Short Communication

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Enantioselective resolution of 2-arylpropionic acid derivatives employing immobilization of lipase from *Bacillus subtilis* strain Kakrayal_1 (BSK-L)

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Abstract

This work studied the enantioselective resolution of 2-arylpropionic acid derivatives employing immobilization of lipase produced by *Bacillus subtilis* strain Kakrayal_1 (BSK-L). The efficient immobilization of lipase on modified silica gel was confirmed by Fourier transform infrared spectroscopy. Tethering of lipase facilitated the enhancement of physiochemical properties and stability of enzyme. Covalently immobilized enzyme retained 85% of residual activity even on reuse after 10th reaction cycle. Validation of immobilized lipase for enantioselective resolution of 2-arylpropionic acid derivatives led to 47.8% conversion efficiency with 87% enantiomeric excess (ee) for ketoprofen, and 27.3% conversion efficiency with 75% ee for flurbiprofen. The enantioselective resolution using immobilized lipase (BSK-L) was superior to free and commercially procured lipase, which suggest a potential application of immobilized lipase in the pharmaceutical/ chemical industry.

Keywords: Silica, Lipase, *Bacillus sp.*, Immobilization, Enantioselective resolution

1. Introduction

Lipases catalyses reactions in both aqueous and organic medium, with low water content leading to potential application primarily focused on synthesis of the bioproducts in pharmaceutical, cosmetics, biofuels, environmental and textiles