Abstract

The mathematical model of immobilized enzyme system in porous spherical particle is presented. The model is based on non-stationary diffusion equation containing a nonlinear term related to Michaelis-Menten kinetics of the enzymatic reaction. A general and closed form of an analytical expression pertaining to the substrate concentration profile and effectiveness factor
Analytical Expression Pertaining to Concentration of Substrate and Effectiveness Factor for Immobilized Enzymes with Reversible Michaelis Menten Kinetics are reported for all possible values of dimensionless modules and . Moreover, herein we have employed “Homotopy Perturbation Method” (HPM) to solve the non-linear reaction/diffusion equation in immobilized enzymes system. These analytical results were found to be in good agreement with simulation result.

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Index Terms

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