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 paper, the authors analyzed the spread of Covid-19 via Atangana-Baleanu fractional derivatives. They present the mathematical analysis and formulation of a fractional model for the epidemic. Also, they show that the solution for the model exists in a unique form and that the solution remains positive and bounded. In addition, they study the stability of the equilibrium point $E^*=(0, 0, 0, 0, 0, 0, 0)$ of the model and analyse its stability. Finally, to validate the theoretical results, the authors provide a numerical scheme for the fractional model and present various simulation results.

Personally, I think that in order to improve the quality of the manuscript, the following points and questions should be considered:

- Check the first equation in section 3, since the argument of the function f must be f(X) and not f(x). Note also that the vectors f(X) and X(t) must be transposed vectors.
- Check Lemma 1.
- Why does the author only analyse the trivial equilibrium point E^*? What can be said about the other equilibrium points of the system?
- What methodology did you use to study the stability of the equilibrium points?
- What can be said about the basic reproductive number of this model?
- Please check the reference section.
- There are certain writing errors. Suggest that the authors check symbols, punctuation, and grammar.