

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

- $b = 0,5$.
- $k = 0,333$.

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 504261 is reached on day 74.5. Next we show the results of the simulation using the model SIR with the parameters and initial values shown above.

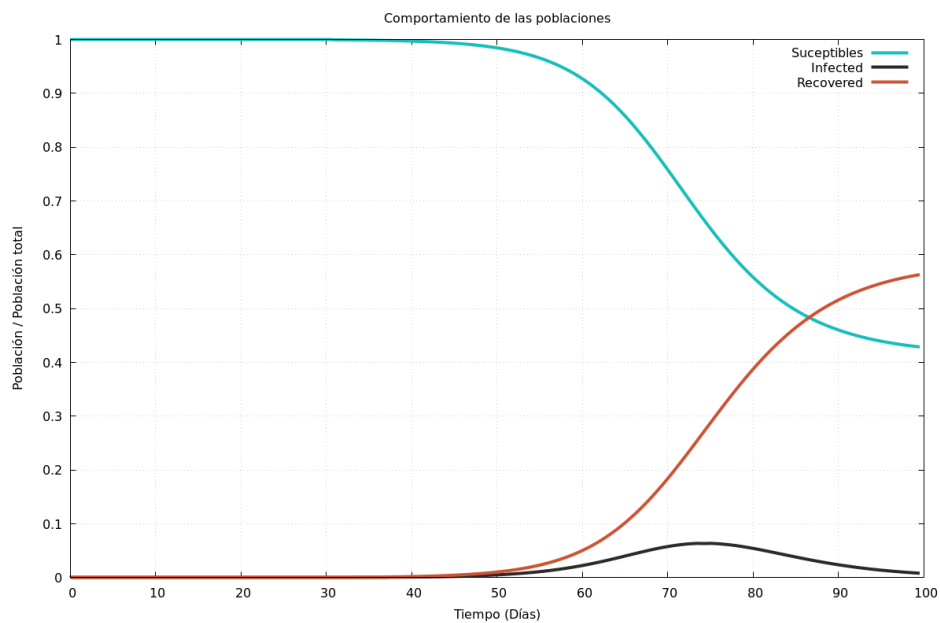


Figura 1: Graph of the model SIR

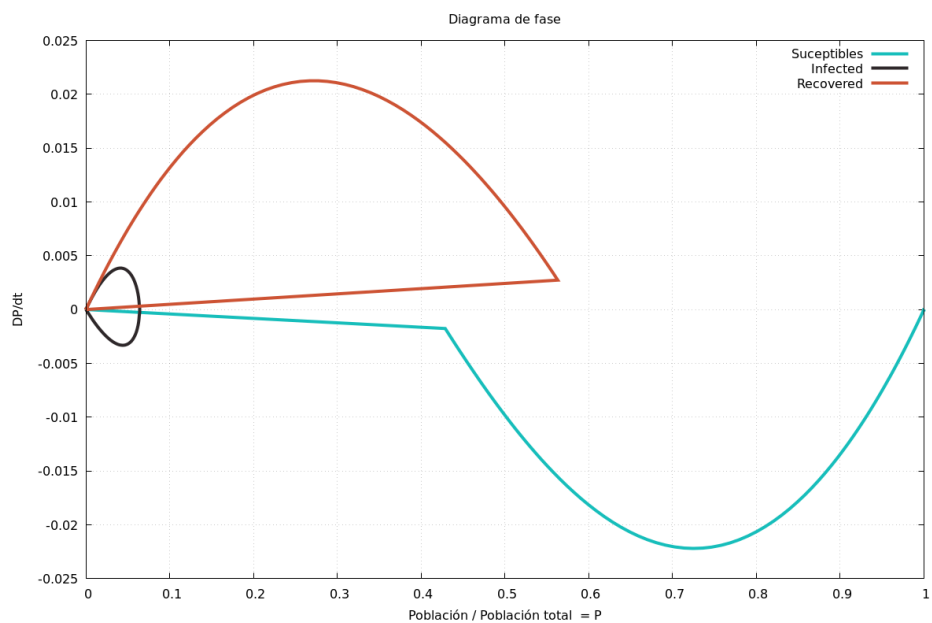


Figura 2: Phase portrait of the model SIR