

Peer Review

Review of: "An Elementary Microscopic Model of Sympatric Speciation"

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This paper deals with a microscopic (spatial) and genotypic model. The authors focused on the numerical exploration of a particular simulation to understand the speciation phenomenon through a simple model.

The overall impression is that the paper is well-written, especially the introduction, which is really nice to read, and the description of the individual-based model, which is very well explained. Additionally, the numerical results are well presented, and the figures are very neat and help a lot in understanding the work.

My main concern while reading this paper is that it is not clear to me what the novelty of this work is and what is already known in the literature.

For example, what is the novelty regarding the work of Perthame (for the deterministic model) or the work of Champagnat (for the individual-based model)?

Similarly, I might be missing the point, but the authors start with a deterministic model (a replicator-mutator-like equation). Then they present their (new?) agent-based model without clearly comparing them.

Finally, the results seem to be based on only a few simulations. I believe that the authors have to be clearer on what these simulations clearly imply and what is just interpretation.

In conclusion, I think that the paper is very interesting for pedagogical purposes. However, the authors have to be clearer on what the real scientific novelty of this work is.

Ref :

Benoit Perthame, Transport Equations in Biology. (2007).

Nicolas Champagnat, Régis Ferrière and Sylvie Méléard : Individual-based probabilistic models of adaptive evolution and various scaling approximations (2009)

Declarations

Potential competing interests: No potential competing interests to declare.