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1. If a trait A exists in 10% of a population of an asexually reproducing species and a trait B exists in 60% of the same population, which trait is likely to have arisen earlier?

Trait B appears to have arisen earlier because it is found in a larger fraction of the population. Since asexual reproduction maintains the attribute within the population and makes the relation with identical traits as found in the ancestors.

2. How does the creation of variations in a species promote survival?

Solution:

Variations facilitate in keeping up with the changes within the surroundings. Thus variations promote the survival of the species.

1. How do Mendel's experiments show that traits may be dominant or recessive?

According to the law of dominance, an attribute is controlled by 2 contrasting factors of a factor during a heterozygous individual; the allele/factor that masks itself in a heterozygous individual is named as the dominant trait. The opposite allele whose impact is masked by the presence of the dominant factor, is named as the recessive allele. Once Johann Mendel crossed one tall and one short leguminous plant, all the offspring (F1 generation) were tall. When he self-crossed the F1 generation, among them 3/4th of the progenies were tall whereas 1/4th were short. So he concluded that though the F1 generation had both tall and short traits, only tall plants were observed within the F1 generation, this implies that tallness may be a dominant attribute.

2. How do Mendel's experiments show that traits are inherited independently?

The law of independent assortment tells regarding segregation and distribution of things governing 2 totally different traits. Consequently, genes for the 2 traits are on separate chromosomes and are inherited separately of every alternative. Throughout hybridization by plant scientists, it had been determined that once 2 pairs of attributes were considered; every trait expressed freedom of the opposite. For example, cross between a plant manufacturing spherical and yellow seeds (RR and YY) crossing with a plant producing wrinkled inexperienced seeds (rr and yy).

F1 offspring produces spherical and yellow seeds (R and r, and Y and y) during which spherical and yellow are dominant traits. F2 offspring were just like their parents and made spherical yellow

seeds, whereas a number of them made wrinkled inexperienced seeds. However, some plants of the F2 offspring even showed new mixtures, like round-green seeds and wrinkled- yellow seeds. The cross quantitative relation of 9:3:3:1 led to the Law of freelance Assortment that says regarding independent inheritance of traits.

3. A man with blood group A marries a woman with blood group O and their daughter has blood group O. Is this information enough to tell you which of the traits – blood group A or O – is dominant? Why or why not?

Given information is not enough to tell us which characteristics are dominant –blood group A or O. Blood type A is always dominant in the type of ABO blood and blood type O is always recessive. Here, father's group of blood may be genotypically AA (homozygous) or AO (heterozygous), where as that of mother can be OA or OO.