

# Mutation

mutation is a discontinuous chromosomal change with a genetic effect.

The term mutation was discovered by T. H. Morgan while working on Drosophila Melanogaster.

and discovered by Hugo de Vries

## Types of mutation

1. Somatic mutation — when mutation takes place in somatic cell or vegetative cell called somatic mutation. It is non-heritable.

2. germinal mutation — when mutation takes place in reproductive cell and heritable called germinal mutation.

3. Spontaneous mutation — when mutation occurs in nature called spontaneous.

#### 4. Induced mutation

When mutation occurred by External Agent i.e. mutagen called induced mutation.

#### 5. Reverse mutation

When mutated gene again mutates to become Normal called Reverse mutation.

#### 6. Biochemical mutation

When mutation affects the specific biochemical process in individuals called Biochemical mutation.

#### 7. point mutation

When mutation arise due to change in a single base pair of DNA called point mutation. ex - Sickle cell Anaemia.

## (8) Frame-shift mutation

When mutation arise due to shifting of DNA segment or deletion and insertion (duplication) of ~~base~~ base pair of DNA called - frame-shift mutation.

### \* Transition

When purine base Transition by purine or pyrimidically by pyrimidically called - Transition.

### \* Transversion

When purine Transition by pyrimidine and vice versa called Transversion.

### \* Role of mutation in Agriculture

Mutation breeding is important for - production of desired improved - varieties of different crops.

M. S. Swaminathan (1963) Mexican wheat to India.

Induced mutant variety.

wheat - Sharbati-Sonara

\* Morin dwarfing gene developed by

Norman E Borlaug

wheat - Sonara, Sonalika, Kalyan Sona