

# Taxonomy of Angiosperms



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# Dominant families

## India

Poaceae  
Orchidaceae  
Fabaceae  
Asteraceae  
Rubiaceae  
Cyperaceae  
Euphorbiaceae  
Acanthaceae  
Lamiaceae  
Scrophulariaceae

## Uttarakhand

Asteraceae  
Poaceae  
Fabaceae  
Rosaceae  
Orchidaceae  
Lamiaceae  
Ranunculaceae  
Scrophulariaceae  
Polygonaceae  
Apiaceae

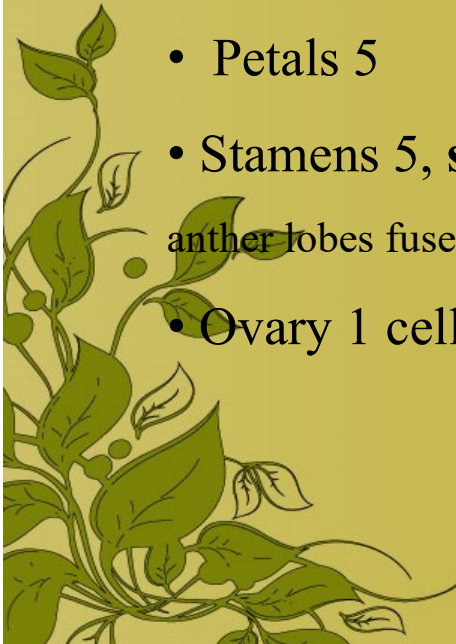
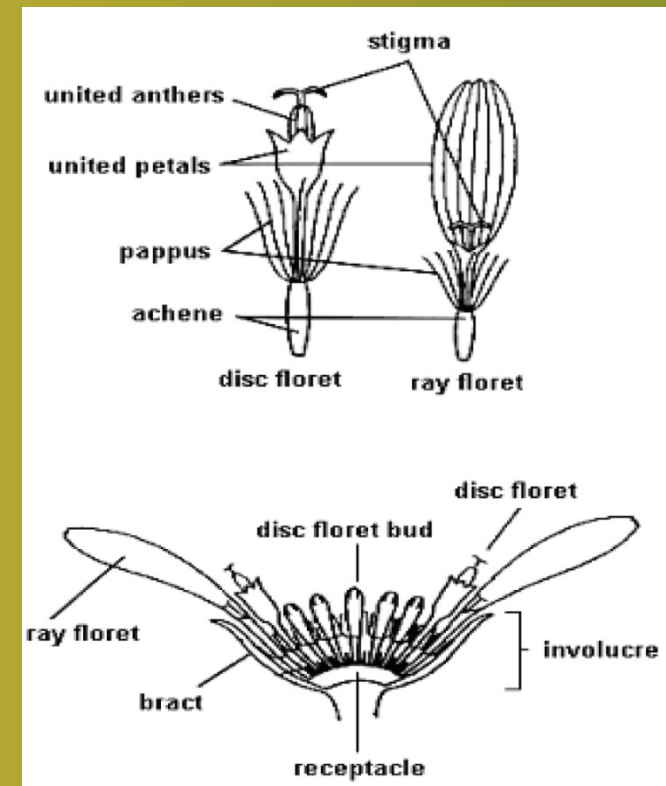


Botanical Survey of India (2010)

Srivastava & Singh (2005)

# Asteraceae – Sunflower Family

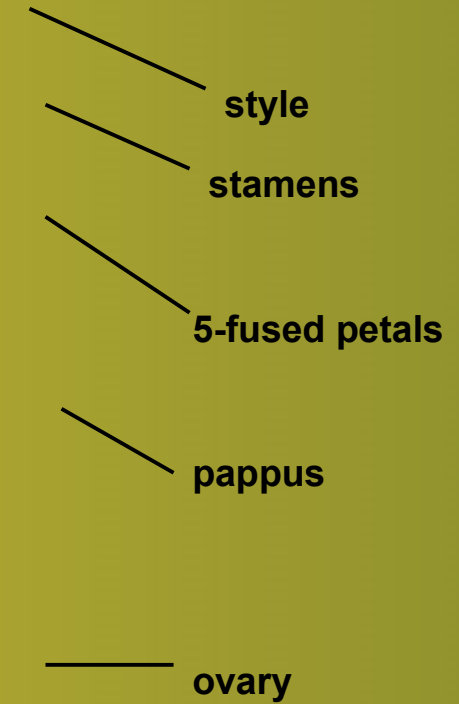
- The family is marked by a **head inflorescence**
- Two types of florets: (i) central: **disc florets**; (ii) marginal: **ray florets**
- **Disc florets**: Bisexual, actinomorphic
- **Ray florets**: Unisexual, zygomorphic
- The calyx is modified into a **pappus**
- Petals 5
- Stamens 5, **syngenesious** (filaments free & anther lobes fused)
- Ovary 1 celled



