Unit -2

Mutation ⇒ Sudden change in the Genetical setup of an organism.

In 1901 ⇒ Hugo de Vries ⇒ Term mutation.
Observed → Oenothera lamarckiana.

Classification.
Classified in various ways based on different criteria.
Somatic and Germinal → Depend on kind of cell
Autosomal or sex chromosomal → type of chromosome.
Spontaneous or Induced ⇒ Mode of origin
Forward or backward → According to direction
Dominant or recessive → According to phenotypic expression of mutated genes.

Gene mutation.
Sudden change in small segment of DNA or single nucleotide or pair of nucleotide.

Mutagenic agents.
Chemical substances and environmental conditions which cause mutation in the organisms

Chromosomal aberration.
Any visible abnormality in chromosome number or structure from diploid set of organism.

④ types.

① Deletion ⇒ Loss of segment of genetic material

① Terminal deletion

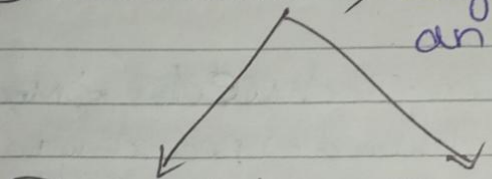
⇒ occurs near the end

② Intercalary deletion

⇒ occurs in the middle.

② Duplication ⇒ segment of chromosome present more than once

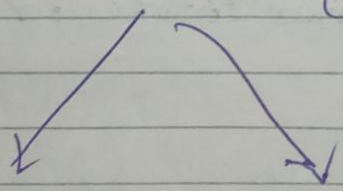
③ Inversion ⇒ Segment is reversed by an angle 180°.



Pericentric inversion with centromere

Paracentric inversion without centromere

④ Translocation ⇒ Interchange of chromosomal segment occurs.



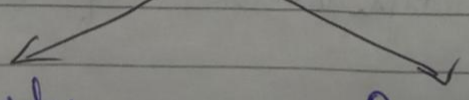
Heterozygous translocation

Homozygous translocation.

Ploidy.

A Alteration in no. of chromosomes from the diploid set.

② types



Euploidy

Aneuploidy.

Euploidy.

Variation in no. of chromosomes occurs due ↑ or ↓ of full set.

(3) types ① Monoploidy (n)
② Diploid (2n)
③ Polyploidy.
- → Autopolyploidy
- → Allopolyploidy.

Aneuploidy.

Variation in 2 or more chromosome within diploid set of organism.

(2) types
① Hypoploidy
② Hyperploidy.

① Hypoploidy.
- → Monosomy → 2n-1
- → Nullisomy → 2n-2

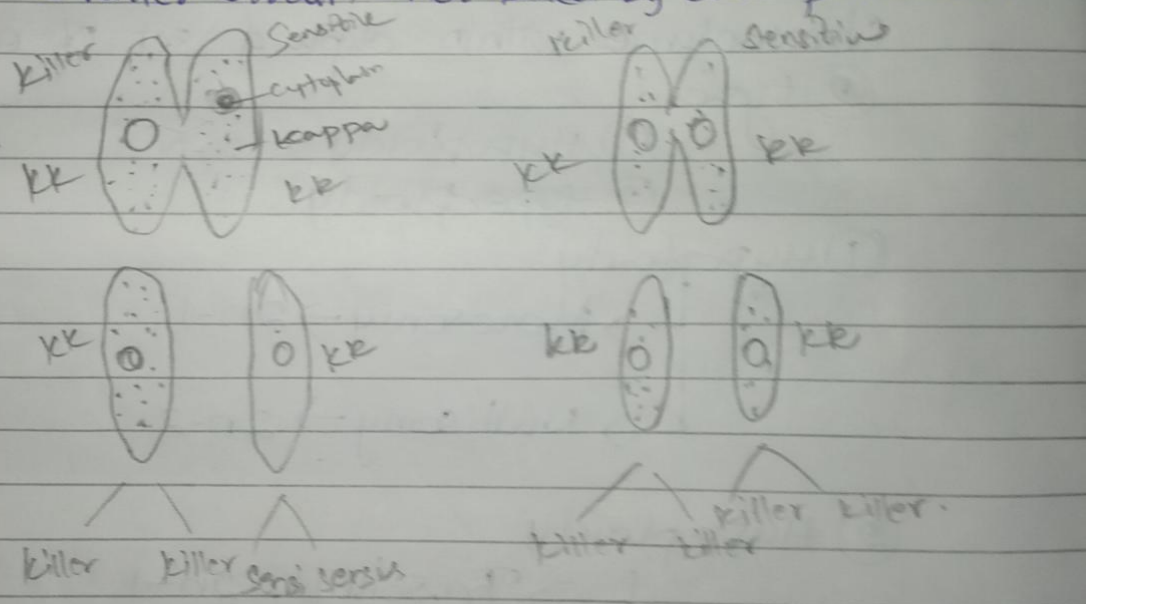
② Hyperploidy
- → Trisomy - 2n+1
- → Tetrasomy - 2n+2

Sex linked inheritance → T.H Morgan (1910)
Humans → Colour blindness, Haemophilia
(fruitfly) Drosophilla.

(2) types
① Sex linked Dominance
② Sex linked Recessive

Colour blindness → Mendelian disorder.
It is Condition of certain Colours not distinguished - due to lack of Some pigments in cone cells of Retina.
Most Common → Red-green → Sex linked defect
By recessive gene

Kappa particles in paramecium.
Sonneborn - 1938 - Paramecium aurelia - Killer trait - kappa particle - toxic - Paramecin - Killer strain - not killed by own paramecin.



Conjugation for Short period i.e 3 minutes after exoconjugation so here there is ~~there~~ is transfer of nucleus not cytoplasm

Conjugation for More than 3 minutes. Here there is transfer of cytoplasm and nucleus which contain kk gene.