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Hopf Bifurcation in a Delayed Predator Prey Model in the Chemostat

We study the dynamics of the predator-prey model in the chemostat when a discrete delay is introduced to model the time between the capture of the prey and its conversion to biomass. Holling type I response functions is chosen so that no oscillatory behavior is possible in the associated system when there is no delay. It is shown that as the parameter modelling the delay is varied Hopf bifurcation can occur.