

The variational iteration method for solving the fractional coupled lotka-volterra equation

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Abstract

In this paper, by introducing the fractional derivative in the sense of Caputo, we apply the Heis Variational Iteration Method (VIM) for the Coupled Lotka-Volterra Equation (CLVE) with time-and space-fractional derivative. The results show that the VIM method is very efficient and convinient and can be applied to a large class of problems. Numerical solutions are obtained for the fractional Coupled Lotka-Volterra Equation to show the nature of solution as the fractional derivative parameters are changed. Keywords: Caputo fractional derivative, Variational Iteration Method, Fractional differential equation, Coupled Lotka-Volterra Equation, Lagrange multiplier.
