

Topic: **Role of Cytology in Taxonomy**

B.Sc. Botany Hons. II

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Role of Cytology in Taxonomy

Cytology in Relation to Taxonomy:

- The application of cytological data in elucidation of taxonomic problems.
- It is seen that various attributes of chromosomes like number, morphology, size, behaviour in crosses and aberrations in reproduction are all important.

Chromosome number:

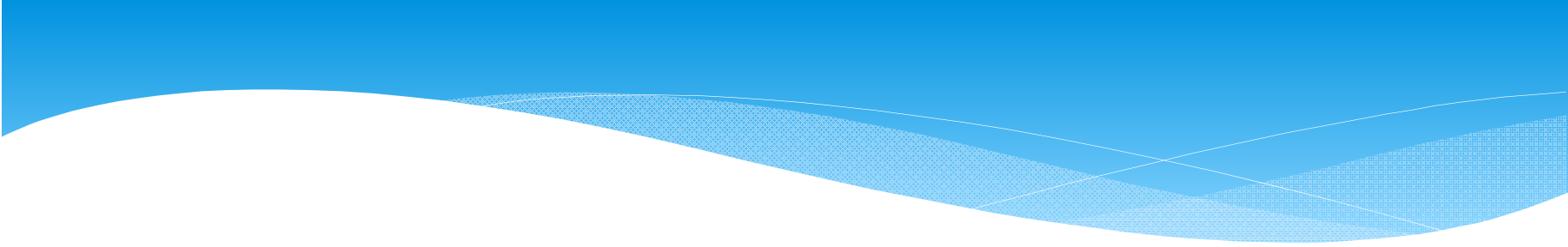
- The haploid number of chromosomes in angiosperms ranges from $n = 12$ in *Halopappus gracilis* (Asteraceae) to around $n = 132$ in *Poa littorea* (Poaceae).
- Most of the angiosperms have chromosome numbers ranging between $n = 7$ and $n = 12$.
- About 35 to 40% per cent of the flowering plants are polyploids.

Chromosome morphology:

- A study of chromosome morphology is informative to the taxonomist in assessing affinities and modes of origin of separate species.
- The important work of Babcock in *Crepis* show how chromosome morphology coupled with chromosome number is of considerable importance in the genetic and taxonomic phases of study.
- In genera like *Crepis* and *Plantago* the large size and small number of their chromosomes have been of great value in this type of study.

Chromosome size:

- It has already been discovered that evolutionary development involves in addition to alterations in chromosome number, their size, changes in structure

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- So, that analysis of these cytological characters may also shed important light on species relationships.
 - Recent observations on the Menispermaceae have shown that this aspect of cytology is sometimes valuable in taxonomic discussions.