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The Dynamics of a Predator-prey Model with Ivlev's Functional Response Concerning Integrated Pest Management

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摘要 A mathematical model of a predator-prey model with

Ivlev's functional response concerning integrated pest management

(IPM) is proposed and analyzed. We show that there exists a stable

pest-eradication periodic solution when the impulsive period is

less than some critical values. Further more, the conditions for

the permanence of the system are given. By using bifurcation

theory, we show the existence and stability of a positive periodic

solution. These results are quite different from those of the

corresponding system without impulses. Numerical simulation shows

that the system we consider has more complex dynamical behaviors.

Finally, it is proved that IPM strategy is more effective than the

classical one.

关键词 [IPM strategy, Ivlev's functional response, Impulsive effect, Extinction, Permanence](#)

分类号

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Abstract

Key words

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