

Abstract

An extended form of an SEIR model is the central focus of this research work in which we are adding compartments of asymptomatic, super-spreader and hospitalization to get grip on dynamics and spreading of corona (Covid-19) transmission in different compartments. Disease free equilibrium (DFE) point and endemic equilibrium (EE) point as well as local and global stabilities are calculated for understanding the dynamics of disease. Computation of reproduction number R_0 at DFE for the considered model is also done by using the next generation matrix procedure. Sensitivity analysis is also included to examine the effect of parameters of the model on reproduction number R_0 . We used Pontryagin maximum principle for two different control strategies to control the disease by minimizing objective functional. In the end, numerical simulations are also given that are supported by graphical representation of results.