

**BSc. Botany (Hons) – 2ND Year**  
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**Hutchinson's System of Classification:-**

John Hutchinson, a British botanist and formerly the office holder of museum of royal botanical garden, Kew, England has given the classification of plants based on the principles followed by Bessey his classification was published in his famous book families of flowering plants in two volumes. Volume -1 published in 1926 dealing with cotyledons and volume -2 published in 1934 on monocotyledons.

The system of classification was revised in British flowering plant (1948) and again the second edition of the families of flowering (1999) it is underlying principles are more like the besseeayan system than the englerian system.

This phylogenetic system is based on the following assumption:

- Plants with petals and sepals associated with other floral and anatomical character are primitive and more ancient than the plants without sepals.
- Free floral parts are more primitive than the agnate or connate parts.
- Spiral arrangement of floral parts sepals, petals and stamens are more primitive than cyclic arrangement.
- Hermaphrodite condition and free stamens are primitive over the unisexual flowers and connate stamens.
- A regular or actinomorphic flower is primitive over zygomorphic flower.
- Solitary flower is more primitive than the inflorescenced flowers.
- Hypogyny is more primitive than epigyny and perigyny conditions.
- A flower with indefinite no. of floral parts is primitive over few numbers of flowral parts.
- Complete flower are primitive than incomplete flower.

Following are the different phylum of classification.:

**A)Sub-phylum-1-Dicotyledonae**

- Embryo with two cotyledons.

- Tap root system
- Reticulate venation of leaves
- Pentamerous floral parts

This sub phylum further divided into two divisions

### **Division 1: Lignosae**

- 1) Trees and shrubs, woody plants.
- 2) It include 54 orders which begins with magnoliales and ends with verbenales.

### **Division 2: Herbaceae**

- 1) It includes all herbaceous plants.
- 2) Plants may be annuals or biennials or perennials. This division includes 28 orders which start with ranales and ends with lamiales.

B) Sub phylum-2-Monocotyledonae:

- Embryo with one cotyledon
- Fibrous adventitious root system
- Parallel venation of leaves.
- Closed and scattered vascular bundles.
- Trimerous flowers.

This sub phylum divided into three divisions.

### **Division -1-Calyciferae:**

- 1) Flower with distinct calyx and corolla
- 2) Sepals green in colour , petals colored variously It includes 12 orders, starting with butamales and end with Zingiberales.

Division-2-Coroliferae-:

- 1) Both calyx and corolla are not distinct in colouraton.
- 2) Sepals may be coloured other than green.

3) Petals and sepals present in different whorl. It includes 14 orders begins with liliales and end with orchidales.

### **Division-3- Glumiflorae**

1) Flower with reduced perianth

2) Neither sepal nor petal is distinct and reduced to membranous lodicules. This includes 3 orders and six families.

### **Merits of Hutchinson's classification-:**

i) It is most phylogenetic system of classification based on natural characteristic of plants.

ii) This system is based on evolutionary tendencies and interrelationship among angiospermic plants.

iii) Magnoliales representing arborescent plants and ranales representing herbaceous plants which shows parallel evolution.

iv) Several big orders have been broken into small orders like rosales, paritales, malveles, leguminales etc.

v) Many families have been raised to the rank of orders, leguminosae famile raised to order leguminales.

vi) Reshuffling or genera and families

vii) Origin of monocots from dicots and placement of first dicot and then monocot families is correct in all respect.

viii) Placing of gymnosperms before angiosperms in flowering plants.

### **Demerits of Hutchinson's system of classification-:**

i. Hutchinson has considerably increased the number of orders and families. He has given 411 families while Benthom and Hooker have recognized 202 families and Engler and Prantl have given 280 families.

ii. The division of angiosperm into herbaceous and woody plants results in unnatural division of orders.

iii. The classification has not been universally recognized due to his fundamental principle that dicots have evolved in two directions, one from herbaceous Ranales and other from woody Magnoliales.