

Accepted Manuscript

Short Communication

Microbial production of ketoreductases: Development of a novel high-throughput screening method

Preeti Ranjan, Ashok Pandey, Parameswaran Binod

PII: S0960-8524(17)30377-2

DOI: <http://dx.doi.org/10.1016/j.biortech.2017.03.096>

Reference: BITE 17800

To appear in: *Bioresource Technology*

Received Date: 31 January 2017

Revised Date: 15 March 2017

Accepted Date: 17 March 2017

Please cite this article as: Ranjan, P., Pandey, A., Binod, P., Microbial production of ketoreductases: Development of a novel high-throughput screening method, *Bioresource Technology* (2017), doi: <http://dx.doi.org/10.1016/j.biortech.2017.03.096>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



Microbial production of ketoreductases: Development of a novel high-throughput screening method

Preeti Ranjan¹, Ashok Pandey^{1,2} and Parameswaran Binod^{1*}

¹*Microbial Processes and Technology Division, CSIR-National Institute for Interdisciplinary Science and Technology, Thiruvananthapuram 695 019, Kerala, India*

²*Center of Innovative and Applied Bioprocessing, C-127, II Floor, Phase 8, Industrial Area, SAS Nagar, Mohali-160 071, Punjab, India*

* Corresponding author. Tel: +91-471-2515361, Fax: +91-471-2491712, E-mail: binodkannur@niist.res.in

Abstract

An assay method for detection of enantiospecific chiral alcohol was developed based on ketoreductase, enantio-selective alcohol oxidase and 2, 4-dinitrophenyl hydrazine (DNPH) reagent. The assay method was developed to check the conversion of 1-acetonaphthone to either (S) or (R) specific 1-(1-naphthyl) ethanol or its racemic mixture using ketoreductases. Further, estimation was done with the help of 2, 4- DNPH method. The resulting orange coloured chromogen showed a maximum absorbance at 560 nm. The assay was performed in 96 well microtiter plates and had a linear detection range from 0.05mM to 4mM. The method is found to be suitable for the detection of large numbers of crude samples and screening of ketoreductase producing strains in high-throughput manner.

Keywords: *High-throughput assay, Ketoreductase, Enantiospecific, Enantioselectivity, Alcohol oxidase.*

Introduction

Among various classes of enzymes, oxidoreductase represents a highly versatile class of biocatalyst currently used for the production of a wide variety of chemical and pharmaceutical products. Oxidoreductases are generally employed in whole-cell biotransformations or fermentation-based processes because they require expensive cofactors and coenzymes (e.g. NAD(H) or NADP(H)) to donate or accept the chemical equivalents for

Download English Version:

<https://daneshyari.com/en/article/4996505>

Download Persian Version:

<https://daneshyari.com/article/4996505>

[Daneshyari.com](https://daneshyari.com)