

FAMILY RUTACEAE (Citrus family)



Systematic Position:

Class: Dicotyledons

Subclass: Polypetalae

Series: Disciflorae

Order: Geraniales



Geraniales - Leaves are simple or compound, possess gland-tipped leaf margins. 10 stamens, and 5 fused carpels.

Representatives: -160 genera, 2,070 species

Habitat:- warm temperate and tropical regions.

Habit:- woody shrubs and trees

Trees – *Aegle marmelos*, *Citrus* sp.

Shrub – *Murraya exotica*, *Glycosmis*

Herb – *Ruta graveolens*



Anatomical:- Presence of gland dotted leaves, aromatic



Leaves:- Pinnately compound, alternate, exstipulate, aromatic, shining surface & gland dotted. Presence of lenticular cavities with volatile oils.

Opposite – Melicope

Unifoliate compound in Citrus

Winged petiole- Citrus

Trifoliate - Aegle

Inflorescence:- solitary – Triphasia

Fascicle- Citrus

Corymbose cymes – Murraya

Flower:- Bisexual, actinomorphic, pentamerous, cyclic, dichlamydeous, hypogynous, complete.

Unisexual - Toddalia, Melicope

Polygamous – Feronia

Zygomorphic – Dictamnus





Toddalia



Feronia limonia



Dictamnus

Trimerous – Triphasia

Tetramerous – Acronychia

Calyx:- Sepals 5, polysepalous rarely gamosepalous, imbricate or quincuncial

Corolla:- Petals 5, polypetalous gland dotted with imbricate aestivation

Androecium:-

Stamens 3 -5- Toddalia, Melicope

Double the no. of petals-

triphasia, acronychia, Murraya (3+3, 3

Numerous free– Aegle

Numerous polyadelphous – citrus

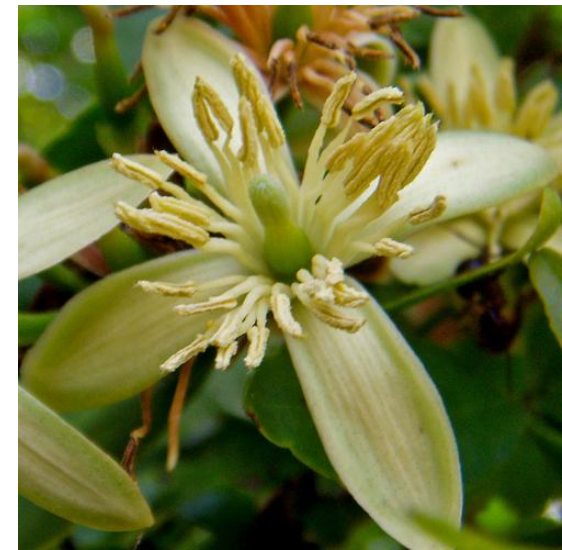
Obdiplostemonous stamens

With slight height difference

(Heterostemonous)

Anthers bithecous,

With longitudinal dehiscence
introrse.



Gynoecium:- Superior, 3- multicarpellary, syncarpous, 3 – multilocular with ovules on axile placentation.

Style terminal & prominent, with capitate stigma

Stigma sticky in nature

2- Murraya

3 carpels – Chloroxylon, Triphasia

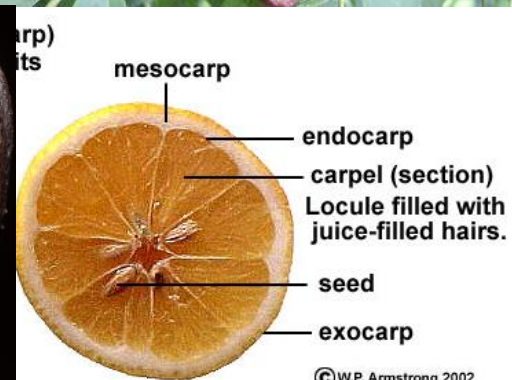
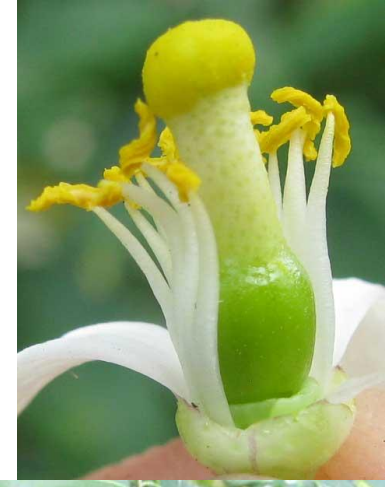
5- Toddalia

