

Thesis Title Stability of a Two-Disease Epidemic model with Nonlinear Incidence Rate

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ABSTRACT

In this work, we study an SI_1I_2RS epidemic model that incorporates two classes of infectious individuals with different infectivities, and the incidence rate is nonlinear. We derive the sufficient conditions on the system parameters which guarantee that the equilibrium points of the system are locally asymptotically stable or globally asymptotically stable. We also determine the global stability of the endemic equilibrium point for a special case. Numerical simulations are shown to confirm our theoretical results.

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