LILIACEAE

Distribution

There are about 254 genera and 4075 species in this family.

They are cosmopolitan in distribution, majority of them are found in tropical regions.

Important Plants

1. *Allium cepa* (Onion)
2. *Allium sativum* (Garlic)
3. *Aloe barbadensis* (Aloe, Kalabanda)
4. *Asparagus racemosus* (Asparagus, Sathamuli)
5. *Colchicum autumnale* (Meadow saffron)
6. *Dracaena angustifolia* (Red Dragon)
7. *Gloriosa superba* (Glory Lily - Nabhi)
8. *Lilium candidum* (Lily)
9. *Ruscus aculeata* (Butcher's broom)
10. *Scilla hyacinthiana* (Squill)
11. *Smilax zeylanica* (Sarasaparilla)
12. *Yucca gloriosa* (Spanish dagger)

Vegetative Characters

Habitat:

Both mesophytes (*Allium, Lilium* etc.) as well as xerophytes *(Asparagus, Ruscus, Aloe)* are found in this family.

Habit:

Plants are mostly perennial herbs. Shrubs or trees are found in some species of *Dracaena, Yucca and Aloe.* Few are Climbers (*Gloriosa, Smilax).*

Root System:

The roots are adventitious. Fasciculated tuberous roots are present in *Asparagus.*

Stem:

In majority of the species the stem is underground and perennial.

It may be a bulb *(Scilla, Allium, Lilium);* rhizome *(Gloriosa)* or a corm *(Colchicum)*. In *Scilla and Allium cepa* the bulb is tunicated whereas in *Lilium* it is naked.

The aerial stem is weak in tendril climbers like *Gloriosa* and *Smilax.*

In *Rusus* and *Asparagus,* the branches of the stems are modified into cladophylls.

Leaf*:*

The leaves are radical *(Allium, Lilium)* or cauline *(Smilax, Gloriosa)*. Phyllotaxy is usually alternate *(Gloriosa)* or whorled *(Trillium).*

Stipules may be present or absent. Leaves are petiolate and simple.

Venation is parallel but exceptionally, it is reticulate in *Smilax.* Leaves in *Yucca* and *Aloe* are succulent.

They are reduced to scales in *Asparagus and Ruscus.*

The leaf bases in *Allium* and *Lilium* are fleshy.

Stipules in *Smilax* and the leaf apex in *Gloriosa* are modified into tendrils. In *Scilla* the leaf apex bears epiphyllous buds.

Floral Characters

Inflorescence:

The inflorescence is mainly of recemose type.

It is terminal or axillary in position and may be a simple receme *(Asparagus)* or Panicle *(Yucca, Aloe)* or Umbel *(Allium, Smilax).*

Solitary terminal flowers are found in *Lilium* and axillary in *Gloriosa.*

The long stalk like peduncle that emerges from the underground stem as in *Allium* is described as "scape"

Flower*:*

The flowers are usually bracteate, ebracteolate, pedicellate, actinomorphic, complete, bisexual, homochlamydeous, Trimerous and hypogynous.

Exceptionally flowers are unisexual in *Smilax* and *Ruscus.*

Perianth*:*

It consists of six tepals arranged in two whorls of three each.

They maybe polyphyllous (Lilium) or gamophyllous (Aloe) and are petaloid.

The odd tepal of outer whorl is anterior in position and odd tepal of the inner whorl is posterior in position.

The aestivation is valvate.

Androecium:

Stamens are six, arranged in two whorls of three each,

They are free or epiphyllous, anthers are dithecous, basifixed, introrse and dehiscence is longitudinal.

in Allium, the stamens are inserted at the base of the tepals which are also fused at the base

Gynoecium:

It is tricarpellary and syncarpous. The ovary is superior and trilocular with several ovules on axile placentation.

The style is terminal and stigma is trifid and capitate.

The ovary has sqrtal nectaries, one on each septum.

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Pollination*:*

It is of entomophilous type. The insects are attracted by the nectar secreted *by* nectaries. Flowers may be protandrous *(Allium)* or protogynous *(Colchicum)*.

In *Gloriosa* flowers show herkogamy.

In *Yucca,* there is *symbiotic type of pollination* brought about by a specific moth *(Pronuba yuccasella).*

Fruit*:*

It may be a berry (Asparagus); **loculicidal capsule** (Lilium) **or septicidal capsule** (Gloriosa).

Seed *:*

It is endospermic with straight or sometimes curved embryo and monocotyledonous. Polyembryony is seen in some members **(Allium).**

Presence of more than one embryo in a seed is termed as polyembryony

Economic Importance

1. The bulbs o f Allium cepa are edible and have bactericidal properties.
2. The cloves of Allium sativum (Garlic) are used as spice. It is a good medicine for *gastric and heart problems.*
3. The tuberous roots of Asparagus (Satamuli) are edible.
4. Aloe is valuable for treating piles.
5. "Sarasaparilla" is a medicine obtained from the roots of Smilax.
6. Useful drugs are obtained from Gloriosa, Scilla and Colchicum etc.
7. Leaves of Yucca and Dracaena yield useful fibres.
8. Colchicine (a chemical mutagen) is obtained from the seeds of Colchicum autumnale
9. Gloriosa, Lilium, Asparagus and Dracaena are grown for ornamental value.