

Kinetics of red pigment fermentation in 2-litre stirred tank fermenter using different types and concentrations of carbon sources

ABSTRACT

Kinetics of red pigment fermentation by *Monascus purpureus* FTC 5391 using various sources of carbon (glucose, fructose, maltose and sucrose) were analysed using a model based on Logistic and Leudeking-Piret equations. Using the optimal concentration of fructose, batch fermentation without pH control was capable to produce slightly higher red pigment (20.70 UA500) as compared to fermentation using glucose (20.63 UA500). In terms of overall productivity, fermentation using fructose (0.153 UA500/h) was comparable to glucose (0.122 UA500/h). The production of red-pigment by *M. purpureus* FTC 5391 appeared to be a non-growth associated process; whereby rapid red-pigment production occurred during non-growth phase after the depletion of carbon in the medium and the on-set of ethanol accumulation. It seemed that the red-pigment was formed from the metabolism of ethanol accumulated in the culture.

Keyword: *Monascus purpureus*; Kinetics; Glucose; Fructose; Maltose; Sucrose; Red pigment; Non-growth associated