

# Topic: Hutchinson's System of Classification

## B.Sc. Botany Sub. II

### Group: A

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John Hutchinson was a British botanist associated with Royal Botanic Gardens, Kew, England. He developed and proposed his system based on Bentham and Hooker and also on Bessey. His phylogenetic system first appeared as “The Families of Flowering Plants” in two volumes.

The first volume contains Dicotyledons (published in 1926) and second volume contains Monocotyledons (published in 1934). He made several revisions in different years. The final revision of “The Families of Flowering Plants” was made just before his death on 2nd September 1972 and the 3rd i.e., the final edition, was published in 1973.

**The following principles were adopted by Hutchinson to classify the flowering plants**

- Evolution takes place in both upward and downward direction.
- During evolution all organs do not evolve at the same time.
- Generally, evolution has been consistent.
- Trees and shrubs are more primitive than herbs in a group like genus or family.

# Outline of Hutchinson's classification Flowering plants

Phylum-1-Gymnospermae

Phylum-2-Angiospermae

Sub-Phylum-1-Dicotyledonae

Sub-Phylum-2-Monocotyledonae

Division-I-Lignosae  
(246 Families)  
(Mostly woody plants)

Div-II-herbaceae  
(96 families)  
(Mostly herbaceous)

Div-I-Calyciferae  
(29 families) (calyx present)

Div-II-Corolliferae  
(34 families) (Petaloid perianth)

Div-III-Glumifrae  
(6 families) (Perianth absent)

- Trees and shrubs are primitive than climbers.
- Perennials are older than annuals and biennials.
- Terrestrial angiosperms are primitive than aquatic angiosperms.
- Dicotyledonous plants are primitive than monocotyledonous plants.
- Spiral arrangement of vegetative and floral members are primitive than cyclic arrangements.
- Normally, simple leaves are more primitive than compound leaves.
- Bisexual plants are primitive than unisexual plants and monoecious plants are primitive than dioecious plants.
- Solitary flowers are primitive than flowers on inflorescence.
- Types of aestivation gradually evolved from contorted to imbricate to valvate.
- Polymerous flowers precede oligomerous flowers.
- Polypetalous flowers are more primitive than gamopetalous flowers.
- Flowers with petals are more primitive than apetalous flowers.

- Actinomorphic flowers are more primitive than zygomorphic flowers.
- Hypogyny is considered as more primitive from which perigyny and epigyny gradually evolved.
- Apocarpous pistil is more primitive than syncarpous pistil.
- Polycarpy is more primitive than gynoecium with few carpels.
- Flowers with many stamens are primitive than flowers with few stamens.
- Flowers with separate anthers are primitive than flowers with fused anthers and/filaments.
- Endospermic seeds with small embryo is primitive than non-endospermic one with a large embryo.
- Single fruits are primitive than aggregate fruits.

He divided the Phylum Angiospermae into two Subphyla Dicotyledones and Monocotyledones. The Dicotyledones are further divided into two divisions – Lignosae (arboreal) and Herbaceae (herbaceous).

The Lignosae includes, fundamentally, the woody representatives derived from Magnoliales and Herbaceae includes most of the predominantly herbaceous families derived from Ranales. The subphylum Monocotyledones are divided into three divisions- Calyciferae, Corolliferae and Glumiflorae.

So in the latest system of Hutchinson, the Dicotyledones consists of 83 orders and 349 families and Monocotyledones consists of 29 orders and 69 families.

### **Merits:**

- ❖ Hutchinson proposed the monophyletic origin of angiosperms from some hypothetical Proangiosperms having Bennettitalean characteristics.
- ❖ He made a valuable contribution in phylogenetic classification by his careful and critical studies.
- ❖ Monocots have been derived from Dicots.
- ❖ According to him, the definitions of orders and families are mostly precise, particularly in case of subphylum Monocotyledones.

## Demerits:

- ❖ There is undue fragmentation of families.
- ❖ Too much emphasis is laid on habit and habitat. Thus, creation of Lignosae and Herbaceae is thought to be a defect reflecting the Aristotelean view.
- ❖ The origin of angiosperms from Bennettitalean-like ancestor is criticized by many, because the anatomical structures of the early dicotyledons are not tenable with such ancestry.