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Komi Segno Messan* (komimessan@gmail.com), 5415 Waterpoint dr, Browns summit, NC 27214, and **Michael Lynch** and **Matthew Ackerman**. *Average time until fixation of mutant allele in a given population*. Preliminary report.

The main idea in population genetic is evolution. Evolution is much different from most studies in biology for the fact that its insights are theoretical rather than experimental. Most evolutionary studies concern the frequencies or the fitness of genotype in a population. Evolution can also be explain by two forces: forces that introduce variation in phenotypic character such as eye colors, height or certain behaviors and forces that make some traits to become more common or rare. The main cause of variation is mutation. Mutation is a change in the DNA sequence of a cell's genome. One of the most important problems in population genetics is how long it takes for a gene to go to fixation. A mutant gene in a given population will eventually be lost or established. The particular interest of this research is to know the mean time for a mutant gene to become fixed in a population with the exclusion of the case when this gene is lost. A diploid population of N individuals is considered with a forward and backward mutations. using a set of nonlinear equations, the genotype frequencies are calculated so that the equilibrium points can be determined for an infinite population. With the diffusion theory, an approximation of the time to fixation is calculated for a finite population. (Received September 22, 2010)