Course: B.Sc Botany
SEMESTER IV
PAPER CODE: BOT CC 410
PAPER: Plant Systematics
TOPIC: *Asclepiadaceae*
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Family: *Asclepiadaceae*
Distribution of Asclepiadaceae:
The family Asclepiadaceae is commonly known as 'Milk weed family'. In includes 320 genera and 2,000 species of world wide distribution, but mostly confined to tropics and sub-tropics. In India 332 species belonging to 35 genera are found.

Vegetative Character:
Habit:
Perennial herbs (*Asclepias*) or shrubs (*Calotropis*, *Leptadenia*), climbers (*Cryptostegia*, *Daemia*), succulent (*Stapelia*) with latex.

Root:
A deep branched tap root.

Stem:
Herbaceous, week and climbing or succulent, woody below (*Calotropis*), erect, twiner or climbers (*Cryptostegia*) cylindrical, rarely hairy and solid, latex present.

Leaves:
Simple, petiolate, exstipulate, entire, opposite rarely whorled, waxy; in *Dischidia rafflesiana* leaves are modified into pitchers, reduced or absent (*Periploca*), succulent in *Hoya*.

Reproductive Character:

Inflorescence:
Mostly umbellate cymes (Calotropis) or dichasial cyme ending in monochasial cyme.

Flower:
Bracteate or ebracteate, pedicellate, complete, hermaphrodite, actinomorphic, rarely zygomorphic (Ceropegia), pentamerous, hypogynous.

Calyx:
Sepals 5, polysepalous or gamosepalous-fused near the base, quincuncial aestivation, sometimes valvate.

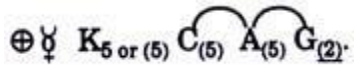
Corolla:
Petals 5, gamopetalous, 5 lobed, twisted aestivation or valvate, corona may be scaly or hairy out growth from petals – corolline corona in Cryptostegia, Cryptolepis or form staminal tube i.e. staminal corona in Calotropis and Asciepias.

Androecium:
Stamens 5, synandrous, gynostegium (stamens fused with stigmatic disc to form gynostegium), anthers dithecous, epipetalous, coherent; the pollen grains of each half anther usually agglutinated into granular mass of tetrads or waxy pollen called pollinium (Asclepias, Calotropis). Thus each stamen has two pollinia.

The pollinia of two adjacent anther halves are connected together at the black, dot-like gland called corpusculum by appendages called – retinacula. The two pollinia (of adjacent anther halves), two retinacula and a corpusculum together form a single translator. So in all there are 5 translators.

Gynoecium:
Bicarpellary, syncarpous, ovaries free, superior, enclosed in staminal tube, ovules many on marginal placentation, each carpel is unilocular; style 2, free, distinct; stigmas united to form a pentangular disc with which anthers are fused to form gynostegium.

Fruit:
An etaerio of two, often widely divergent follicles; in some one follicle is abortive.

Floral formula:


Economic Importance of Asclepiadaceae:
1. Food:
Gymnema lactiferum yields latex which is used as food in Ceylon.

2. Fibres:
Some plants like Daemia extensa, Calotropis procera, C. gigantea, Marsdenia and Leptadenia etc. yield silky fibres which axe used for making ropes, mat, stuffing pillows etc.

3. Medicinal:
The source of medicine in the family is latex from which alkaloids are extracted. The roots of Oxystelma esculentum are specific for jaundice. This roots of Pentatropis are used in gonorrhoea. Hemidesmus indicus is used in leucorrhoea, rheumatism and in snake bites. Daemia extensa is used in cough; asthma and diarrhoea.

4. Rubber:
Cryptostegia grandiflora is a natural source of rubber in India.

5. Poison:
Some species of Asclepias are important as live-stock poison. The sap of Matelea has been used as an arrow poison.

6. Ornamental:
Asclepias, Cryptostegia, Hoya, Huernia, Ceropegia, Periploca etc. are cultivated for ornamental purposes.

Primitive characters:
1. Plants mostly shrubs rarely herbs.

2. Leaves simple.

3. Flowers hermaphrodite, hypogynous, actinomorphic.

4. Calyx polysepalous in some species.

5. Gynoecium partly apocarpous.

6. Marginal placentation.

7. Fruits usually etaerio of follicles.

8. Seeds endospermic.

Advanced characters:
1. Leaves exstipulate and usually opposite.

2. Corolla gamopetalous.

3. Corona present.

4. Stamens epipetalous and filaments fused to form a tube around the gynoecium.

5. Anthers coherent with stigmatic disc to form gynostegium.

6. Pollen grains are grouped to form pollinia.

7. Carpels two.

8. Seeds covered with hygroscopic hairs.

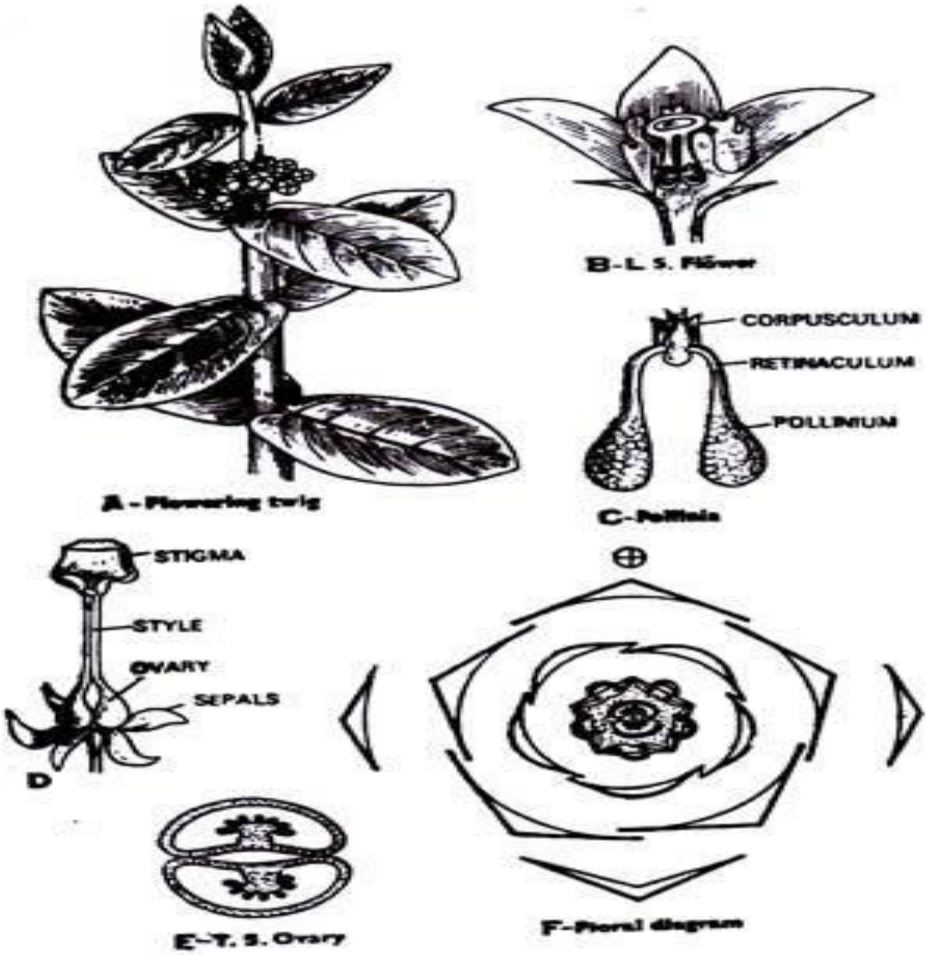


Fig*: Calotropis spp*