

Relationships between the delayed chemostat and the delayed logistic equation

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ABSTRACT

The logistic equation is often considered as a simplification of the chemostat (Kooi, Boer, Kooijman (1998)[2]). However, the global qualitative properties of the delayed single species chemostat are completely known, see e. g. Smith (2011)[3]. Such properties still remain open for the delayed logistic equation, see e. g. Bánhelyi, Czendes, Kristin, and Neymaier (2014)[1] despite that such problems have been announced a long time ago (Wright (1955)[4]). We may therefore ask whether the logistic equation really is a simplification and what information about the chemostat actually is contained. We discuss the links between these equations and conclude that they are less clear in the delayed case than they are in the non-delayed case.

Keywords: chemostat, Delay differential equation, global stability, Wright's equation

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References

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