Review of: "Reaction rate view on autocatalysis"

Oliver Trapp[1]

1 Ludwig-Maximilians-Universität München

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Autocatalysis plays an important role, mechanistically and also in processes of our daily life. Examples are combustion processes, oxidation reactions, the formose reaction, plant growth in general.

The author is investigating a Landolt-type reaction scheme, involving an intermediate (D), which represents a probably more relevant scenario, seen in the above-mentioned areas of applications.

Indeed, there are many examples in literature discussing autocatalysis in general without a quantitative analysis of the intrinsic reaction rates. This is only partially true because tools are becoming available to perform such analysis.

It should be emphasized that comprehensive experimental kinetic data are the prerequisite to perform analysis in a proper way instead of just fitting of reaction parameters to single traces.

The other reviewers already addressed some important points concerning the representation of the set of reactions and the definition of the parameter range to observe autocatalytic behavior. This should be considered.

To give a broader perspective in particular to an important field, namely the emergence of the biological homochirality, I recommend referring also to asymmetric autocatalysis as an example and as an example how detailed an analysis can be performed with modern techniques and algorithms. In that sense, this could be a good prime example and strengthen the manuscript.

Soai’s asymmetric autocatalysis is the most prominent example:

Soai, K.; Shibata, T.; Morioka, H.; Choji, K., Asymmetric autoctalysis and amplification of enantiomeric execss of a chiral molecule. *Nature* **1995**, *378*, 767-768.

Detailed mechanistic investigations and comprehensive kinetic analysis:

Trapp, O.; Lamour, S.; Maier, F.; Siegle, A. F.; Zawatzky, K.; Straub, B. F., In Situ Mass Spectrometric and Kinetic Investigations of Soai's Asymmetric Autocatalysis. *Chem. Eur. J.* **2020**, *26*, 15871-15880.

Discussion of asymmetric autocatalysis:

Geiger, Y., One Soai reaction, two mechanisms?. *Chem. Soc. Rev.* **2022**, *51*, 1206-1211.

Peng, Z.; Paschek, K.; Xavier, J. C., What Wilhelm Ostwald meant by “Autokatalyse” and its significance to origins-of-life research. *BioEssays* **2022**, 2200098.

General references to the emergence of biological homochirality

Blackmond, D. G., Autocatalytic Models for the Origin of Biological Homochirality. *Chem. Rev.* **2020**, *120*, 4831-4847.

Buhse, T.; Cruz, J. -M.; Noble-Terán, M. E.; Hochberg, D.; Ribó, J. M.; Crusats, J.; Micheau, J. -C., Spontaneous Deracemizations. *Chem. Rev.* **2021**, *121*, 2147-2229.
Sallembien, Q.; Bouteiller, L.; Crassous, J.; Raynal, M., Possible chemical and physical scenarios towards biological homochirality. *Chem. Soc. Rev.* **2022**, *51*, 3436-3476.

Systematic kinetic analysis and modelling of asymmetric autocatalytic reactions:
Huber, L.; Trapp, O., Symmetry breaking by consecutive amplification: Efficient paths to homochirality. *Orig. Life Evol. Biosph.* 2**022,** 5*2,* https://doi.org/10.1007/s11084-022-09627-6.