

P018 Silica-supported epoxide hydrolase from *Aspergillus niger*: properties and application in the enantioselective hydrolysis of *para*-nitrostyrene oxide

Antonella Petri, Piero Salvadori

Dipartimento di Chimica e Chimica Industriale,
Università degli Studi di Pisa, ITALY

Enantiomerically pure epoxides and their corresponding vicinal diols are intermediates of high value for the synthesis of bioactive molecules of great interest in different fields as the pharmaceutical or agrochemical industry. This explains why many efforts have been devoted over the past few decades to develop innovative methodologies for preparing such chiroins as a single enantiomer. A very promising strategy is the hydrolytic kinetic resolution of epoxides using epoxide hydrolases (EHs; E.C. 3.3.2.3). These enzymes are able to achieve, without the use of any cofactors, the enantioselective opening of the oxirane ring of various epoxides to form the the corresponding diols, thus leading in one row to the unreacted epoxide and the formed vicinal diol both in enantiomerically enriched form.

In the present work we report the covalent immobilization of commercially available epoxide hydrolase from *Aspergillus niger* on HPLC silica gel. The enzymatic activity assay is discussed to evaluate the properties of the new biocatalyst, comparing the results with those obtained with the native form. The activity in the enantioselective hydrolysis of racemic *para*-nitrostyrene oxide is reported both in batchwise and in a reactor containing covalently immobilized epoxide hydrolase.