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Invitation to Review Book Chapter for Edited Book Volume on "Mathematical Modelling and Analysis of Infectious Disease Problems (COVID-19)"

Michele Caputo <mic.caput27@gmail.com>   Sat, Aug 8, 2020 at 12:37 PM
To: Praveen Agarwal <icbas.india@gmail.com>

Dear Doctor Praveen I enclose the requested review.
Regards
Michele Caputo

Comments on the paper

"An SEIR epidemic model....."

by J E Santos et al.

It is a nice simple paper seeking better results by substituting the fractional order derivative for the derivative of first order in the Susceptible Exposed Infected Recovered (SEIR) epidemic model used already also by some of the authors of the paper. The numerical results are obtained using and comparing different numerical methods.

After formulating the initial value problem the numerical solution is computed using the Gorenflo Mainardi Moretti Paradisi method . The results are validated by comparison with those of the classic SEIR model and also with the theory of Adams Bashford Moulton method; the SEIR model being calculated with inversion of data.

The results are limited to the cases of the assumed lifelong immunity.

The method of computing the solution and the discussion of interesting cases will enrich the existing set of studies and cases reported in the literature. .

A section with the conclusions is needed,

The effect of the density of population needs some discussion.

The values selected for the parameters seem appropriate.

The results are acceptable and interesting but I could not check the numerical computations..

In page 4 is stated that "the epidemic has a relatively short period"

I presume that they mean that the epidemic has a relative short time duration but it should be made clear to what is relatively short.

Top of page 6. It is necessary to quantify the agreement.

In page 6 how realistic is to assume R < 1. Quote cases discussed.

In page 6 and following ones the insert in the figures does seem consistent. Something seems missing..

In page 17 Please specify what means " we refer to."

Concerning section 6. The paper adds to theoretical cases which we may not rule out as possible which are infinite. I would make this section shorter. This would add to the significance of the first part of the paper.

The reference [5]for the Caputo Fractional Derivative is fine as is the reference [12] but I would add

Kochubei A.N., General fractional calculus evolution equations and renewal processes, *Integral Equations of fractional order,theory,*2011, 71,585-600, as well the reference to the 1967 Caputo original paper.

The paper is well structured, the science is of good quality. It is interesting and deserves publication if the authors take into account the comments and suggestions given.

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