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Periodicity and Stability of Single Species Model with Holling Type III Predation Term using Impulse

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Abstract—*Dynamics of single species population with predator factor considering Holling type-III functional response using impulsive differential equations is analyzed. Existence of positive and periodic solution is proved using fixed point with the help of Brower's fixed point theorem. Then sufficient conditions are established for global asymptotic stability of positive periodic solution of the system using Lyapnuov function and Comparison Impulsive differential systems. To support analytical results, numerical simulation is done using MATLAB.*

Keywords: *Impulsive perturbations, single species, Lyapnuov function, Holling Type III.*