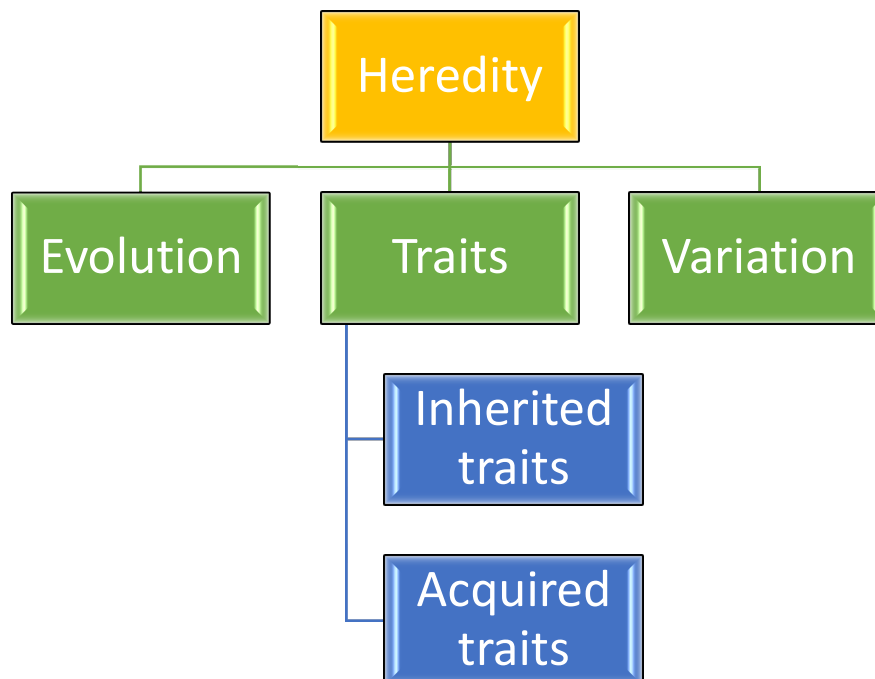


Chapter 9: Heredity and Evolution

Trait: Traits can be defined as particular characteristics of living organisms. It determines the genetic makeup of living organisms. The question is from 2 parents which characteristics transmitted to offspring. These traits are appearing due to genes which are present in the chromosome. The gene is the basic unit of heredity. Th traits can be dominant or can be recessive. The dominant trait express always whereas recessive express only in absence of dominant trait.



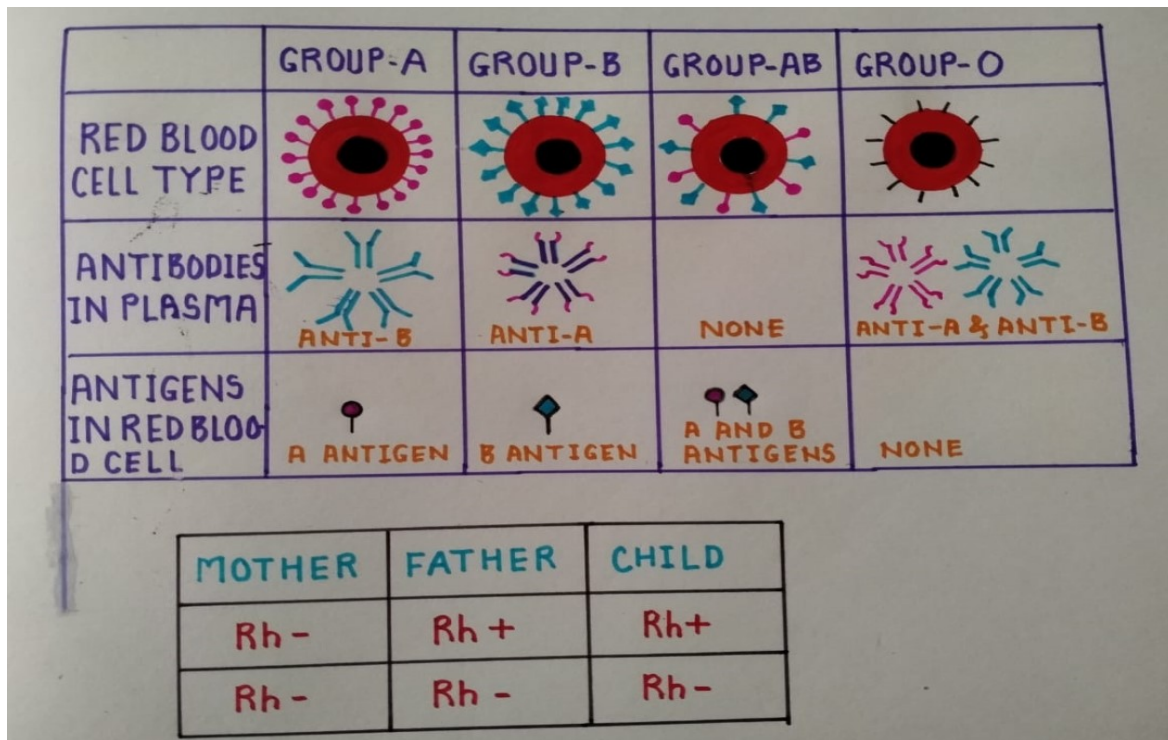
Mendel's contribution: Mendel selected pea plant for his experiment. The scientific name of pea plant is *Pisum sativum*.

