# Solanaceae

**Distribution**

The family Solanaceae consists of about 85 genera and 2200 species. The plants are mostly distributed in tropical regions of the world.

**Important Plants**

1. *Atropa belladona* (Belladona)
2. *Capsicum fruitescens* (Chilly)
3. *Cestrum nocturnum* (Night Queen)
4. *Cestrum diurnum* (Day King)
5. *Datura metel* (Thorn apple)
6. *Hyoscyamus niger* (Kurashani-vamum.)
7. *Lycopersicon esculentum* (Tomato)
8. *Nicotiana tabacum* (Tobacco)
9. *Petunia alba* (Petunia)
10. *Physalis minima* (Sun berry)
11. *Physalis peruviana* (Goose berry)
12. *Solanum melongena* (Brinjal)
13. *Solanum nigrum* (Kamanchi)
14. *Solanum surattense* (Vaakudu)
15. *Solanum tuberosum* (Potato)
16. *Withania somnifera* (Aswagandha)

**Vegetative Characters**

**Habitat**: Members of this family are mostly mesophytes and a few are xcrophytes ***(Solanum suratense)***

**Habit**: Plants are annual or perennial herbs. Some are shrubs **(Cestrum)** and rarely trees **Root System**: It is a tap root system.

**Stem**:

The stem is aerial, erect and mostly herbaceous. It is covered either by hairs or prickles In **Solanum tuberosum** (Potato) the stem is an underground tuber.The petiole common I y shows adnation with the stem. Bicollateral vascular bundles are present.

In bicollateral vascular bundles phloem is present on either side of **the** xylem, separated by cambia

Leaf:

Leaves are exstipulate, petiolate and show alternate phyllotaxy in the vegetative regies i but in the region of inflorescence, they appear to be opposite or whorled due to the fusion of petiole with the inter node. They are usually simple or pinnately lobed. Venation is reticulate.

**Floral Characters**

**Inflorescence:**

It is usually cymose type. It may be terminal or axillary in position. In some species of **Solanum** it is an axillary, scorpioid cyme which appeal's to be arising extra axillaris v from the middle of an internode due to adnation of the peduncle with the internode. In *Datura* it is solitary and terminal.

**Flower:**

The flowers are bracteate or ebracteate, ebracteolate, pedicellate, actinomorphk complete, bisexual, pentamerous and hypogynous.

**Calyx**:

It consists of 5 sepals which are fused (gamosepalous). The aestivation is valvate.The calyx in some plants is persistent eg: **Solanum** and **Capsicum.**

**Corolla**:

The corolla consists of 5 petals and is gamopetalous. The aestivation is valvate or twisted.

**Androecium**:

There are five epipetalous stamens alternating with the petals. The anther lobes are large, dithecous, basifixed and introrse. The dehiscence may be longitudinal **(Datura)** or Porous **(Solanum).**

**Gynoecium**:

It consists of bicarpellary and syncarpous. Ovary is oblique in position due to the tilting of posterior carpel to the right and anterior carpel to the left at an angle of 45°.

The ovary is usually bilocular.occasionally unilocular **(Capsicum).**

It becomes tetralocular due to the development of a false septum in **Datura.**

**Ovary** is superior. There are numerous ovules arranged on axile placentation on swollen placenta. The style is terminal and stigma is capitate.

Floral Formula:

*Pollination*: Flowers are usually protandrous. Some species of Solarium are protogynous. Cross pollination through insects (entomophily) is common. Occasionally, self pollination may also occur in Nicotiana.

*Fruit*: The fruit is mostly berry {Capsicum, Solarium, Lycopersicon). It is septifragal capsule in Datura and Nicotiana.

*Seed*: The seeds are endospermic and dicotyledonous. The embryos are generally curved, but it is straight in Nicotiana.

*Economic Importance*

1. Stem tubers of Solanum tuberosum (Potato), berries of S. melongena, Lycopersicon esculentum, Capsicum fruitescens are used as vegetables.
2. Capsicum fruitescens contains an alkaloid called *'capsine'* and the powder of dry fruits is used as condiment in tne preparation of pickles and in cooking.
3. Nicotiana tabacum is a commercial crop. The leaves contain an alkaloid called *'nicotine'* and are used to prepare cigars, cigarettes etc.
4. Leaves of Solanum surattense and Datura stramonium are useful for curing asthma.
5. Fruits of Solanum nigrum are edible and are of great medicinal value.
6. Atropa belladona contains an alkaloid called 'atropine' and is useful in making medicines.
7. Root extract of Withania sommifera is used as a rejuvenating tonic.
8. The fruits of Physalis are edible
9. Species of Cestrum and Petunia are ornamental plants.