

P030 Deracemisation processes for the manufacture of chiral sulfoxides

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The growing interest in biocatalytic processes in organic industry and thus in industrial applications goes hand in hand with a steady rise in the demand for enantiomerically pure compounds. Particularly in the pharmaceutical, agricultural and food industry, the demand for optically pure compounds has grown enormously.

The transformation of a racemate into a single stereoisomeric product in theoretically 100% yield and 100% enantiomeric excess has become a prime target for the industrial production of chiral non-racemic materials. One powerful method to reach this goal makes use of a *dynamic kinetic resolution* process, which is based on the chemo- or enzyme-catalyzed racemisation of the achiral intermediate or the unwanted enantiomer which thus can be converted into the desired product. Previous studies in our group have shown using this strategy which is termed *deracemisation* represent a successful method for the synthesis of enantiomerically pure α -amino acids and amines. Based on these results we investigate the applicability of this technique to racemic sulfoxides.

Chiral sulfoxides represent highly versatile chiral synthons and their use in the pharmaceutical industry as drugs or pro-drugs is steadily increasing and also as auxiliaries and intermediates in asymmetric synthesis. The *deracemisation* of racemic sulfoxides involves the combined action of an enantioselective DMSO-reductase from *Rhodobacter capsulatus* to the achiral sulfide followed by non-selective oxidation to achieve the desired chiral non-racemic sulfoxide.