EFFECT OF RESOURCE BIOMASS ON STAGE STRUCTURED PREDATOR PREY SYSTEM HAVING HOLLING TYPE III FUNCTIONAL RESPONSE

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ABSTRACT

This paper deals with predator-prey model having Holling type III functional response. The prey population is stage structured consisting of immature and mature stages and the predator population is influenced by the resource biomass. Dynamical behaviors such as positivity, boundedness, stability, bifurcation of the model are studied analytically using theory of differential equations. Computer simulations are carried out to prove the analytical result. It is noted that influence of resource biomass on the predator population may lead to the extinction of predator at a lesser value of maturity time in comparison to the absence of resource biomass.

KEYWORD: Prey-Predator Model, Stability, Stage-Structure, Functional Response, Resource Biomass