# Review of: "A Mathematical Characterisation of COVID-19 in Mauritius"

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Potential competing interests: No potential competing interests to declare.

The paper aims at studying the behaviour of the two waves (February 2020 to July 2022) of SARS COV 2 in Maritius, through mathematical models of the progression of COVID-19 in Mauritius and other countries

The authors fitted a logshaped curve with observed data, estimating the three parameters M, t0 and alpha, and comparing the estimates for the different countries, for which the grow rate, the R0 and the case fatality rate are also computed.

Additionaly, and interestingly they observe and inverse relation between alpha and the value of M-normalilsed to the population size.

The paper is well structured and the content kept simple and interesting.

I believe it deserves acceptance upon addressing the following minor revisions.

In the abstract: I would rather change the sentence " An intriguing observation is made when the growth rate and the ceiling value of the mathematical models obtained for different countries are compared" to a more explicit one describing the observation.

When you performed the optimization, have you tried sensitivity to the initial point? I suggest to try optimize over a grid of different starting points because the optimization alogirithms often are sensitive to starting point.

When talking about the three factors that determine R0 you say

*The first two factors are clearly highly dependent on the social habits of a given population.*

However, the second factor depends also on the virus force.

As a suggestion to make the paper stronger: why don't you perform sensitivity analysys (for example using GSA) on the estimated parameter?

Is Section 3 the authors write "The aim of any government would be to act swiftly enough to limit the spread of the virus, thus reducing the number of positive cases (detected) " : I don't understand the brackets… the aim should be to reduce any type of positive cases non only detected…