South East Asian J. of Mathematics and Mathematical Sciences
Vol. 16, No. 3 (2020), pp. 311-328

ISSN (Online): 2582-0850

ISSN (Print): 0972-7752

EQUILIBRIUMS AND STABILITY OF AN SVIR EPIDEMIC MODEL WITH NON LINEAR SATURATED INCIDENCE

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(**Received:** *Sep. 04, 2020* **Accepted:** *Oct. 19, 2020* **Published:** *Dec. 30, 2020)*

Abstract: Vaccination is most essential for the elimination of infectious diseases. This paper investigates a susceptible-vaccinated-infectious-recovered epidemic model with a non-linear saturated incidence rate for infectious disease dynamics, including the role of preventive vaccine is proposed and analyzed. Incoming immigrants are proposed in this model. A model for the transmission dynamics of infectious disease has been studied and presented this model's equilibrium points. The model shows the disease-free and endemic equilibrium.

Keywords and Phrases: SVIR epidemic model, Reproduction number, Endemic Equilibrium, Diseases Free Equilibrium, Stability analysis.
2010 Mathematics Subject Classification: 92D25, 49J15, 93D20, 92D30, 34D23, 93A30.

1. Introduction

Vaccination is mainly considered as one of the outstanding medical achievements of modern civilization. Vaccination gained rising popularity and success after eradicating smallpox that was responsible for centuries of the outbreak of 1976. Because of vaccines, childhood diseases were commonplace less than a generation ago is now increasingly rare. However, now vaccination is an ordinarily used method to control illnesses such as polio, tuberculosis, and measles. Customarily,