

Asymmetric resolution and enantioconvergent hydrolysis using epoxide hydrolase for production of enantiopure styrene oxide and phenyl-1,2-ethanediol

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Enantiopure styrene oxide and phenyl-1,2-ethanediol are used for preparing enantiopure pharmaceuticals, agrochemicals and functional foods. Enantiopure epoxides can be prepared via enantioselective hydrolysis of racemic epoxides using epoxide hydrolases (EHs). Some EHs have been shown to have complementary enantioselectivity exhibiting opposite regioselectivity on the two enantiomers of racemic epoxide substrates, indicating that a 100% yield of enantiopure diol with high enantiopurity of up to 100% ee can be prepared by enantioconvergent process. In this presentation, we report on our recent works on asymmetric resolution and enantioconvergent hydrolysis of racemic epoxides using various EHs from microorganisms, fish and marine bioresources to produce enantiopure styrene oxide and phenyl-1,2-ethanediol.

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