

Cloning and expression of a lipase from *Serratia marcescens* ES-2 for kinetic resolution of optically active (S)-flurbiprofen

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Abstract

A new *lipESF* gene encoding an enantioselective lipase for the kinetic resolution of (S)-flurbiprofen was cloned from *Serratia marcescens* ES-2 by genomic library construction. The *lipESF* codes 614 amino acid residues with a molecular weight of 65 kDa and contains the conserved pentapeptide Ala-X-Ser-X-Gly as other bacterial lipase genes. An recombinant ESF was overproduced by the fed-batch culture optimized. The kinetic resolution of (R,S)-flurbiprofen ethyl ester to the optically pure (S)-flurbiprofen was carried out using refolded lipase from *Serratia marcescens* ES-2 in aqueous phase reaction system supplementing succinyl β -cyclodextrin. The high conversion, corresponding enantiomeric excess of 0.99 and conversion yield of 0.48 was achieved after 24 h.

References

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