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Dynamics of Leslie-Gower type generalist predator in a tri-trophic food web system. (English) [Zbl 1328.92065](#)

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Summary: In this paper, the dynamics of a tri-trophic food web system consists of Leslie-Gower type generalist predator has been explored. The system is bounded under certain conditions. The Hopf-bifurcation has been established in the phase planes. The bifurcation diagrams exhibit coexistence of all three species in the form of periodic/chaotic solutions. The “snail-shell” chaotic attractor has very high Lyapunov exponents. The coexistence in the form of stable equilibrium is also possible for lower values of parameters. The two-parameter bifurcation diagrams are drawn for critical parameters.

MSC:

92D25 Population dynamics (general)

34C23 Bifurcation theory for ordinary differential equations

Cited in **10** Documents

Keywords:

Leslie-Gower model; Hopf-bifurcation; periodic orbits; chaos

Software:

XPPAUT

Full Text: [DOI](#)

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