

Accepted Manuscript

Short Communication

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Indu Bhushan, Rashmi Saraswat, Pankaj Gupta, Bhahwal A. Shah

PII: S0960-8524(18)31227-6

DOI: <https://doi.org/10.1016/j.biortech.2018.08.123>

Reference: BITE 20406

To appear in: *Bioresource Technology*

Received Date: 13 July 2018

Revised Date: 28 August 2018

Accepted Date: 29 August 2018



Please cite this article as: Bhushan, I., Saraswat, R., Gupta, P., Shah, B.A., Enantioselective resolution of 2-arylpropionic acid derivatives employing immobilization of lipase from *Bacillus subtilis* strain Kakrayal_1 (BSK-L), *Bioresource Technology* (2018), doi: <https://doi.org/10.1016/j.biortech.2018.08.123>

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

Indu Bhushan^{a*}, Rashmi Saraswat^a, Pankaj Gupta^b and Bhahwal A. Shah^c

^a School of Biotechnology, Shri Mata Vaishno Devi University, Katra, (J& K), India

^b Department of Chemistry, Govt. Degree College Kathua, (J& K), India

^c Indian Institute of Integrative Medicine, (CSIR) Jammu, India

*Corresponding author Email: indu.bhushan@smvdu.ac.in/sharmasmvdu92@gmail.com

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

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