

Topic: Chromosome; structure
B.Sc. Botany Hons. III
Paper: V Group: A

Dr. Sanjeev Kumar Vidyarthi

Department of Botany

Dr. L.K.V.D. College, Tajpur, Samastipur


L.N. Mithila University, Darbhanga

Chromosome

- Chromosomes (Gr., chrom=colour, soma= body) are the rod shaped, dark stained bodies seen during the metaphase stage of mitosis when cells are stained with a suitable basic dye and viewed under a light microscope.
- Chromosomes were first described by Strasburger (1815), and the term 'chromosome' was first used by Waldeyer in 1888.
- Subsequent studies have clearly shown that chromosomes are composed of thin chromatin threads called chromonemata which undergo coiling and supercoiling during prophase so that the chromosomes become progressively thicker and smaller, and become readily observable under light microscope.

Chromosome Number:

- The number of the chromosomes is constant for a particular species.

- 
- Therefore, these are of great importance in the determination of the phylogeny and taxonomy of the species.
 - The number or set of the chromosomes of the gametic cells such as sperms and ova is known as the gametic, reduced or haploid set of chromosomes.
 - The haploid set of the chromosomes is also known as the genome.
 - The somatic or body cells of most organisms contain two haploid set or genomes and are known as the diploid cells.
 - The diploid cells achieve the diploid set of the chromosomes by the union of the haploid male and female gametes in the sexual reproduction.
 - The number of chromosomes in each somatic cell is the same for all members of a given species.
 - The organism with the lowest chromosome number is the nematode, *Ascaris*

- megaloccephalus univalens which has only two chromosomes in the somatic cells ($2n = 2$).
- In the radiolarian protozoan Aulacantha is found a diploid number of approximately 1600 chromosomes. Among plants, chromosome number varies from $2n = 4$ in Haplopappus gracilis (Compositae) to $2n = 1200$ in some pteridophytes. Chromosome number of few common plants is given below:

Plants	Chromosome number
1. Mucor heimalis	2
2. Allium cepa	16
3. Aspergillus nidulans	16