*Discoid:* only disc florets



*Eupatorium adenophorum* (no ray florets)



Disc floret



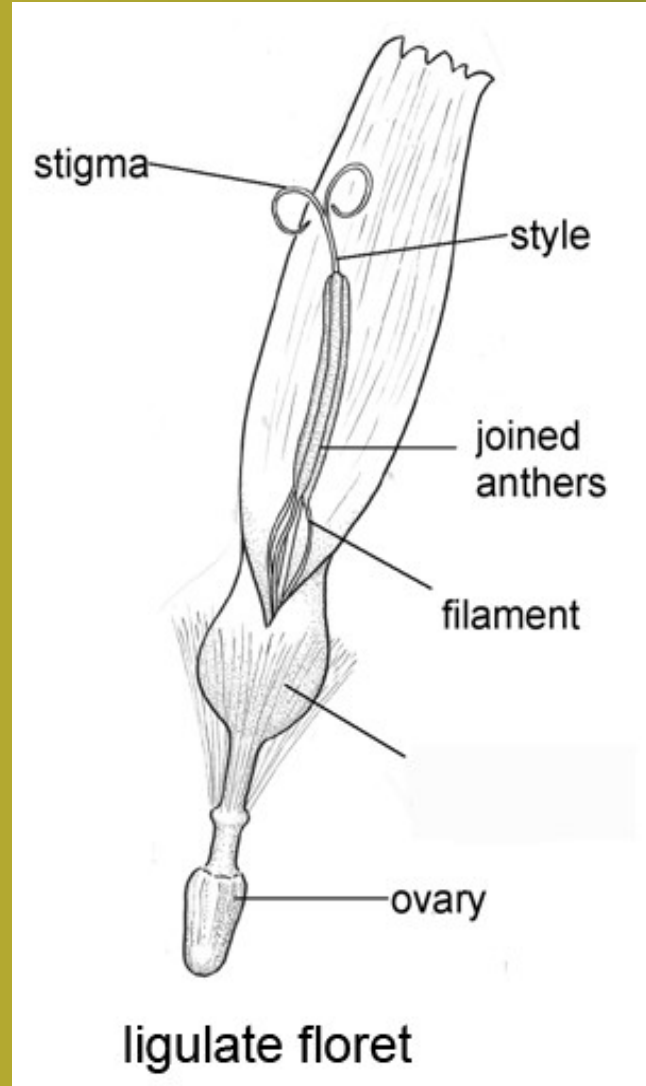
# Ligulate: only ligulate florets



Dandelion (*Taraxacum officinale*)

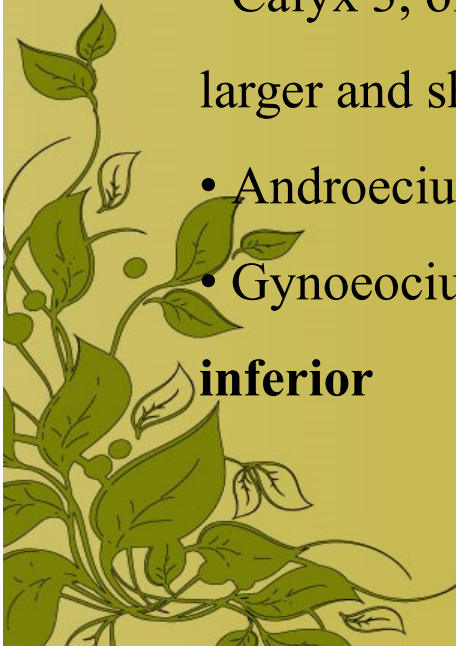
Jack Scheper © 2006 Floridata.com

***Taraxacum officinale*** (no ray florets)



# *Orchidaceae* – Orchid Family

- Perennial herbs often **epiphytic** or saprophytic with rhizomes, **tuberous roots**; sometimes aerial roots
- Leaves opposite, simple, often reduced to scales or fleshy; sheathing at the base
- Flowers **bisexual** and **zygomorphic**
- Calyx 3, often colored; petals 2 lateral and a middle **labellum**-often larger and shaped different from laterals
- Androecium of 1 or 2 stamens
- Gynoecium – a compound pistil of 3 carpels; 3 stigmas; ovary **inferior**



