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On possible use of Lotka-Volterra model for analysing parasite and vector mosquito dynamics of Lymphatic Filariasis transmission

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Population dynamics of vector mosquitoes and parasites with regard to the transmission of Lymphatic Filariasis is a key concern. The possibility of using the Lotka-Volterra mathematical model to analyse the interaction of parasites in mosquitoes and the vector mosquitoes is illustrated in this paper. The model shows that the potential for parasite development cannot be eliminated until mosquitoes are extinct. Furthermore, the population of vector mosquitoes and parasites in mosquitoes show a fluctuating behaviour, which can be verified using entomological and parasitological facts. The lack of synchronization of some transmission potentials can also be illustrated by the model. The Lotka-Volterra model acts as a possible platform to make modifications to interpret the transmission of Lymphatic Filariasis with more validity.