Stochastic Rumor-spreading Model with Holling Type III Functional Response

Shivani Khare*, Kunwer Singh Mathur, R. K. Gangele

Department of Mathematics and Statistics,
Dr. Harisingh Gour Vishwavidyalaya Sagar, Madhya Pradesh-470003, India

*Corresponding Author

ABSTRACT

Nowadays, an increasing pattern of rumor spreading is affecting the implementation of government policies, and it is essential to study the effect of rumor spreading on society. Sometimes rumor-spreading behavior is influenced by some inside or outside environmental disturbance. Therefore, a stochastic rumor-spreading model with Holling type III functional response is proposed in this paper. Initially, the existence and uniqueness of the positive global solution of the model are studied. Further, the stochastic stability behavior around the equilibrium points has been analyzed. Some numerical simulations are also performed to validate the theoretical findings.

Keywords: Stochastic Differential equation; Rumor spreading; Holling III functional response.

.