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CHAPTER — HEREDITY AND EVOLUTION.

Important Terms And Facts.

- * Genetics → A branch of Biology that deals with the study of heredity and variations is called Genetics.
- * Heredity → The transmission of characters from parents to their offsprings is called Heredity.
- * Variation → The differences shown by the individuals of a species and also by the offsprings of the same parents is called variation.
- * Character → It is distinct well defined morphological (shape) or physiological (function) feature of the individual, e.g Height, Skin colour etc.
- * Trait → It is a distinguishable expression of a character, e.g Tall or dwarfness (for the character of height)
- * Factor → It is a particulate entity (gene) that functions as a unit of inheritance passing from generation to generation.
The term factor has been replaced by gene in 1909 by Johannsen.

(8)

- * Gene → A gene is a unit of DNA / unit of inheritance that takes part in expressing a particular character.
 - Genes are arranged on chromosomes.
 - Genes work in pair

- * Genotype → It is a gene complement of an organism.
or
Genotype shows the genetic constitution of an organism. John Mendel used capital and small alphabet for traits, e.g. Tallness → T. and dwarfness → t.

- * Phenotype → It is observable characteristic of an individual, e.g. tall, dwarf.

- * Alleles → one of two or more possible forms of a gene that are found at the same place on a chromosome. Two alleles of a gene in higher plant and animals express the same trait.

- * Homozygous → It is an individual having identical alleles of a character e.g. TT (Tall), short (tt).

- * Heterozygous → An individual having both the contrasting alleles of a character is called heterozygous / hybrid, e.g. Tt.

(3)

1. Inherited Traits → These are those traits which are transmitted from parents to offspring or one generation to the next.

eg → Height, skin colour, eye colour, Types of ear (In Human attached and free ear lobes)

2. Acquired Traits → These are those traits which an individual develops during their life time, eg swimming, Art of singing etc

The acquired traits of an organism cannot be passed on to their future generation.

* It is experimentally proved. August Weismann (1883-85) removed the tail of mice for 21 generations but could not find any change in size of tail in 21 generations, they proposed the theory of continuity of germplasm which states that only those characters are passed to next generation which occur in germ cells / germplasm (Reproductive cells / gametes)