Optimization of microbial cell-based spectrometric assay for the analysis of epoxide hydrolase activity

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ABSTRACT

Microbial cell-based UV spectrometric assay for the quantitative measurement of epoxide hydrolase activity was evaluated and optimized for the efficient screening of whole cell activity of novel epoxide hydrolase. Epoxide hydrolase activity was determined by measuring the increase of the oxidized product, benzaldehyde. The effects of the concentrations of phenyl-1,2-ethanediol, sodium metaperiodate and cells were optimized for epoxide hydrolase-catalyzed hydrolysis of styrene oxide. The relevant kinetic parameters of K_m and V_{max} for the hydrolysis of (*R*)-styrene oxide by *Rhodotorula glutinis* were determined from Lineweaver-Burk plot as 41.2 nmol/min · mg dcw and 7.5 mM respectively, and coincided well with those from GC analysis.

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