Median sepal

Petal

Fertile anther

Staminode

Lip cavity

Lip or labellum

Lateral sepal points



Staminode

Stigma

Anther

Column

Ovary

(a)

(b)

*Cypripedium* (Orchidaceae)

# Lamiaceae – Mint Family

- **Quadrangular stems and opposite leaves**
- Inflorescence – **Verticillaster**
- Flowers: 5merous, **2-labiate**
- **Hypogynous**
- Ovary 4-lobed, **gynobasic style**



*Ocimum* sp



*Salvia pratensis*  
Lamiaceae  
© G. D. Carr

*Salvia* sp



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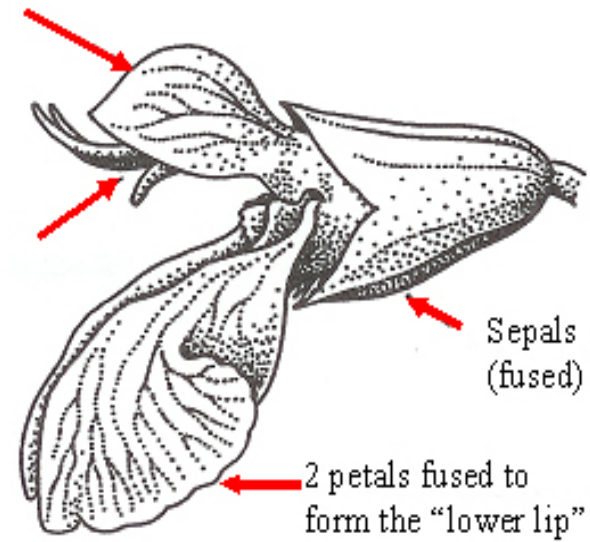






3 petals fused to form the "upper lip"

Style, stigma and stamens under the "upper lip"



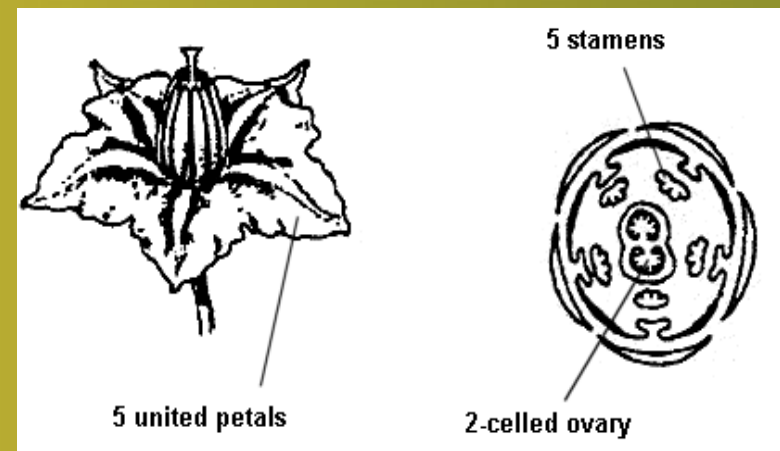
Sepals (fused)

2 petals fused to form the "lower lip"

## Flowers of the Lamiaceae (mint)

# *Solanaceae* – Tomato Family

- The leaves are **alternate, simple or lobed**
- The flowers are usually **radially symmetrical,**
- **Sepals 5, gamosepalous**
- **Petals 5, gamopetalous**
- Stamens are usually 5, sometimes fewer
- Ovary superior
- The fruit is a **berry or 2-chambered capsule**





