

Accepted Manuscript

A micro-epidemic model for primary dengue infection

Arti Mishra, Sunita Gakkhar

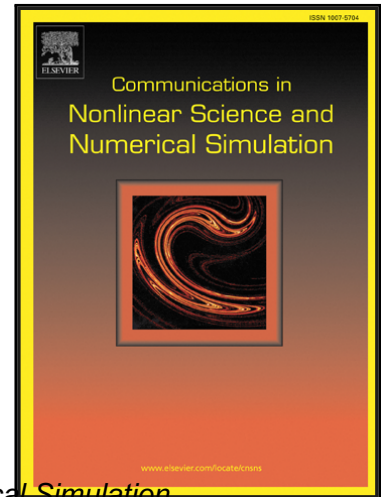
PII: S1007-5704(16)30494-4
DOI: [10.1016/j.cnsns.2016.12.001](https://doi.org/10.1016/j.cnsns.2016.12.001)
Reference: CNSNS 4041

To appear in: *Communications in Nonlinear Science and Numerical Simulation*

Received date: 24 November 2015
Revised date: 25 November 2016
Accepted date: 1 December 2016

Please cite this article as: Arti Mishra, Sunita Gakkhar, A micro-epidemic model for primary dengue infection, *Communications in Nonlinear Science and Numerical Simulation* (2016), doi: [10.1016/j.cnsns.2016.12.001](https://doi.org/10.1016/j.cnsns.2016.12.001)

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



Highlight

- Delay model for primary dengue infection has been formulated.
- Model considers cellular as well as humoral response for viral clearance dynamics.
- Three equilibrium states are found and their existence conditions have been related with antibody recruitment rate which is the part of humoral mediated response.
- The existence of endemic state is found in two regions depending on the critical level of burst rate. In one region, it is found to be locally stable while in other region quasi periodic behavior is obtained.
- Critical delay is computed where endemic state is found to be locally stable and periodic behavior is obtained for choice of relevant data from literature.
- Local stability analysis of other two states has been performed analytically and has been related with antibody production rate.
- Biological significance has been discussed.

Download English Version:

<https://daneshyari.com/en/article/5011569>

Download Persian Version:

<https://daneshyari.com/article/5011569>

[Daneshyari.com](https://daneshyari.com)