

Characterization of novel epoxide hydrolase from *Gordonia westfalica* based on bioinformatics

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Chiral epoxides are important intermediates for the asymmetric synthesis of enantiopure bioactive compounds. Epoxide hydrolases (EHs) catalyze enantioselective ring opening reaction of racemic epoxides into the corresponding vicinal diols¹⁾. In this study, we mined various microbial genomics data for the discovery of novel EH. A novel EH from *Gordonia westfalica* was accessed and compared based on the multiple sequence alignments, phylogenetic analysis and homology modelling^{2,3)}. We screened EH activity of wild-type *G. westfalitica*. The effects of reaction parameters including pH, temperature on initial hydrolysis rate and enantioselectivity of wild-type *G. westfalitica* were analyzed and optimized. Chiral (*S*)-styrene oxide with high optical purity (> 99 % *ee*) and yield of 36.5 % (theoretically 50 % maximum yield) was obtained from its racemate of 20 mM.

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References

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