*Datura stramonium*, Datura



*Lycopersicon esculentum*, Tomato

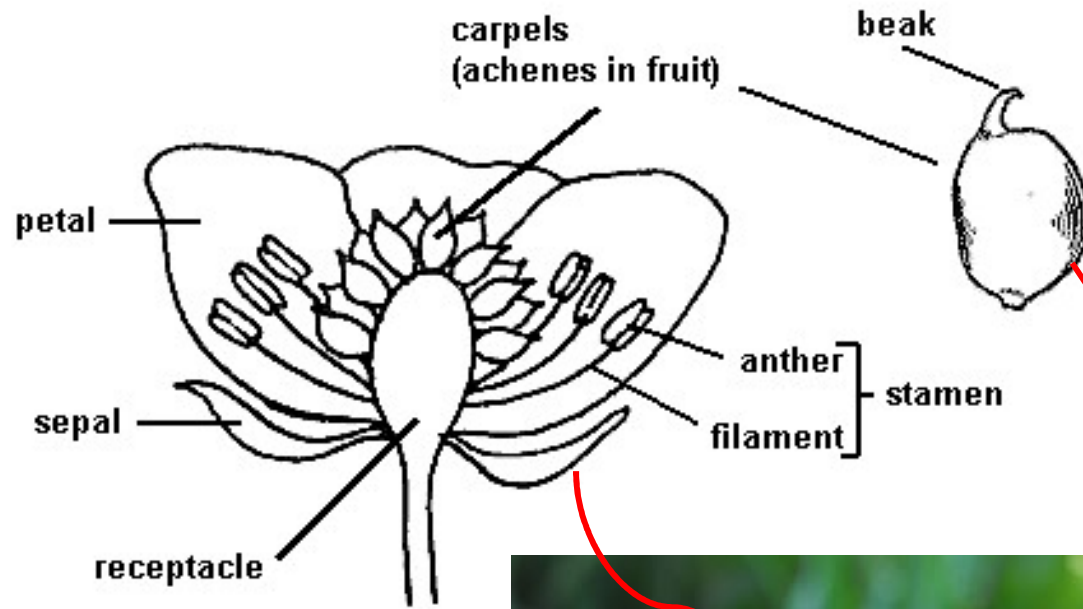


# *Ranunculaceae* – Buttercup Family

- Leaves alternate with sheathing leaf bases; mostly lobed
- Flowers **bisexual**, actinomorphic or zygomorphic
- Sepal 5, polysepalous
- Petals 5, polypetalous
- Stamens **infinite**, free
- Ovary **apocarpous** and **numerous**



# SECTION OF A BUTTERCUP FLOWER



# *Rosaceae* – Rose Family

- Leaves stipulate, usually alternate, simple or compound
- Flower parts are in 5's and the flower has a cup-like receptacle or floral tube called a **hypanthium**
- Stamens usually **infinite**, in one or many series
- Ovary superior or inferior



