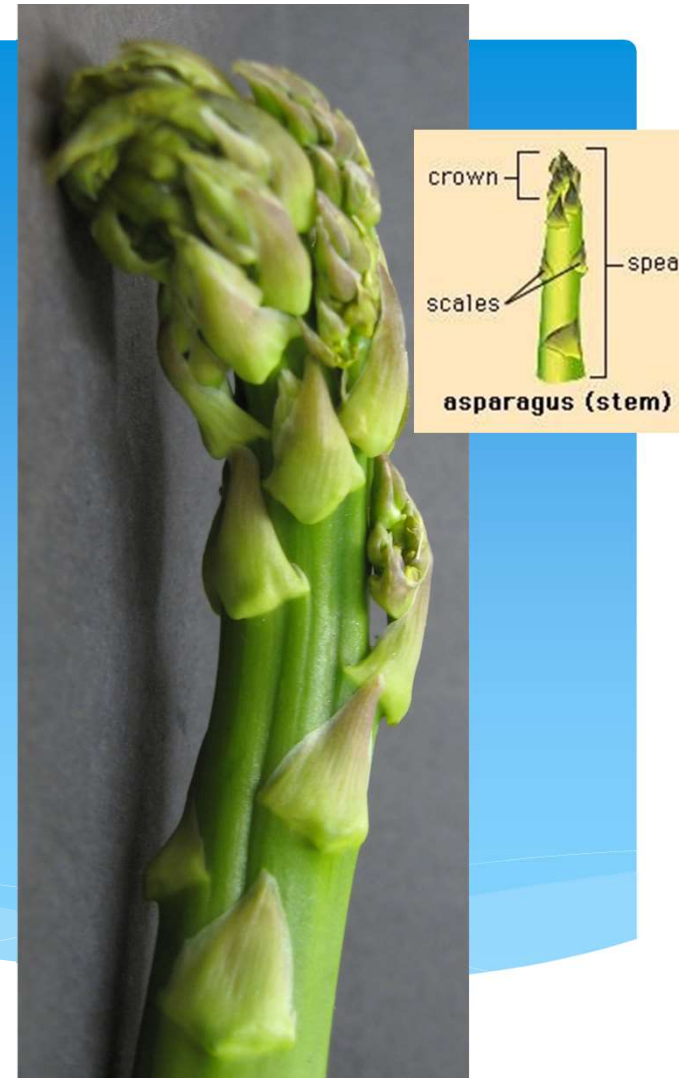
Leaf Spines

- A few plants have their leaves modified into needle-like structures known as spines.
- The spines act as defensive structures.
- They also reduce water loss due to transpiration. E.g., in *Opuntia*, the leaves are modified into spines.



Scale Leaves

- These are thin, membranous structures, without stalks, brownish or colourless in appearance.
- They protect the auxiliary bud present in their axil.
- Scale leaves in onion are fleshy and thick and store food and water. Casuarina and Asparagus also contain scale leaves.



Leaflet Hooks

In some plants, the terminal leaflets of leaf get modified into hook-like structures that help them in climbing. Eg., *Bignonia unguis cati*.



Leaf Roots

In a few plants, one of the leaves present at the nodes gets modified into adventitious roots which helps them to float over the water surface.

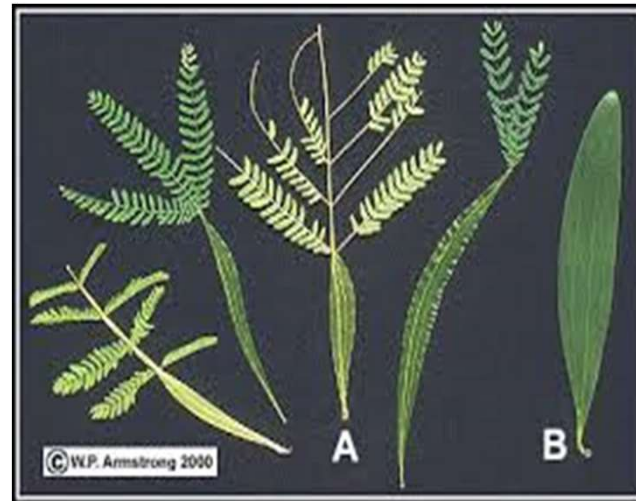
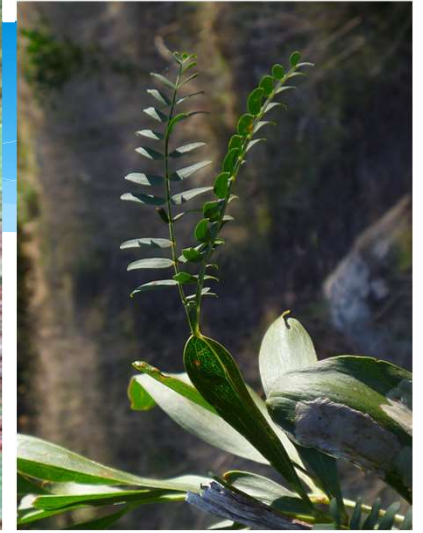
Eg. *Salvinia*



Phyllode

In some plants, the petiole becomes flattened, taking the shape of a leaf and turns green in colour.

This is known as phyllode.
eg., Australian Acacia.



Phylloclade	Phyllode
1)It is modified stem that carries out photosynthesis.	1)It is modified petiole or rachis or leaf that carries out photosynthesis.
2)It does not bear axillary bud.	2)Bud is present at the axil of phyllode.
3)It is differentiated into nodes and internodes.	3)Nodes and internodes are absent.
4)It has unlimited growth.	4)It has limited growth.
5)It can take part in vegetative reproduction.	5)it can not take part in vegetative reproduction.

Showy bracts

- These are brightly colored leaves function in attracting pollinators.
- From a distance, showy bracts often appear like the petals of a flower.
- However, the actual flowers are typically small and in a cluster surrounded by the bracts





(a)



(b)





Thank You!

