SENSITIVITY AND STABILITY ANALYSIS OF AN EBOLA VIRUS DISEASE AND GBV VIRUS CO-INFECTION
Muhammad Said a and Jung Il Hyo a

a) Department of Mathematics, Pusan National University, Busan 46241, KOREA
Corresponding Author: Muhammad Said, msaidakhunzada@gmail.com

ABSTRACT

In this work, we propose a nonlinear mathematical model to study the transmission dynamics of the Ebola Virus Disease (EVD) and the Hepatitis G virus (GBV) co-infection. The basic reproductive number is found by the next-generation matrix method. Then the infectious free and endemic equilibrium of the system is computed. The local and global stability of the system is presented as well. For local asymptotical stability, linearization, and Routh-Hurwitz criterion and show that if $R_0 < 1$, then the system is locally asymptotically stable otherwise unstable. The global asymptotical stability is found out by the Lyapunov function method. Finally, we present a numerical simulation of the proposed model.

REFERENCES


