

# FAMILY – MALVACEAE (Mallow family)



Systematic Position:

Class : Dicotyledons

Subclass : Polypetalae

Series : Thalamiflorae

Order : Malvales

Family : Malvaceae

Characteristics of each taxon:

Dicotyledons – seed with two cotyledons, leaf with reticulate venation & flowers tetramerous/ pentamerous

Polypetalae- Petals are free & so stamens are free

Thalamiflorae – thalamus prominent, flower hypogynous & ovary superior

## Malvales –

- leaves with palmate venation (often three principal veins arising from the base of the leaf blade)
- mucilage canals within the tissues
- stellate (star-shaped) hairs on the vegetative parts of the plant
- stipules (leaf-like structures at the base of the leaf stalk).

## Families under order Malvales:

- Malvaceae
- Sterculiaceae
- Tiliaceae

- Representatives: 246 genera & 4225 species

- Distribution: Cosmopolitan,  
confined to tropics

- Habitat: Mesophytic

- Habit : Herbs, Shrubs & trees

- Herbs – Sida, Abutilon, Urena

- Shrubs – Gossypium, Hibiscus

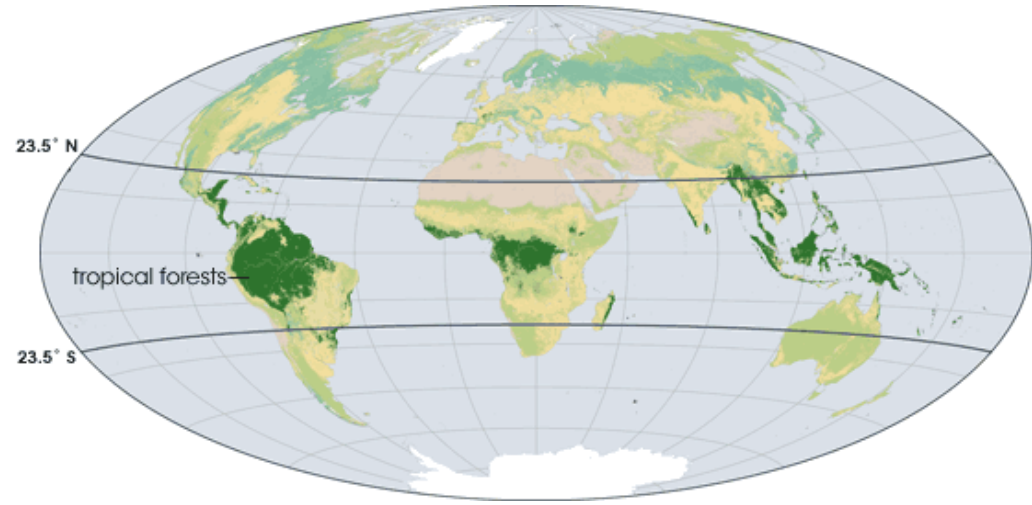
- Trees – Thepesia, Kydia

- Exceptions: - prostrate herbs with trailing branches –