Multi – Citrus

Parietal placentation – feronia

Fruit:- Berry (Murraya), hesperidium (Citrus) loculicidal capsule (Chloroxylon)

Seed:- Many, endospermic & polyembryony in Citrus sp.



Diagnostic features: -

Plants shrubs or trees

Aromatic plants due to oil glands in the vegetative & floral parts

Leaves pinnately compound or unifoliate compound alternate
exstipulate glanddotted shiny.

Inflorescence solitary or corymbose cymes, axillary in position.

Flowers bisexual, actinomorphic, hypogynous, pentamalous, cyclic,
dichlamydeous, complete

Calyx 5, polypetalous with valvate aestivation.

Corolla 5 polypetalous with imbricate aestivation

Androecium 3- many, heterostemonous, free or fused to varying
degrees, obdiplostemonous with bithecous & introrse anthers.

Gynoecium superior, 3- multicarpellary, syncarpous, 3- multilocular with
one or more ovules on axile placentation. Style terminal & capitate
stigma

Stigma sticky

Fruit hesperidium or berry

Seeds many, endospermic

Economic Importance:-

Citrus sinensis (orange)- excellent source of vitamin C, which is a powerful natural antioxidant that builds the body's immune system

C. reticulata(mandarin) – edible, thin skin than orange

C. limon (Lemon) –(cherunara)- fruit edible, rich source of vit. C , fruit, juice, and peel are used to make medicine. Lemon is used to treat scurvy, common cold and flu, H1N1 (swine) flu, stomach upset and vomiting.

C. aurantifolia (lime)(vadukapulinaranga) - fruit edible, rich source of vit. C , either fresh or in the form of pickles and sauces. The seeds produce seed oil, In traditional medicines,as an astringent, antiseptic, anthelmintic, mosquito repellent, digestive and appetite stimulant, for stomach diseases, tonic, diuretic, and for headache, arthritis etc.



C. medica (citron) – medicinal, Juice-digestion related problems, stimulating liver-bile juices. Leaves - pains and inflammation on the external body part, skin disorders. Paste made out of seeds in scorpion bite.

C. paradisi (grape fruit)- fruit edible, rich source of vit. C , fruit juice; in addition, segments are canned. Pulp and molasses are used as cattle feed.



Aegle marmelos (bael fruit) – fruit pulp edible, fruits- dysentery, peptic ulcers, as a laxative and to recuperate from respiratory affections in various folk medicines.

Murraya koengii (Curry leaf)- leaf for culinary purpose, medicinal

M. exotica - ornamental

Glycosmis pentaphylla - in combination with other plants to prevent bleeding from external wound, treatment of bone fracture & fracture induced pain
Paste of leaves with ginger in eczema and skin affections.



Ruta graveolens – medicinal- Stimulating, irritant, antispasmodic, stomachic, abortifacient.
Leaf in headache, bronchitis, arthritis.

Toddalia asiatica – medicinal by tribal, fruit in cough, roots in indigestion, influenza. The leaves for lung diseases and rheumatism.

Chloroxylon sweitenia (Ceylon satinwood) – timber & Furniture

Ferronia limonia (Wood Apple) - cough, dysentery, heart diseases, vomiting.



Triphasia trifolia (Lime berry) – fruit edible, ornamental and hedge plant.

Acronychia oblongifolia –aromatic lemon/orange flavour, the berries with salads, Cooked

Melicope denhamii – ornamental, leaf with Antibacterial & anticancer activity.

