

# Review of: "Analysis of the Spread of Covid-19 via Atangana-Baleanu Fractional Derivatives"

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**Potential competing interests:** No potential competing interests to declare.

In this manuscript, the author presented "Analysis of the Spread of the Covid-19 Virus via Atangana-Baleanu Fractional Derivatives." The results seem to be correct. Though the manuscript is well-written and well-structured, I recommend publication after addressing the below comments:

1. The whole manuscript must be checked for grammar errors, typos, and punctuation.
2. The abstract should be written in the past tense. Please correct it accordingly.
3. What is the motivation for this work? It should be clearly mentioned in the abstract.
4. In the abstract, the author has mentioned, "These results can serve as a valuable resource in developing strategies to mitigate the spread of the epidemic." How? Justify.
5. After equation (2), the derivative name "Atangana-Baleanu" is wrong.
6. Section 4 shows the stability analysis through the equilibrium point. Why does the author use only the disease-free point  $E^*$ ? And what about the global stability of the system?
7. Section 5 is the numerical results and discussion. Please mention which numerical technique is used to find the solution of this model. In the introduction part, kindly add some literature related to this methodology as well.
8. In Figure – 2, we can observe the behavior changes in the first few days only. Then why has the author taken 200 days?
9. In this present mode, the conclusion section looks very weak. Please update it by adding some valuable accomplishments of this work.
10. What is the author trying to conclude from the figures? It should be clearly explained in the conclusion part.
11. Some references are not written in the proper format. Please update them.
12. Recently, many developments have been found in fractional calculus. Go through the suggested articles to enrich the quality of your paper.

<https://doi.org/10.1016/j.rico.2023.100283>

<https://doi.org/10.1002/mma.9438>

<https://doi.org/10.1007/s40435-023-01293-4>

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