

Modelling and Analysis of Brucellosis

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ABSTRACT

In this work we analyse a Brucellosis mathematical model. The adult population is divided in three sub-populations : Susceptibles, Infected without abortion and abortive Infected individuals. The juvenile individuals are divided on Susceptibles and Infected. The transmission of the virus is two ways. Direct transmission within the population and indirect transmission caused by the infected environment. We study in this model the positivity, local and global existence for the population, as well as the equilibrium points and their local stabilities. Numerical results are given to show the existence of periodic solutions.

Key Words: Epidemiology, Nonlinear equations and systems, general, Initial value problems, existence, uniqueness, continuous dependence and continuation of solutions

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