

Discuss the issues
related to genetic
diversity: mutations,
sexual
reproduction, ...

[Science](#), [Biology](#)



Issues Related to Genetic Diversity Insert Insert s Introduction Genetic diversity refers to variations occurring among individuals in a population. Genetic diversity makes individuals unique and distinct from each other. However, there are certain processes and factors that contribute in shaping genetic diversity. Mutations, migration, sexual reproduction and population size are some of the factors that relate to genetic diversity. Mutation is the main process that causes genetic diversity within a population. Mutations are changes that occur in genes of an individual. Mutations contribute to genetic diversity since they change allele frequencies within an individual (Jobling et. al., 2013). Such changes are different among individuals in a population thereby resulting to different phenotypic and genotypic characteristics. Thus, these changes cause genetic diversity.

Migration refers to a movement of individuals from one population to the other. Migration has the ability to change allele frequencies (Jobling et. al., 2013). Migration also causes gene flow from one population to another. Migration can introduce new genes in a particular population. This might increase genetic diversity of that population. Migration can also result in similar genes in two or more distant populations thus reducing genetic diversity. Depending on its nature, migration can be a great source of genetic variation.

Sexual reproduction involves combination of gametes from two individuals to form a zygote. During sexual reproduction, there is an exchange of chromosomes between the two parents. The crossing over of chromosomes between the two parents leads to genetic variation among individuals who undergo sexual reproduction.

Population size will influence genetic diversity especially for finite population sizes. This is because finite population size will ensure changes in allele frequency due sampling error. The phenomenon by which random changes occur in allele frequency infinite population size results in genetic drift (Jobling et. al., 2013). This force has the ability to alter populations over time thus affecting genetic diversity. The influence of change in allele frequency over time relates inversely with population size. The larger the population size, the less the change occurs in allele frequency. It is, therefore, evident that larger populations will experience less genetic variation due to the minimal changes that occur in allele frequencies.

Conclusion

It is difficult to find a population that is in genetic equilibrium. In most cases, changes in allele frequencies are occurring over time resulting to genetic variation and evolution. Processes and factors such as mutations, migration, sexual reproduction, population size and genetic drift influence genetic diversity among populations.

References

Jobling, M., Hollox, E., Hurles, M., Kivisild, T., & Tayler-Smith, C. (2013). Human Evolutionary Genetics, second edition. Garland Science.