## TYPICAL ROSE FLOWER

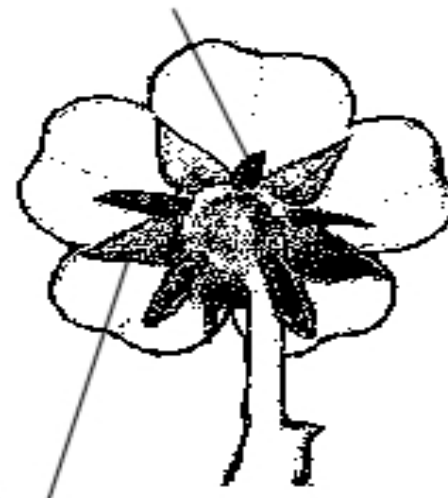
5 separate petals



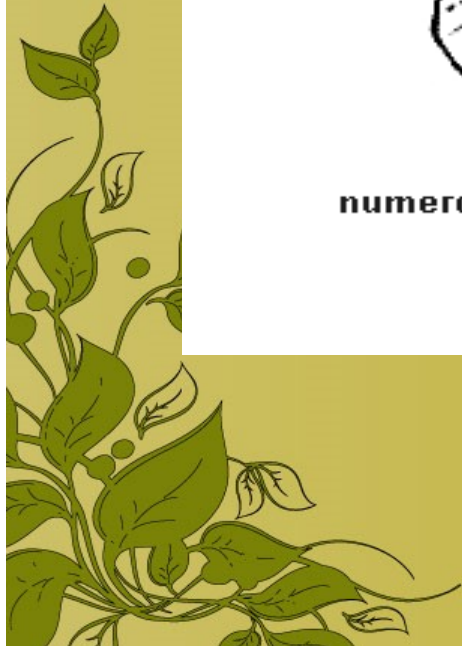
numerous styles

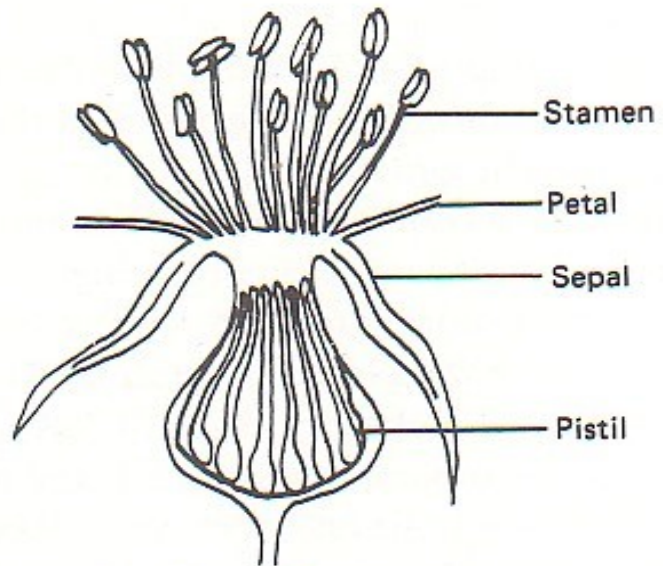
numerous stamens

5 bracteoles  
opposite petals

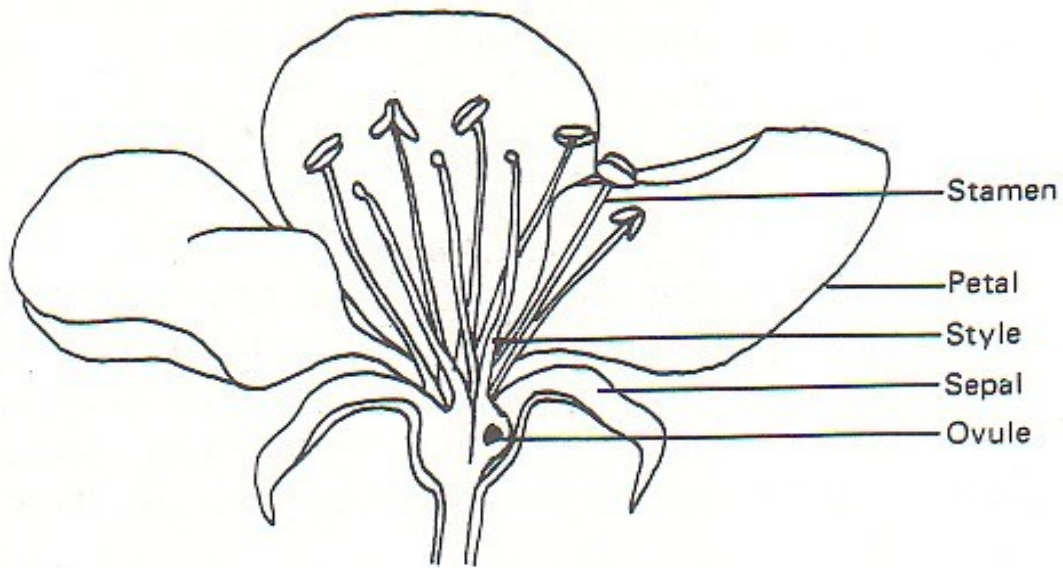


5 sepals or lobes of the calyx  
alternate with petals





(a) *Rosa* (Rosaceae)



(b) *Malus* (Rosaceae)





# *Verbenaceae* – Teak Family

- Herbaceous or woody plants, often with **quadrangular** branches
- Leaves simple or digitate or compound, exstipulate
- Flowers **cymose** and **bracteate**, rarely regular
- Sepals 5 usually, petals 5, usually **gamopetalous**
- Stamens 4, **didynamous**, epipetalous
- Ovary superior





*Vitex negundo*

*Clerodendrum viscosum*



# *Euphorbiaceae* – Euphorbia Family

- Leaves simple, alternate, sometimes opposite, entire or palmately lobed, rarely compound, stipulate
- Often with **milky latex**
- Flowers small, regular or slightly irregular, sometimes dioecious
- Stamens 1 in *Euphorbia* sp., 5 in *Ricinus* sp., many in *Croton* sp
- Ovary **superior**, 3-celled with 1 or 2 ovules in each



Female flowers

Male flowers





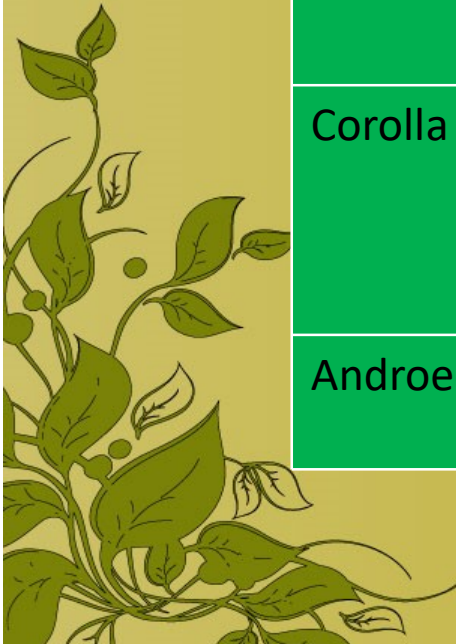
*Euphorbia* sp.

