# 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 littoroa (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

- 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.