|  |
| --- |
|  |
| Book Name: | [**Mathematics and Computer Science: Research Updates**](https://www.bookpi.org/bookstore/product/mathematics-and-computer-science-research-updates-vol-1/) |
| Manuscript Number: | **Ms\_BPR\_4482** |
| Title of the Manuscript:  | **Analytical and Numerical Boundedness of a Model with Memory Effects for the Spreading of Rabies** |
| Type of the Article | **Book Chapter** |

|  |
| --- |
| PART 1: Comments |
|  | Reviewer’s comment**Artificial Intelligence (AI) generated or assisted review comments are strictly prohibited during peer review.** | Author’s Feedback*(Please correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)* |
| **Please write a few sentences regarding the importance of this manuscript for the scientific community. A minimumof 3-4 sentences may be required for this part.** |  |  |
| **Is the title of the article suitable?****(If not please suggest an alternative title)** |  |  |
| Is the abstract of the article comprehensive? Do you suggest the addition (or deletion) of some points in this section? Please write your suggestions here. |  |  |
| **Is the manuscript scientifically, correct? Please write here.** |  |  |
| **Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.****-** |  |  |
| Is the language/English quality of the article suitable for scholarly communications? |  |  |
| Optional/Generalcomments | Comments on the paper:Analytical and Numerical Boundedness of a Model with Memory Effects for the Spreading of Rabies The manuscript explores the mathematical analysis and numerical boundedness of a fractional-order epidemic model incorporating memory effects. The authors analyze the stability of equilibrium points, derive conditions for positivity and boundedness, and implement a numerical discretization method to validate their theoretical findings. The study provides insights into how memory-dependent dynamics influence disease spread and control strategies.Below are my detailed comments that should be taken into account:1. In Theorem 4, the stability of VESS is checked using the Routh-Hurwitz rule, but further clarification is needed to confirm negativity of roots for all valid parameters.
2. The paper uses the Grünwald–Letnikov method for fractional derivatives but does not discuss its accuracy and stability. It should explain how the step size h affects results and include error estimates to improve the analysis.
3. Using fractional-order derivatives could better capture memory effects in disease spread. The authors should explore how this affects stability and boundedness.
4. To further strengthen the study's mathematical modeling and numerical methods, it is recommended that the authors cite the following three closely related works:
5. Fractional-order COVID-19 pandemic outbreak: Modeling and stability analysis. International Journal of Modern Physics C, 2021.
6. On the Stability of Linear Incommensurate Fractional-Order Difference Systems. Mathematics, 2020.
7. A Mathematical Study on a Fractional-Order SEIR Mpox Model: Analysis and Vaccination Influence. Algorithms, 2023.
 |  |

|  |
| --- |
| **PART 2:** |
|  | **Reviewer’s comment** | **Author’s comment***(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)* |
| **Are there ethical issues in this manuscript?**  | *(If yes, Kindly please write down the ethical issues here in details)* |  |

|  |
| --- |
| **Reviewer Details:** |
| Name: | **Iqbal Batiha** |
| Department, University & Country | **Al-Zaytoonah University of Jordan, Jordan** |