

**Topic – Phylogenetic System of Classification**

**Sub: Botany**

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## Phylogenetic System of Classification

Publication of Darwin's theory of evolution in 1859 in the form of his well-known book, *On the Origin of Species*, provided the real base for the development of modern systematics. Scientists started working on the line of thought that the life of plants as well as animals has continually changed on the earth over a period of time. Botanists started working on the concept of evolution regarding the development of a classification of plants called The Phylogenetic system.

- The history of development of a race, or simply evolutionary history, is called phylogeny.
- The phylogeny therefore includes the knowledge of the ancestors, place and time of their origin, the primitive relatives and the interrelationships among the major groups.
- This system, besides morphological characters, is also based on the natural affinity, relationship of plants and evolutionary sequence.
- Descent from a common ancestor and the relatedness of the organisms with evolution is the basis of this system of classification.
- Phylogeny stresses the pattern of relatedness among organisms.
- Besides morphological characters, embryonic development, genes and other molecules plays an important role in this system of classification.
- This system of classification gives accurate description of relatedness between organisms.

Some major proponents of this system are

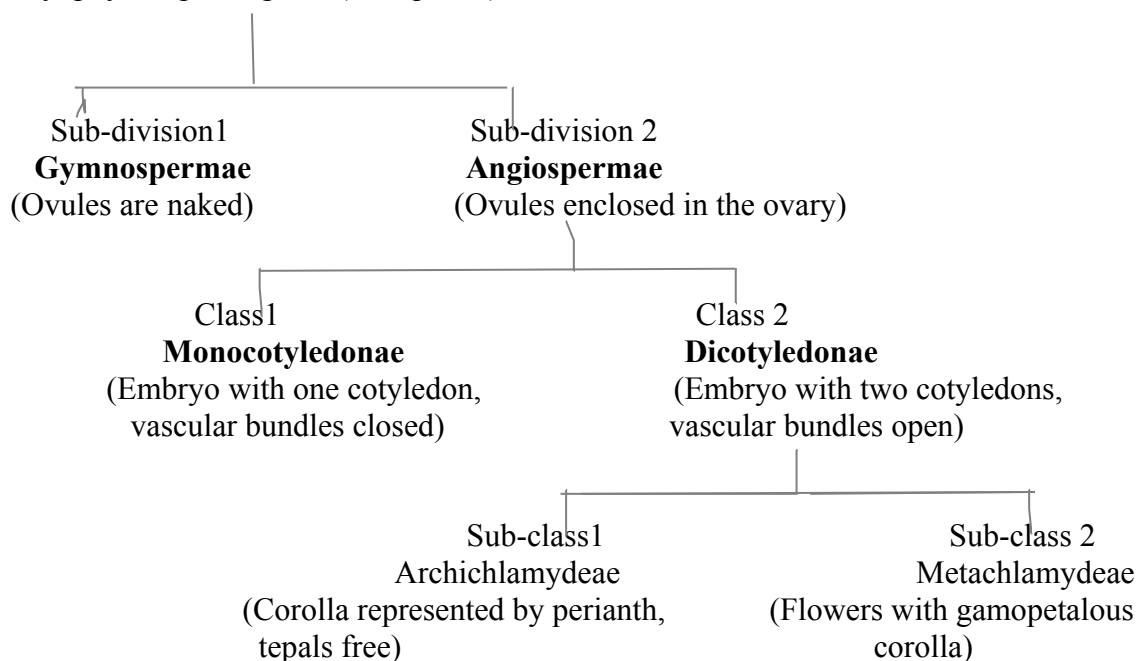
### 1. A. Engler and E. Prantl

According to this system the families were arranged in accord to the increasing complexity of the flower, fruit and seed development.

- Book- *Die Naturlichen Pflanzenfamilien*

General outline is as follows:

Division-Embryophyta Siphonogama (seed plants)



Merits

- The gymnosperms are treated separately.
- The families with inferior ovary have been treated in the last. The advancement is marked from hypogyny to complete epigyny.

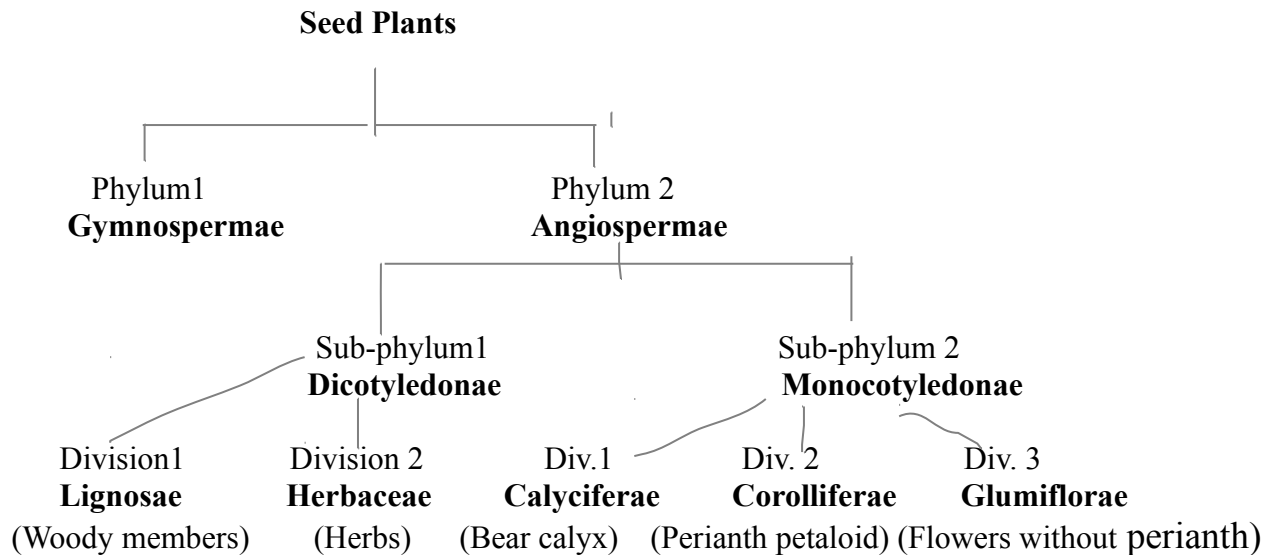
Demerit

- Monocots have been considered to be more primitive than Dicots.

## 2. J. Hutchinson

- Book-The Families of Flowering plants, British flowering Plants

General outline is as follows:



Merits

- This system gives a better idea of phylogenetic concept according to most taxonomists.
- Several big orders have been split up into small families, thus simplifying matters.

Demerit

- The basic weakness of the system is his division of Dicotyledonae into two main groups, Lignosae and Herbaceae on the basis of habit. This leads to wide separation of some closely related families.

## 3. Takhtajan

## 4. Cronquist

The above two taxonomists will be dealt separately.