

**Topic – Contemporary System of Classification 2
Dahlgren and Thorne**

Sub: Botany

**Course- M. Sc.(semester II) , Department of Botany
Paper- MBOTCC-6 Taxonomy, Anatomy and Embryology
Unit- I**

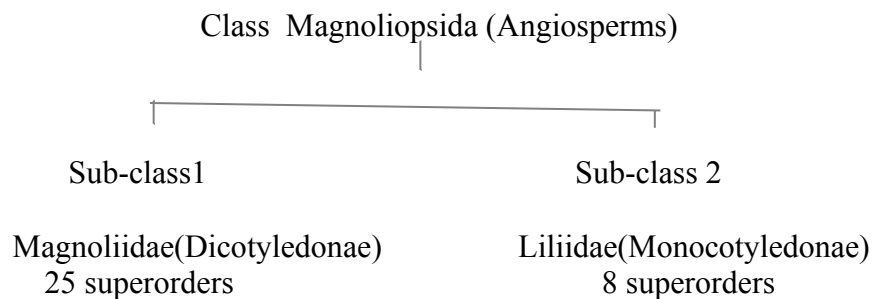
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Rolf Dahlgren

He published his system of classification in 1975 titled *A system of classification of Angiosperms to be used to Demonstrate the Distribution of Characters*.

- His system of classification considers the characters like apocarpy, syncarpy, monocarpellate condition, sympetaly, monoaperturate pollen grains, sclereid idioblasts, microsporogenesis types, unitegmic and bitegmic ovules, tenuinnucellate, pseudocrassinucellate and crassinucellate ovules, bi and trinucellate pollens, oxalate raphides, silica bodies, alkaloids and many types of flavonoids.
- Thus, Dahlgren has used chemical characters in his system of classification.
- He considers monophyletic origin of angiosperms (evolution in one particular line of gymnosperms).
- He agrees that the discontinuity between monocotyledons and dicotyledons is not marked. Monocotyledons can be clearly restricted on the combination of a single-cotyledoned embryo and sieve element plastids(plastids present in sieve elements) containing protein bodies.

An outline of his classification is as follows:



The superorders end with the suffix -florae.

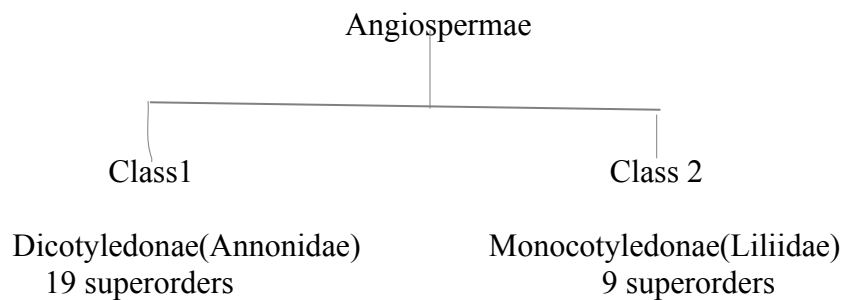
- The superorder Magnoliiflorae of sub-class 1 Magnoliidae have been treated to be most primitive among dicotyledonae.
- They possess the characters like: woody habit, alternate, exstipulate leaves, cell with essential oils in leaves, trimerous tepals, flat and leaf-like stamens, pollen grains bi-nucleate, apocarpous gynoecium, monocarpellary and endosperm formation cellular along with presence of alkaloids.
- The superorder Alismatiflorae of sub-class 2 Liliidae has the characters which are generally unusual for monocotyledons like vessels absent in the stem and often present in the roots, root hairs attached to short epidermal hairs, amoeboid tapetum, trinucellate pollen grains, apocarpous and monocarpellary gynoecia, oxalate raphides and silica crystals absent.
- He does not favour the idea that Alismatiflorae of Liliidae are closely connected with the monocotyledon ancestors. He suggests that the appearance of the monocotyledons may have its counterpart in the evolution of the mainly herbaceous Aristolochiaceae, which also evolved out of early Magnoliales with trimerous flowers and two perianth whorls. Aristolochiaceae share with the monocotyledons in possession of crystalloids in the sieve element plastids. This means that Aristolochiales (order of Magnoliiflorae) gave rise to or evolved into a group similar to monocotyledons (possessing monocot characters). This group possesses some features of Magnoliales (another order of Magnoliiflorae).

Robert F. Thorne

He published his system of classification in 1968 titled *A Synopsis of a Putatively Phylogenetic System of Classification of Flowering Plants*.

- His system of classification has been used to express the phylogenetic relationship among the higher taxa of flowering plants.
- He has laid emphasis on phytochemical approach.
- Different modern approaches like palynology, pollen and seed morphology, anatomy, embryology, host-parasite relationship, plant geography, palaeobotany and cytology have been utilized in differentiation of taxa.
- According to him the angiosperms are monophyletic in origin.

An outline of his classification is as follows:



The superorders end with the suffix -florae.