Prey-Predator Eco-Epidemiological Model with Nonlinear Transmission Disease

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Abstract : A prey-predator eco-epidemiological model is studied where transmission of the disease between infected and uninfected prey is nonlinear. The interaction of the predator with infected and uninfected prey species depend on their numerical superiority. Harvesting of both uninfected and infected prey is considered. Stability analysis is carried out for equilibrium values. Using the parameter μ, the death rate of infected prey as a bifurcation parameter it is shown that Hopf bifurcation could occur. The theoretical results are compared with numerical results for different set of parameters.
Keywords : bifurcation, optimal harvesting, predator, prey, stability