International J. of Math. Sci. & Engg. Appls. (IJMSEA)
ISSN 0973-9424, Vol. 7 No. I (January, 2013), pp. 1-12

STABILITY ANALYSIS AND BIFURCATION OF A DISCRETE PREY-PREDATOR MODEL WITH HOLLLING TYPE III

RAID KAMEL NAJI[1] AND KAWA AHMED HASAN[2]

[1]University of Baghdad, College of Science,
Department of Mathematics, Baghdad, Iraq
[2]University of Sulaimani,
Faculty of Science and Science Educations,
School of Science-Department of Mathematics, Sulaimani, Iraq

Abstract

In this paper we study the dynamical behaviors of a discrete prey- predator model with Holling type III functional response. We summarize existence and locally stability conditions of three kinds of the fixed points of the model. Numerical simulations show that the discrete model exhibits rich dynamics compared with the continuous model such as the flip bifurcation, Hopf bifurcation and chaos phenomenon. The bifurcation diagrams, phase portraits are obtained for different sets of parameters of the model.

Key Words : *Discrete dynamical systems, Holling type functional response, Stability, Hopf bifurcation, Chaos, Numerical simulation.*

2000 AMS Subject Classification : MSC 47H17, MSC 47H05, MSC 47H09.

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