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**Kinetic resolution of (*R,S*) phenyl glycidyl ether by red mung beans (*Vigna angularis*) epoxide hydrolases**

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**Abstract**

Enantiopure epoxides are commercially valuable compounds in pharmaceutical, chemical and agrochemical industries. A major challenge in asymmetric synthesis is to synthesize selectively the desired enantiomer in high yield or separate it in high purity. In this work, the optimization of the kinetic resolution of (*R,S*) phenyl glycidyl ether was performed by partially purified epoxy hydrolase from red mung beans. Dimethylsulfoxide was selected as the most appropriate cosolvent. The optimal conditions for kinetic resolution were found to be temperature 40 °C; substrate concentration 20 mM; biocatalyst loading 150 mg. Under these conditions, over 98% of yield (*R*-phenyl glycidyl ether) and selectivity of (*E*) 242 was obtained in 360 min. The maximum rate of reaction was estimated to be ( $V_{max}$ )  $3.67 \times 10^{-3}$  mol/L. min whereas,  $K_m = 6.7$  mol/L.

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