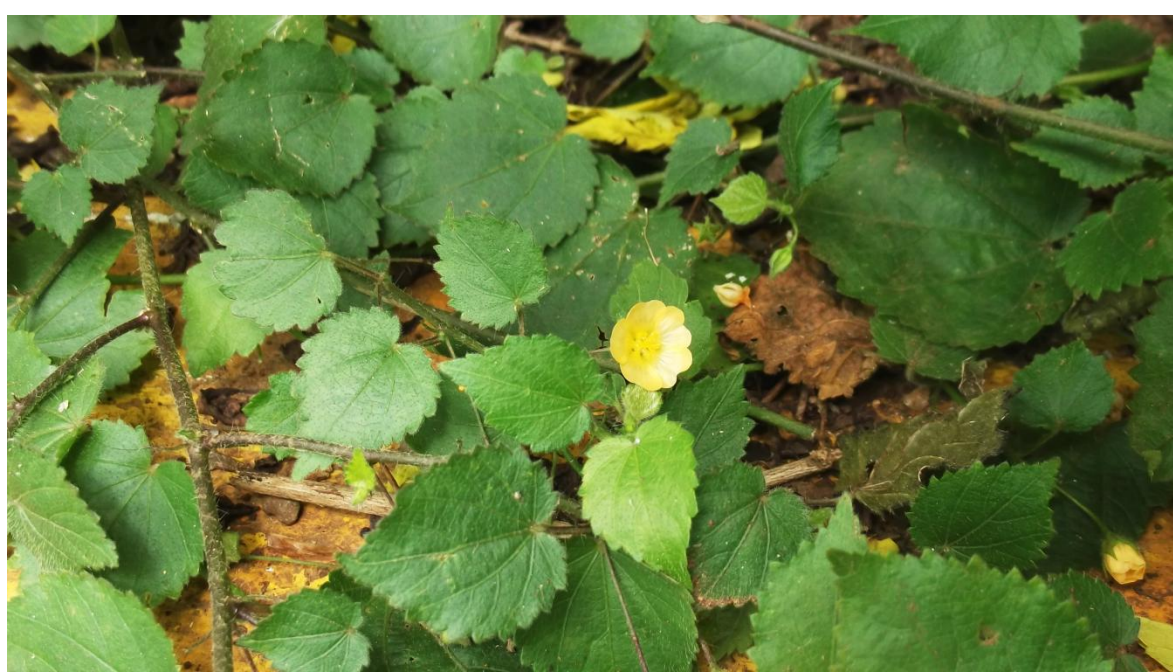
  - Malvastrum coromandelianum

  - Sida cordata

  - Armed rambling shrub – Hibiscus hispidissimus







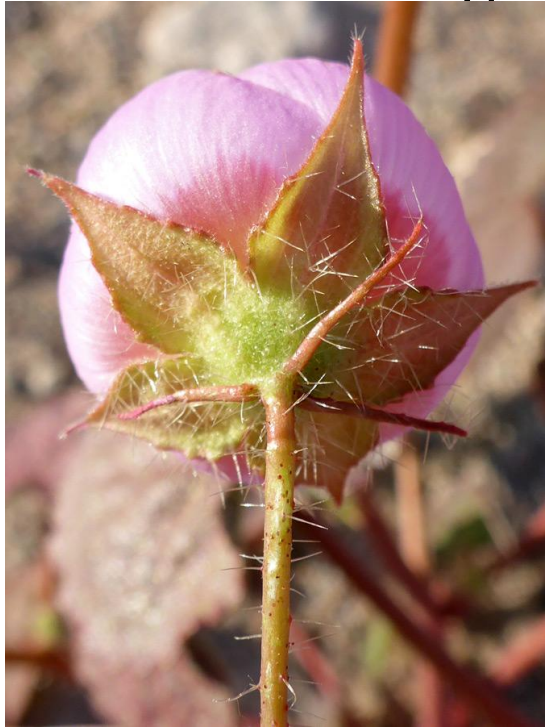
- \*Vegetative parts covered by stellate hairs
- Presence of mucilage sacs in the plant, parts slimy when cut
- Root system – Taproot, branched
- Leaves: Simple/ palmately lobed, alternate, stipulate, petiolate with entire/variously lobed margins. Stipules free lateral (hibiscus) , caducous in nature
- Inflorescence: Solitary axillary (Hibiscus), Solitary terminal ( Gossypium), axillary/ terminal panicles in Kydia
- Flowers: Brightly coloured, bracteate, bracteolate, bisexual, actinomorphic, hypogynous, cyclic, pentamerous, dichlamydeous & complete.
- Bracteoles in a whorl & known as Epicalyx ( Involucel).
- Exceptions: - Unisexual flowers – Napea
- polygamodioecious - Kydia



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\* Epicalyx: 3 – Malva , 5-several – Hibiscus, several – Althaea, large & foliaceous in Gossypium, absent – Sida & Abutilon





• Calyx : Sepals 5, Gamosepalous with valvate aestivation.

