

MUTATION and its type:-

Mutation was first of all discovered by 'Hugo de Vries'. In the plant *Oenothera lamarckiana*, popularly known as evening prime rose.

* Definition of Mutation:-

Sudden heritable phenotypic changes in the structure of a gene or chromosome or change in the chromosome number.

There are following type of mutation:-

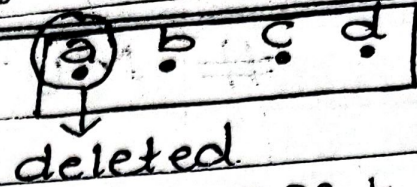
1) Chromosomal mutation:-

It is also known as chromosomal aberration.

It has following types:-

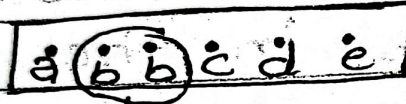
* Deletion :- The loss of a part of chromosome is

known as deletion.



* Duplication: - Addition of a part of chromosome is known as duplication. Duplication is not known harmful like deletion because duplication often change the phenotype of an organism hence they are important for the process of evolution.

eg:-



Duplicated.

* Inversion: - When a part of a chromosome breaks away and reunites in reverse order by 180° , is known as inversion.

There are two types of inversion:

* Para centric inversion: -

The inverted segment doesn't carry centromere.

* Pericentric inversion:-

The inverted segment carries centromere.

4.* Translocation :-

When the transfer of chromosome segments from one chromosome to another takes place, is known as translocation.

The reciprocal translocations are due to mutual change of chromosome segment between two pairs of non-homologous chromosomes.

II Genomic Mutation:-

It has following type :-

A) Aneuploidy:- In this mutation there is gain or loss of one or more chromosomes.

eg:- $2n + 1 =$ trisomic

$2n + 2 =$ tetrasomic

$2n - 1 =$ Monosomic

$2n - 2 =$ Nullisomic

B) Euploidy :- In this mutation there is change in the full set of chromosome.

eg:- $3n =$ triploid

$4n =$ tetraploid

$5n =$ pentaploid

$6n =$ Hexaploid

Importance :-

- i) They are helpful in plant breeding programmes.
- ii) Helpful in production of antibiotics
- iii) Mutation play dominant role in domestic animal like cow, buffalo etc
- iv) Mutation is helpful or mutation play dominant role in evolution.