

Enzymatic synthesis of esters by chiral ionic liquids coated lipase from *Candida rugosa*

ABSTRACT

Ionic liquids have opened up new perspectives in catalysis and biocatalysis. Biocatalysis in nonaqueous media often faces problems due to the stability of the enzyme, which then leads to low activity and poor selectivity. Chiral ionic liquid coated-enzyme (CILCE) was prepared by coating *Candida rugosa* lipase with 1-hydrogen-3-hexylimidazolium hydrogen-tartrate. CILCE was later used to catalyze some non-chiral and chiral esterification of high value-added esters. CILCE was found to accelerate the production of short and medium chain esters with high percentage conversion compared to native lipase; dioleoyl adipate 46%, oleyl hexanoate 44%, oleyl myristate 52% and oleyl palmitate 21%. For chiral esterification, CILCE has increased the percentage conversion up to 81% of (-)-menthyl butyrate.

Keyword: Ionic liquids; *Candida rugosa*; Chiral ionic liquid coated-enzyme