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Q:- Write Notes on MICRO EVOLUTION ?

Ans:- Microevolution :-

Microevolution is the change in allele frequencies that occurs over time within a population. This change is due to four different processes: mutation, selection (natural and artificial), gene flow and genetic drift. This change happens over a relatively short (in evolutionary terms) amount of time compared to the changes termed macroevolution.

Population genetics is the branch of biology that provides the mathematical structure for the study of the process of

microevolution, ecological genetics concerns itself with observing microevolution in the wild. Typically, observable instances of evolution are examples of microevolution; for example, bacterial strains that have antibiotic resistance.

### Difference from macroevolution

Microevolution is guided by sorting of interspecific variation ("species selection"), as opposed to sorting of intraspecific variation in microevolution. Species selection may occur as (a) effect - macroevolution, where organism - level traits (aggregate traits) affect speciation and extinction rates, and (b) strict - sense species selection, where species level traits (e.g. geographical range) affect speciation and extinction rates. Macroevolution does not produce evolutionary novelties, but it determines their proliferation within the clades in which they evolved, and it adds species - level traits as non - organismic

factors of sorting to this process.

Four processes :-

Mutation :-

Mutations are changes in the DNA sequence of a cell's genome and are caused by radiation, viruses, transposons and mutagenic chemicals, as well as errors that occur during meiosis or DNA replication. Errors are introduced particularly often in the process of DNA replication, in the polymerization of the second strand. These errors can also be induced by the organism itself, by cellular processes such as hypermutation. Mutations can affect the phenotype of an organism, especially if they occur within the protein coding sequence of a gene. Error rates are usually very low - 1 error in every



created kinds which can interbreed (which they call "microevolution.") While the formation of new "kinds" (which they call "macroevolution") only within a "kind" is also typical of old Earth creationism.

Describing the fundamental similarity between macro and microevolution in his authoritative textbook "Evolutionary Biology", biologist Douglas Futuyma writes.

One of the most important tenets of the theory forged during the evolutionary synthesis of the 1930s and 1940s was that "macroevolutionary" differences among organisms - those that distinguish higher taxa - arise from the accumulation of the same kinds of genetic differences that are found within species.