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

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Potential competing interests: No potential competing interests to declare.

COVID-19 is an important topic, and many studies have been published in this field. This paper applies the S-shaped growth curve to explore the law of epidemic development. The S-shaped growth curve is the best mathematical model to describe the population growth pattern under limited resource conditions, so this study is a very meaningful work.

1. The abstract did not clearly explain the research methods and processes of the paper, nor did it explain the results of the research.
2. In the introduction part, the prediction models related to COVID-19 were not reviewed. In addition, only sections 4 and 6.1 are mentioned later, without summarizing the entire research content.
3. In the section on the relationship between upper limit value and growth rate, a lot of content has been written, but the relationship between upper limit value and growth rate is not well summarized. The text only mentions: The peak value increased due to the doubling of α, but M did not increase. I hope the author combines the relationship between M and α in Figure 3 to deeply analyze the reasons.
4. The modeling effect of the first wave of COVID-19 and the modeling effect of the second wave are both very good, and the s-curve defined by the parameters determined by the data is very consistent with the observed data. The modeling effect is good, firstly, the epidemic development conforms to the S-shaped growth curve, and secondly, regression is performed on existing data. The author analyzed the relevant parameters around the model, such as M α R0, etc. It is recommended that the author summarize the relationship between these parameters using tables or graphs, and conduct in-depth analysis of the global factors that cause changes in these parameters.
5. The conclusion only provides a brief summary of the results of the paper, without analyzing the impact and contribution of the results on the future epidemic.