Modelling the Effect of Distancing and Wearing of Face Masks on Transmission of COVID-19 Infection Dynamics

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Abstract : The COVID-19 is an infection caused by coronavirus, which has been designated as a pandemic in the world. In this paper, we proposed a model to study the effect of distancing and wearing masks on the transmission of COVID-19 infection dynamics. The invariant region of the model is established. The COVID-19 free equilibrium and the reproduction number of the model were obtained. The local and global stability of the model is determined using the linearization technique method and Lyapunov method. It was found that COVID-19 free equilibrium state is locally asymptotically stable in feasible region Ω if $R_0 < 1$ and globally asymptomatically stable if $R_0 < 1$, otherwise unstable if $R_0 > 1$. More so, numerical analysis and simulations of the dynamics of the COVID-19 infection are presented.