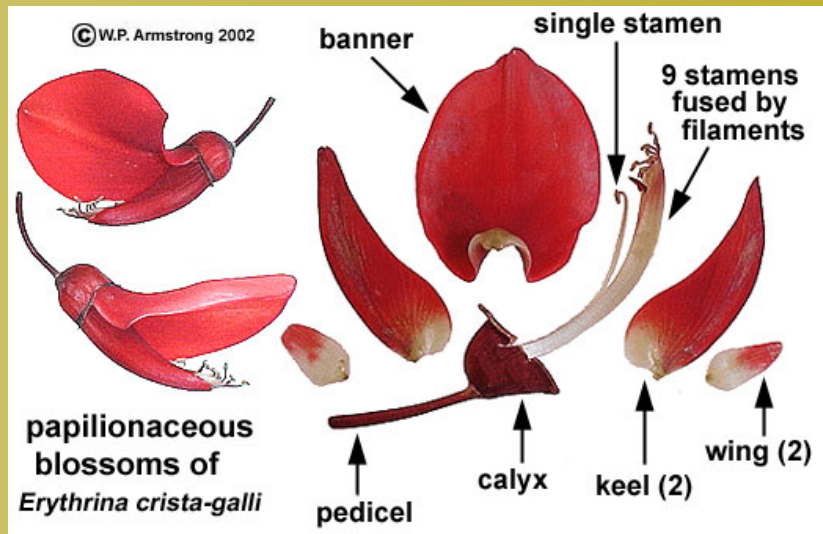


# *Fabaceae* – Pea family

Three sub families under it:

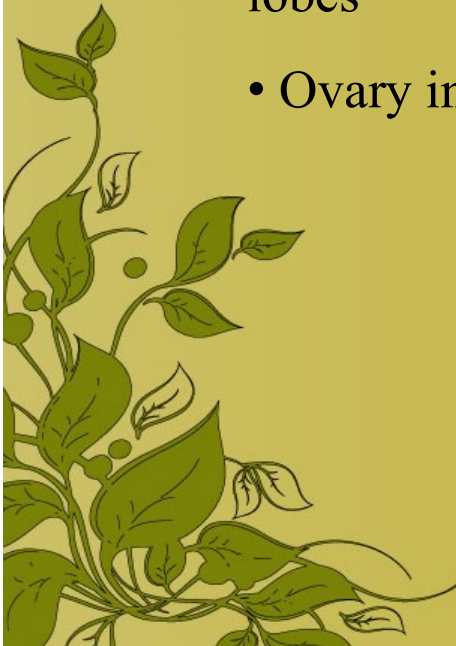
Characters	Papilionaceae	Caesalpiaceae	Mimosaceae
Leaves	1 pinnate	1 or 2 pinnate	Feathery, bi pinnate
Flowers	Zygomorphic raceme	Zygomorphic raceme	Minute, regular, in small heads
Corolla	5, Vexillary aestivation	5, imbricate aestivation	4, valvate aestivation rarely imbricate
Androecium	Diadelphous (9)+1	10 or 5+5	Indefinite





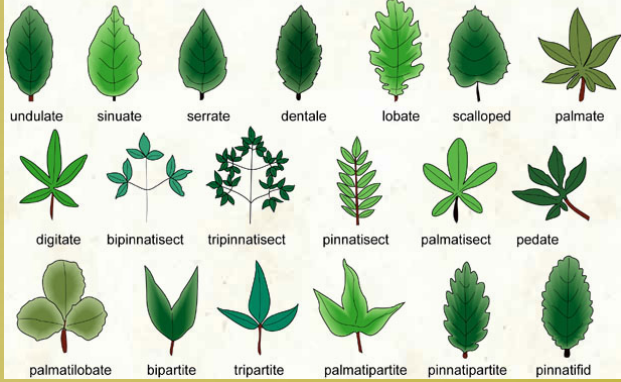
# *Rubiaceae* – Ixora Family

- Leaves opposite with interpetiolar stipules
- Flowers 4-5 merous, regular
- Sepals 4-5 merous
- Petals 4-5 merous, gamopetalous
- Stamens 4-5, inserted on corolla tubes, alternating with corolla lobes
- Ovary inferior



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