Role of fear in a fractional-order predator-prey system incorporating a constant prey refuge

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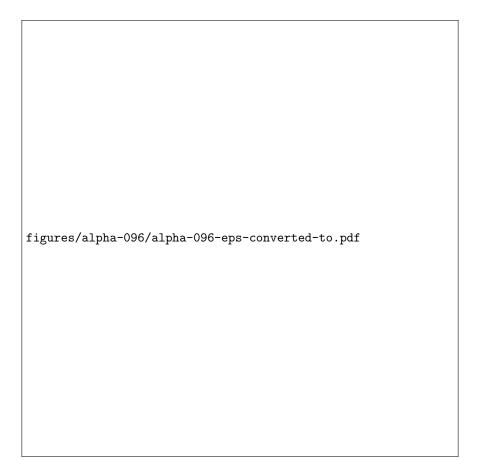[1]Vivekananda College, Thakurpukur

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Abstract

This paper deals with a fractional-order predator-prey model with Holling type II functional response incorporating a constant prey refuge and fear effect. Existence, uniqueness, non-negativity and boundedness of the solutions have been analyzed for the considered model. Existence conditions for different equilibrium points are discussed. Local and global stability of the equilibrium points is studied. We have checked how the impact of fear and fractional order can affect the stability of our proposed system. Finally, some numerical simulation has been performed to validate our theoretical findings.
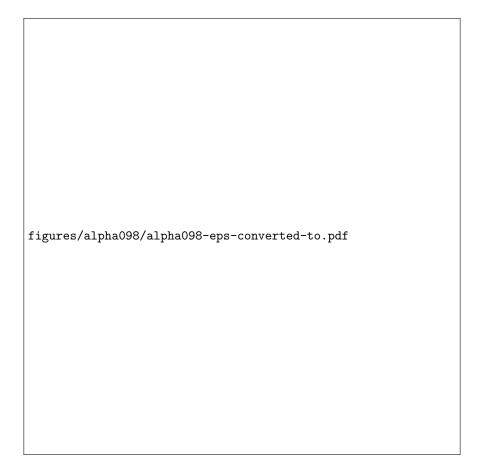
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