• Corolla: Petals 5, Polypetalous with twisted aestivation

\* Androecium: Stamens numerous, Monadelphous. Staminal tube by union of filaments of stamens.  
**Sida** – the top of staminal tube branched to several filaments  
**Hibiscus** – top of staminal tube ends in 5 toothed staminodes. Near the apical portion, several stamens branch all around the staminal tube. Anthers reniform (kidney shaped) , monothealous, with transverse dehiscence. Pollen grains spinulose.

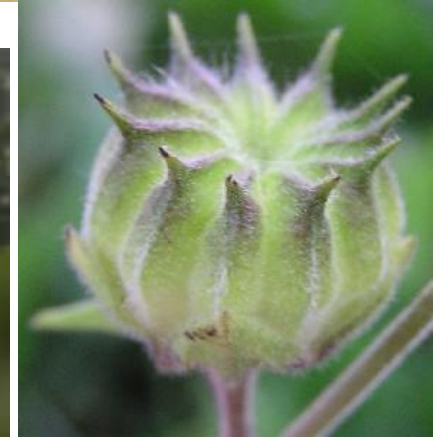


Gynoecium: Carpels 3 – many, Superior syncarpous , Style branches as many as / double the number of carpels, Ovules 1 or more on axile placentation, Stigma capitate.

Pentacarpellary pentalocular (Hibiscus)  
Multicarpellary, multilocular (Abutilon)  
5-10 carpel (Sida)  
Kydia -3 carpels  
Urena & Pavonia – style double the number of carpels



Fruit: Dry capsular fruits  
Abelmoschus & Gossypium –  
Loculicidal capsule  
Abutilon – schizocarp



\*Seeds: mucilaginous, Reniform/ ovoid; glabrous hairy/ wooly  
Embryo straight/ curved; Endosperm oily  
Gossypium – epidermal outgrowths of seed, sida & Urena – hooks on seed

## Economic importance:

- *Hibiscus rosasinensis* (shoe-flower) – ornamental, leaves as shampoo, flower buds in oil preparation, roots for cough
- *Hibiscus cannabinus* – cortical fibres for rope, floor coverings, paper manufacture.
- *H. schizopetalous* – ornamental
- *H. sabdariffa* – ornamental, calyx edible
- *H. esculentus* (*Abelmoschus esculentus*) – Lady's finger – fruit as vegetable
- *H. mutabilis* (changing rose) – Ornamental



- *H. furcatus* – medicinal, leaf juice used for eye problems
- *Abelmoshus moschatus* – Seed essential oil used in perfumery, roots for stomach-ache.
- *Gossypium herbaceum* (Cotton plant) – epidermal hairs of seed coat as cotton, used in cloth industry;  
seeds source of fatty oil; used in soap manufacture , lubricants;  
Oil cake used as cattle feed; roots for haemorrhage
- *Thespesia populnea* – wood used for making boats, ornamental
- *Malvaviscus penduliflorus* – ornamental



- *Althaea rosea* (holly-hock) – ornamental,
- *Malva sylvestris* – Ornamental
- *Sida acuta* – Medicinal
- *Sida rhombifolia* – Medicinal
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- *Abutilon indicum* – Medicinal, roots for fever
- *Abutilon megapotamicum* – Ornamental
- *Hibiscus hirtus* - Ornamental
- *Bombax malabaricum* – calyx edible



## Diagnostic features of the family:

- Plants herbs, shrubs or trees
- leaf simple, alternate, stipulate, petiolate with entire or serrate margins
- inflorescence solitary cyme
- Flower bisexual, actinomorphic, hypogynous, dichlamydeous, pentamerous, cyclic, bracteolate and complete
- bracteole as epicalyx
- calyx 5, gamosepalous with valvate aestivation.
- corolla 5, polypetalous with twisted aestivation
- Androecium with infinite no. of stamens, monadelphous, monothecous with reniform anthers
- presence of 5 stamoniodes
- Gynoecium superior, 3- multicarpellary, syncarpous, 3-many loculed with 1 or more ovules on axile placentation.
- fruit dry capsule- loculicidal capsule
- seeds many, mucilaginous , wooly or glabrous with oily endosperm.



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