



Optimal control of predator-prey model with distributed delay

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Abstract. The purpose of this research is to describe the Lotka – Volterra biological model using the system of integro-differential equations. The necessary conditions of optimality obtained with the help of maximum principle are analyzed here. The optimal control for different types of minimizing functionals is determined with the help of necessary conditions of optimality and the multipoint boundary-value problem is formulated. Numerical methods and the algorithm are developed to find the optimal process. The obtained numerical results correspond to the theoretical conclusions of maximum principle

Keywords: model Lotka-Volterra type, integro-differential equations, maximum principle, numerical methods

MSC numbers: 92D25, 65K10

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