



Study of Hardy Weinberg law of Genetic Equilibrium, Salient Features and Significance of Hardy-Weinberg Law

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Abstract : The Hardy-Weinberg equilibrium is a principle stating that the genetic variation in a population will remain constant from one generation to the next in the absence of disturbing factors. When mating is random in a large population with no disruptive circumstances, the law predicts that both genotype and allele frequencies will remain constant because they are in equilibrium.

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The Hardy-Weinberg equilibrium can be disturbed by a number of forces, including mutations, natural selection, nonrandom mating, genetic drift, and gene flow. For instance, mutations disrupt the equilibrium of allele frequencies by introducing new alleles into a population. Similarly, natural selection and nonrandom mating disrupt the Hardy-Weinberg equilibrium because they result in changes in gene frequencies. This occurs because certain alleles help or harm the reproductive success of the organisms that carry them. Another factor that can upset this equilibrium is genetic drift, which occurs when allele frequencies grow higher or lower by chance and typically takes place in small populations. Gene flow, which occurs when breeding between two populations transfers new alleles into a population, can also alter the Hardy-Weinberg equilibrium.

Because all of these disruptive forces commonly occur in nature, the Hardy-Weinberg equilibrium rarely applies in reality. Therefore, the Hardy-Weinberg equilibrium describes an idealized state, and genetic variations in nature can be measured as changes from this equilibrium state.

Key Words : Hardy-Weinberg Equilibrium, Genes, Alleles, Frequencies.

Hardy-Weinberg law depends on the following kinds of genetic equilibrium for its full attainment.