FAMILY: LEGUMINACEAE (Fabaceae)

Diagnostic characters

1. Habit: Annual or perennial. I lerbs. shrubs, vines, or tree.
2. Roots: Fibrous tap root often develops nodules in herbs. Nitrogen Fixing bacteria live in these nodules.
3. Stem: Herbaceous or Moody; Cylindrical, tendril climbers.
4. Leaves: Petiolate; alternate: compound of pinnate type. Stipulate, stipules may be modified into leaves or thrones; parallel venation.
5. Inflorescence: Racemose or cymose, the flowers are clustered in heads.
6. Flower: Pedicillate; bracteate: actinomorphic or zygomorphic; regular: complete; hermaphrodite; pentamerous; hypogynous but slightly perigynous
7. Calyx: 5 or sometime 4 sepals: free or fused green S. Corolla: 5 sometimes 4 petals; free or united. colour
8. Stamens: j 0 or numerous stamens; polyandrous, in some cases
9. diadelphous, anther basitlxed. .
10. Carpel: Monocarpillary: ovary superior, placentation marginal.
11. Fruits: Legume or sometimes. loment UM. 12. Seed: Non-endospermic seed.
12. Seed: Non-endospermic seed.

Sub–families

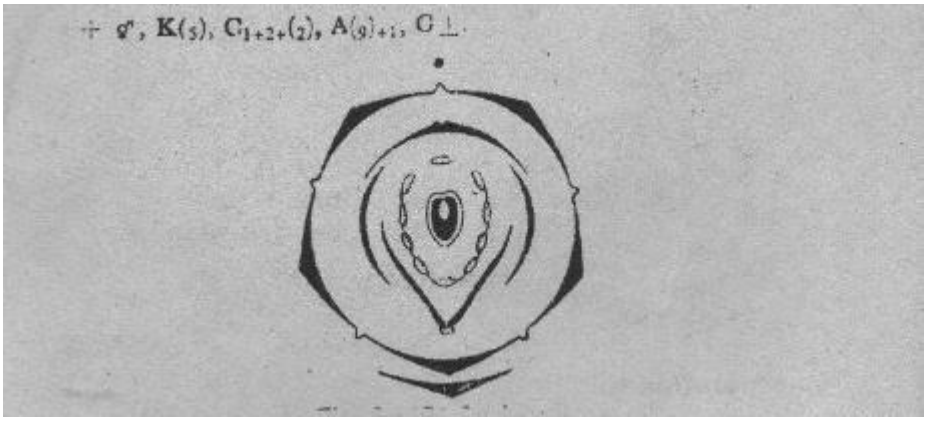
The Family is divided into three sub–families:

(a) Papilionaceae

This sub-family has about 400 genera and 9000 species. The members of this family occur all over the world. particularly \A arm and temperate regions.

1. **Habit**: These are trees. shrubs or herbs.
2. **Stem**: It may be herbaceous. woody or climber with tendrils. Tendrils are wiry. coiled and thread like structure.
3. **Leaves**: They have compound (rarely simple), alternate and stipulate leaves. The stipules are mostly leafy. Sometimes, these leaves are partially or completely modified into tendrils.
4. **Inflorescence**: It may be Racemose or solitary axillary.
5. **Flowers**: They have bisexual. zygomorphic, hracteate, pedicillate, perigynous. pentamerous and papilionaceous.
6. **Calyx**: ‘They have 5 sepals These petals are mostly united to form tube. These are hairy.
7. **Corolla**: They have papilionaceous corolla. 111 this case. there are 5 clawed petals. These petals are not similar.
8. **Standard** or Vexillum: It is the upper posterior petal. It is large and conspicuous.
9. **Wings**: These are two lateral free petals.
10. **Keel** or Carina: These are two anterior most petals. They fuse to form a boat- shaped structure.
11. **Androecium**: They have IC) mostly diadelphous stamens. The 9 stamens fused to form a sheath around the pistil. The posterior stamen is free.
12. **Gynoecium**: It has simple pistil. This pistil has single carpel (monocarpellary) with single locule. the ovary is superior. The style is long bent at its base. The placentation is marginal.
13. **Fruit**: Fruit is usually a legume or pod.

Floral formula and floral diagram



Economic Importance of Papilionaceae

1. Food: Most of the important pulses are belonged to this family. These pulses are used as food. Pulses are rich in proteins. The common species of pulses are Grain, Pea, and Kidney bean.
2. Fodders: Medicago sativa (Alfalfa) is one of the best forage crops. Vicia Melilotu and Trifolium are also cultivated as main fodder crops.
3. Timber: Many plant of this family provide timber for building furniture and fuel. Main timber plants are **Butea, Dalbergia** etc.
4. **Vegetable oil:** The seed of **Archis hypogea** (peanut) are edible. They are also used for extraction of peanut oil. This peanut oil is hydrogenated and used as vegetable oil.
5. **Dyes:** Some of its plants give yellow and indigo dyes.
6. **Medicinal plants:** Many plants of this family are used inmedicines. **Glycyrrhiza glabra i**s used for cough and cold.
7. **Clitoria ternatea** is use against snake bite.
   Ornamental plants: Some important ornamental plants are **Lathyrus (pea), Lupinus, Clitoria, Butea** etc.

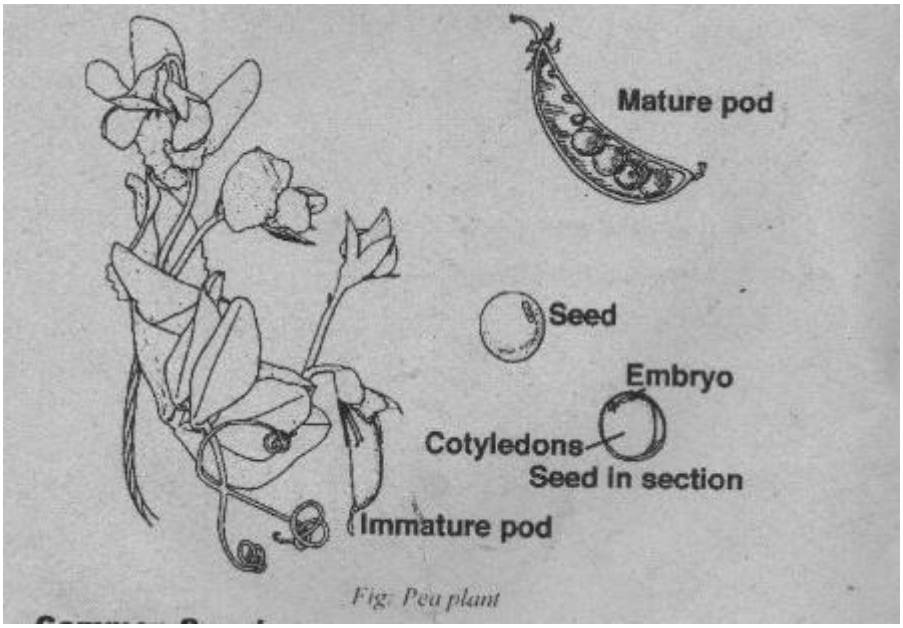


Fig: Pea plant