BSc. Botany (Hons) – 2ND Year
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Cronquist System of Classification

The Cronquist system of classification was given by an American botanist, Arthur Cronquist (1919-1992). His system of classification was influenced by Bessey's system of classification (1915) and modification of Takhtajan's system of classification (1950s).

His work was published as a series of texts and monographs in *The Evolution and Classification of Flowering Plants* that was published in 1968 as the first edition and in 1988 as the second edition, and *An Integrated System of Classification of Flowering Plants* that was published in 1981.

Basis of Classification

Cronquist's system was based on extensive research from vast literature, advice from other botanists and his study of herbarium specimens. He divided angiosperms or flowering plants into two broad classes, **Magnoliopsida** (dicotyledons) and **Liliopsida** (monocotyledons).

He based his study on anatomical, morphological, serological, embryological, palynological, cytological as well as ultrastructural evidence. Within the classes, he placed subclasses with related orders under them.

Organisation of Classification

- **Class Magnoliopsida**: This class consists of 6 subclasses with 64 orders and 321 families. The six subclasses are as follows:

1. Magnoliidae (8 orders and 39 families)
2. Hamamelididae (11 orders and 25 families)
3. Caryophyllidae (3 orders and 14 families)
4. Dilleniidae (13 orders and 78 families)
5. Rosidae (18 orders and 118 families)
6. Asteridae (11 orders and 50 families)

- **Class Liliopsida:** This class consists of 5 subclasses with 19 orders and 65 families. The five subclasses are as follows:

1. Alismatidae (4 orders and 16 families)
2. Arecidae (4 orders and 6 families)
3. Commelinidae (7 orders and 16 families)
4. Zingiberidae (2 orders and 9 families)
5. Liliidae (2 orders and 19 families)

Merits of the Classification

- There is general agreement of Cronquist's system with that of other contemporary systems like Takhtajan. Dahlgren and Thorne.

- Detailed information on anatomy, ultra structure phytochemistry and chromosome morphology was presented in the revision of the classification in 1981 and 1988

- The system is highly phylogenetic.

- Nomenclature is in accordance with the ICBN.

- The family Asteraceae in Dicotyledons and Orchidaceae in Monocotyledons are generally regarded as advanced and are rightly placed towards the end of respective groups.

- The relationships of different groups have been described with diagrams which provide valuable information on relative advancement and size of the various subclasses,

- The family Winteraceae (vessel-less wood present similar to Pteridosperms) placed at the beginning of dicotyledons is favoured by many authors.

- The subclass Magnoliidae is considered as the most primitive group of Dicotyledons. The placement of Dicotyledons before Monocotyledons finds general agreements with modem authors

- As the text is in English, the system has been readily adopted in different books.

Demerits of Classification:

- Though highly phylogenetic and popular in U.S.A., this system is not very useful for identification and adoption in Herbaria since Indented keys for genera are not provided.
- Dahlgren (1983, 89) and Thorne (1980, 83) treated angiosperms in the rank of a class and not that of a division
- Superorder as a rank above order has not been recognised here, though it is present in other contemporary cinssifications like Takhtajan, Thorne and Dahlgren
- The subclass Asteridae represents a loose assemblage of several diverse sympetalous fanvities.
- Ehrendorfer (1983) pointed out that the subclass Hamamelidae does not represent an ancient side branch of the subclass Magnoliidae, but is remnant of a transition from Magnoliidae to Dilleniidae, Rosidae, and Asteridae.
- There is a difference in opinion with other authors regarding the systematic position of some orders like Typhales, Arales. Urticales etc.