Mendel selected the pea plant because of its characteristics such as short life span, less space, easy to handle and grow. Mendel used seven characteristics of pea plant and these characteristics are called as Mendelian characteristics. Therefore the mendelian characteristics are character, trait, gene, allele, locus, genotype and phenotype. Monohybrid and dihybrid cross performed on the basis of characters either once character or two characters are present.

Blood: Blood can be defined as a fluid connective tissue that transport the oxygen and nutrients through out the body. Blood have many roles in body such as blood regulates the body temperature, transportation of nutrients and hormones throughout the body and protection of body from invading pathogens. Blood is made up of 2 types of components : Blood plasma and cells of blood. Blood plasma is 55 % in blood and blood cells are 45 % in blood.

ABO blood group system: The human blood group is divided into 4 types such as: A blood depends on presence of antigen and responding antibody. The antigen is present on the surface of erythrocytes or RBC and the antibody present in plasma.

Sr No.	Blood group	Antigen	Antibody
1	A	A	Anti -B
2	B	B	Anti -A
3	AB	A and B.	-
4	O	-	Anti -A and Anti -B



As we can see in diagram the blood are of 4 types and further divided on the basis of Rh factor.

Acquired and inherited traits : An acquired traits can be defined as the characteristics which are not under genetic control. The traits are not transmitting from one generation to the next generation, instead that acquired during life called as acquired traits. For example: Laugh, cry, life stye of organisms are not transmitted from generation to generation. These characteristics which we gain or receive from our surrounding. These are non inherited changes those of inherited characters inherit from our parents to us, characteristics which are passing from one generation to the next generation that is from parents to their progeny. For example: Color of the eyes, hair and height of individual etc.

Evolution: Evolution can be defined as the permanent and gradual (slow or time taking) changes in the genetic material or genome of an organisms from bacteria to human that is based on current situation. Every living organisms have natural task such as survival that is to survive in all climate and reproduction. Therefore the genome will be transferred to next progeny.

For example: Rabbit, is living in suitable environmental condition such as the surrounding contains light, temperature, rain, microbes, herbivores and carnivores.

Basically evolution is of two types such as Micro-evolution and Macro-evolution. The changes at the gene level called micro evolution and the changes at the level of population called macro evolution.

Darwin evolution theory : Darwin gave us a concept of macro evolution, He proposed postulates base on natural selection, the best one will survive. The postulates of Darwin are over production, variation, struggle for existence and survival of the fittest.