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**A new kinetic model for growth based on simultaneous substrate and biomass limitation
in solid-state fermentation using agar spheres as the model substrate**

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Highlights

- A model to study the limiting factors of growth in SSF system was developed.
- A new substrate-biomass-dependent kinetic expression was proposed.
- Most of the parameters, including enzyme diffusivity, were independently obtained.
- The relative effect of glucose, O₂ and biomass limitation on growth was evaluated.
- The model was validated by the bacterial growth data on the starchy agar-spheres.

Abstract

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