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*Global Hopf bifurcation in a delayed model for ticks.*

Lyme disease is an emerging infectious disease which can cause severe health problems in human body. In this paper, we study a three staged tick population model with three different developmental delays. We investigate the impact of delays on the prevalence of the tick population. By employing the Global Hopf bifurcation theorem, we establish the global existence of the nontrivial periodic solutions. This shows that the tick population can persist in a region in an oscillatory manner if the sum of three developmental delays fall into the critical time interval. To illustrate our theoretical results on global Hopf bifurcation, we use some software to obtain the bifurcation diagram using delay as a bifurcation parameter. (Received September 25, 2017)