

Report of the model SIR

PropEnfermedades APP

1. Model

Next we show the model used in the simulation.

Description

SIR model, which represents the spread of an infectious disease in a population.

Equations

$$\begin{aligned}S' &= -b * S * I \\I' &= b * S * I - k * I \\R' &= k * I\end{aligned}\tag{1}$$

Parameters

- $b = 0,8.$
- $k = 0,1.$

Initial values

The initial values used in the simulation are (The values are normalized respect to 7900000 that is the total population):

- $S_0 = 0,999999.$
- $I_0 = 1,26582e - 06.$
- $R_0 = 0.$
- $t_0 = 0.$
- $t_f = 100.$
- $dt = 0,5.$

Results

The maximum infected population is 4.94489e+06 is reached on day 22. Next we show the results of the simulation using the model SIR with the parameters and initial values shown above.

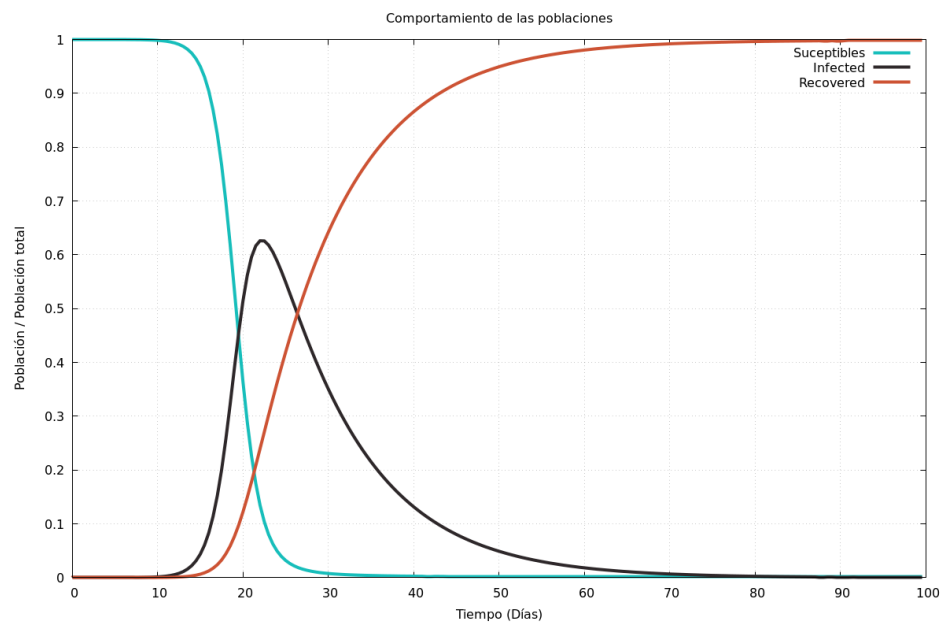


Figura 1: Graph of the model SIR

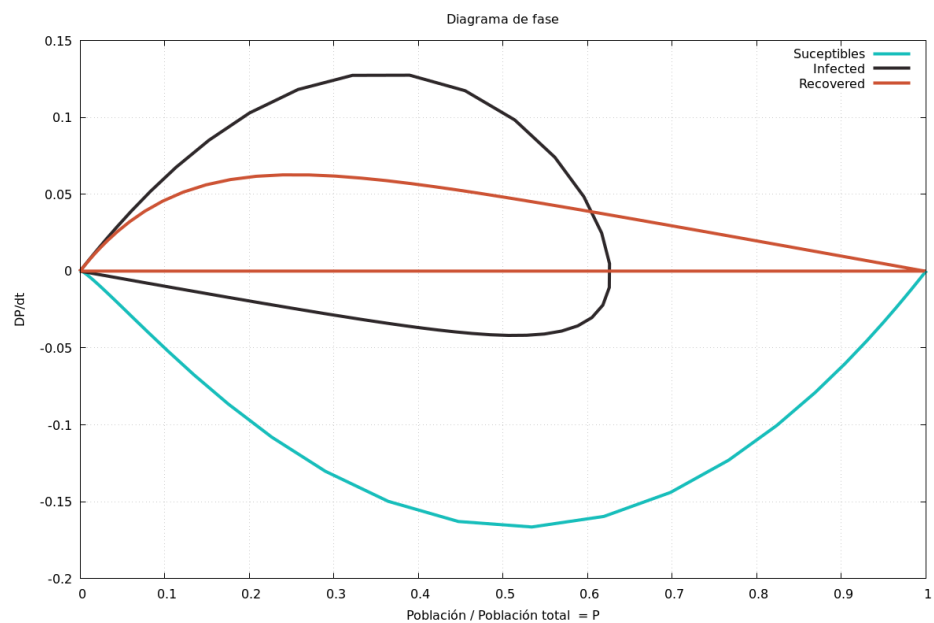


Figura 2: Phase portrait of the model SIR