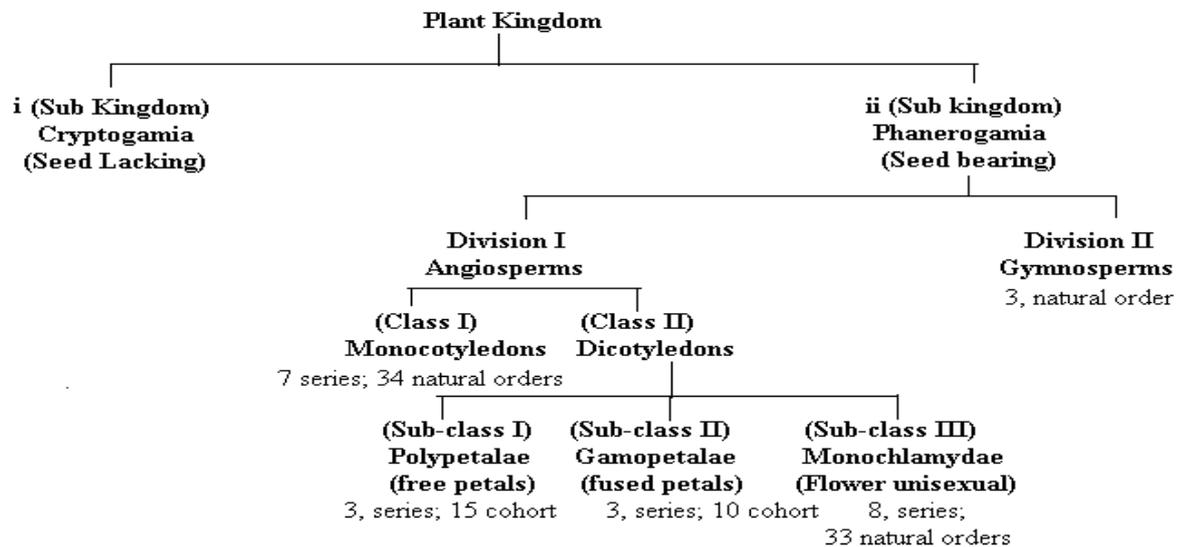


**RAJA N L KHAN WOMEN'S COLLEGE
(AUTONOMOUS)
PASCHIM MIDNAPORE
DEPT-BOTANY
PREPARED BY DR. RUMA HAJRA
4TH SEMESTER 2ND YEAR PAPER- C4T**

BENTHAM AND HOOKER'S SYSTEM:

- This system was represented by two scientists in a book with three volumes named as “**Genera Plantarum**”
- George Bentham (1830-1884) was an English scientist and a well-trained botanist.
- Sir Joseph Hooker (1817-1911) was Director of Royal Botanical Garden at Kew, was more plant explorer.
- Bentham and Hooker’s classification deals with seed and flowering plants.
- It described 202 families grouped into cohorts.
- Total no of spp was some 97,205 of seeded plants.
- They divided seed plants of Phanerogams into three categories:
 - (i) Dicotyledons
 - (ii) Gymnospermae
 - (iii) Monocotyledons



Division I Angiosperms

Class-I Monocotyledons

- These are further divided into seven series:
 - Microspermae
 - Epigynae
 - Coronarieae
 - Calyeinae
 - Nudiflorae
 - Apocarpeae
 - Glumaceae

Class-II Dicotyledons:

– These are further divided into 3 groups/sub-classes:

1. Polypetalae
2. Gamopetalae
3. Monochlamydeae

Polypetalae

- Polypetalae has three series:
 - Thalamiflorae
 - Disciflorae
 - Calyciflorae

Gamopetalae

- It has also three series:
 - Inferae
 - Heteromerae
 - Bicarpellatae

Monochlamydeae

- It is divided into eight series:
 - Curvembryeae
 - Multiovulateae aquaticae
 - Multiovulateae terrestres
 - Microembryeae
 - Daphneles
 - Achlamydosporeae
 - Unisexuales
 - Ordines anomali

Division II- Gymnospermae

- These are divided into three families:
 - Genetaceae
 - Coniferae
 - Cycadaceae

MERITS AND DEMERITS OF BENTHAM AND HOOKER'S SYSTEM:

Merits:

1. It is a great mentioned system or natural system of classification
2. It is very suitable and important for practical purposes.
3. Monocotyledons are derived from dicotyledonous.
4. In class monocotyledons, stress is being laid on the relative position of ovary and perianth characters.
5. Full and complete description of each plant was prepared from studies and dissection of individual plants.

6. For the sake of convenience, every genus was sub-divided into sub-genera and sections each of which was named and diagnosed together with the assignment of important spp belonging them.
7. The system was accepted by the entire British Empire, USA, and other European countries.
8. The system is a result of very careful comparative examination of all known genera of Phanerogams.
9. Valuable for identification of seed plants.
10. A special feature of this system is an addition of disciflorae and arrangement of certain groups on basis of aquatic and terrestrial characters.

Demerits:

1. The position of gymnosperms b/w dicotyledons and monocotyledons which is anomalous.
2. Origin of angiosperms is not established.
3. In monocots stress in being laid on ovary position and perianth character which is unjustified in case of some orders.
4. The position of Orchidaceae and Scitamineae at beginning of monocots is not satisfactory.
5. Among the cotyledons, monochlamydeae is being regarded as the most evolved group and the polypetalae as the most primitive group. Gamopetalae has been placed in b/w the two such an arrangement does not follow an evolutionary trend.
6. Some of the related orders (families) are being widely separated due to an arbitrary selection of characters.
7. Monochlamydeae is being regarded as an artificial group. It includes a no of orders (families) possessing affinities with those of bisereate perianth.
8. Separation of Liliaceae forms Iridaceae and Amaryllidaceae merely on the character of inferior ovary, without making more of the comparative study.

COMPARISON OF BENTHAM & HOOKER AND ENGLER & PRANTLL'S SYSTEM OF CLASSIFICATION:

BENTHAM & HOOKER	ENGLER & PRANTLL'S
1. This system is a natural one and is based on several common and constant natural characters of the plant.	1. This system is Phylogenetic and is based on the idea of evolution from less specialized to more specialized groups in ascending order.
2. Spermatophytes (seed plants) are classified into dicotyledons, gymnosperms and monocotyledons. The origin of angiosperms is not established and position of a gymnosperm is anomalous ie is b/w the dicotyledons and monocotyledons.	2. Spermatophytes are divided into gymnosperms and angiosperms. The origin of angiosperms is from hypothetical gymnosperms like coniferales. The position of gymnosperms is not anomalous. Angiosperms are considered to be polyphyletic.
3. Dicotyledons are placed before monocotyledons and probably dicotyledons are considered to be more	3. Monocotyledons are placed first as they are thought to be more primitive than the dicotyledons. The evolutions of dicots and monocots have taken place parallel from

primitive than monocotyledons. In all 202 families are recognized..	hypothetical gymnosperms. In all 303 families in 55 orders are recognized.
4. Monocotyledons are divided into 7 series beginning with <i>Microspermeae</i> and ending in <i>Glumaceae</i>	4. Monocotyledons are divided into 12 series beginning with <i>Pandanales</i> and ending in <i>Microspermae</i> .
5. Arborous and herbaceous habit are not considered as important in the classification of angiosperms.	5. like Bentham & Hooker's system.
6. This system is light modification of de Condolle's system of classification.	6. This system is based on Eichler's system of classification.
7. The work of Bentham and Hooker was published in Genra Plntarum	7. The work of Engler and Prantl was published in Die Naturilichen Pflanzenfamilien .

Engler and Prantl's system of classification

