B21: Local Stability Analysis of the Disease Free Equilibrium State (DFE) of a Mathematical Model for Lymphatic Filariasis

F. A. Oguntolu[1], N. I. Akinwande[1], R. O. Olayiwola[1], S. Abdulrahman[1], F. A. Kuta[2]
[1]Department of Mathematics, Federal University of Technology, Minna. Nigeria.
[2]Department of Microbiology, Federal University of Technology, Minna. Nigeria.

Abstract

In this paper, a mathematical model describing the dynamics of Lymphatic Filariasis epidemics, which involves the interactions of two principal communities of Hosts (Humans) and vectors (mosquitoes) is presented .The existence and uniqueness of solutions of the model are examined using Derrick and Grossman theorem. The basic reproduction number is obtained using the next generation operator approach. The DFE State is analyzed for stability.