

A dynamical system for natural resistance against Malaria

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Malaria is a parasitic disease that is spread by the *Anopheles* mosquitoes. There are 2 million deaths from Malaria each year, making it one of the world's deadliest diseases. Most of the fatal cases of Malaria are in African children under the age 5. According to the media, natural resistance is being built in mankind against Malaria. When scientists studied about this, they found that these natural resistance was come since ancient times. This natural resistance is built by changing genetics and it continues to the future generation. This is very suitable example for Charles Davin's evolution theory. The recent investigations on Immune Basis for Malaria Protection by the Sickle Cell Trait and Malaria, Sickle Cell Anemia, and Natural Selection indicated that the patients who have contracted Sickle cell anemia showed greater resistance to Malaria. The gene which is responsible to Sickle cell anemia is G6PD.

In view of those investigations, we propose a dynamical system model taking into account the evolution a genotype which shows how rapidly the concentration of Sickle cell allele converse to its equilibrium level (the maximum in this case). According to the above hypothesis, there is no surprise that the present/future generation of human population shall acquire resistance to Malaria than the past.

Key words: *Dynamical system, Malaria, Natural Resistance, Sickle cell*