

Sources of hereditary variations

The main sources of heritable variations is mutation. Other sources of heritable variations are genetic recombination, hybridization, genetic drift, migration etc.

(i) **Mutation**: All changes in the hereditary material which are capable to alter the phenotype of an individual i.e. capable to cause variation are called 'mutation'.

The role of hereditary material is played by DNA or gene which is located in the chromosomes.

Sources of hereditary variation

(ii) **Genetic recombination**: Appearance of new type of gene combinations by re-arrangement of existing genes during crossing over at the time of meiosis, re-arrangement of chromosomes during the formation of gametes, chromosomal aberrations either in number or structure is known as 'genetic recombination'.

(iii) **Hybridization**: Mating of individuals belonging to two different species results in the formation of new types of genetic arrangement which leads to the appearance of new characters. This is known as 'hybridization'.

(iv) **Genetic drift**: Any alternation in the gene frequency of a small population occurring suddenly only by a chance is known as 'genetic drift'.

(v) **Migration**: Migration of individuals from one population to another and their interbreeding bring about variation due to gene flow from one population to another.