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*Periodic and almost periodic oscillations in a disease system modeling the transmission of infectious diseases in migrants' home*

A delay differential equation model with time dependent coefficients is proposed to study the transmission of infectious diseases in migrants' home residence. It is shown that this model exhibits periodic and almost periodic oscillations. Due to the lack of compactness for the almost periodic function family, it is extremely difficult to establish the existence of almost periodic solutions for delay differential equations via the Schauder's fixed point theorem and the coincidence degree theory. To overcome this difficulty, in this paper, we employ a novel technique to construct a contraction mapping and establish the existence of almost periodic solution by means of the contraction mapping theorem. The coincide degree theory is used to establish the existence of periodic solutions. Global stability results are achieved by the method of Lyapunov functionals.