Review of: "Another rate view on autocatalytic reactions"

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Potential competing interests: No potential competing interests to declare.

The manuscript is an extension of a contribution previously reported by the author, focusing on autocatalytic reactions for a specific case. Additional autocatalytic reaction schemes and the effect of two reactor types under isothermal conditions are discussed now. The author says that flow-through reactors present additional complications compared to batch systems because the effects of the inlet feed can influence the reaction rates in flow-through reactors.

According to the results presented in the manuscript, the reactants' initial conditions significantly influence the autocatalytic property of a batch reaction system. The behavior and characteristics of autocatalytic reactions (concentration and reaction rate profiles) can vary based on the initial concentrations and conditions of the reactants. These highlight the importance of considering the initial conditions when studying and understanding autocatalytic systems.

Issues

Issue 1. About the continuously stirred tank reactor (CSTR), the author says:

"*Flow-through systems are often operated under steady state (ss) conditions where rates and concentrations do not change in time. This special case is not discussed here; let it only be noted that CSTR steady-state balance iss = (iss − i0)⁄ shows that a stationary rate depends on both inlet and initial concentrations, generally".*

- Would the residence time be another significant factor in the autocatalytic processes?

- Could a semi-batch reactor be most suitable for achieving autocatalytic reactions and controlling their behavior?

Issue 2. Different mechanisms and modeling techniques offer varying degrees of complexity and accuracy in capturing the autocatalytic behavior of a reaction system allowing for a deeper understanding and analysis of these systems. This work employed the law of mass action approach in all the cases studied.

- Are there more approaches?

- Could a different approach modify the conclusions obtained?

Suggestions to improve the manuscript:

1. Include a briefly discuss the relevance and motivation of the reactive systems studied.

2. A methodology section is recommendable. The methodology section should provide a detailed description of the procedures used to conduct the study.

3. A nomenclature section is necessary. It can be highly beneficial, especially when dealing with complex systems or specialized terminology.

4. The legends of the figures should be improved. Try to help readers understand the figure without referring to the main text.