

## Document details

Back to results | 1 of 1

 Export |  Download |  Add to List | [More...](#) ▾

ARPN Journal of Engineering and Applied Sciences

Volume 11, Issue 1, 2016, Pages 319-326

[Open Access](#)Characterization of low-cost lipase by solid-state fermentation of palm kernel cake using *Candida cylindracea* (Article)Elgharabawy, A.A. , Alam, M.Z., Salleh, H.M. 

Department of Biotechnology Engineering, Faculty of Engineering, Islamic University Malaysia, International Bioenvironmental Engineering Research Unit (BERC), Gombak, Kuala Lumpur, Malaysia

[View references \(31\)](#)

## Abstract

This study aimed to identify the properties as well as the application of *Candida cylindracea* lipase produced from palm kernel cake (PKC) by solid-state fermentation (SSF). Characteristics of PKC-lipase have been investigated which include: Thermal stability, pH stability, stability in organic solvents and metal ions solutions. The enzyme assays were conducted using colorimetric method and the activity was expressed as residual activity. It was revealed that the optimal temperature and pH were 37°C and 8.0, respectively. The enzyme was stable at temperature ranges of 25-45°C and pH 7.0-8.0 respectively.  $Zn^{2+}$ ,  $Mg^{2+}$  and  $Ca^{2+}$  stimulated the enzyme while  $Fe^{3+}$  inhibited its activity. The results showed that 1.0% of EDTA enhanced the lipase activity while incubation in SDS and Tween-80 resulted in the reduction of its activity. Moreover, the produced lipase exhibited some levels of stability at low concentrations of organic solvents (methanol, ethanol, 2-propanol, acetone, hexane and toluene). The application of the PKC-lipase showed promising results in hydrolysis whereas 50.48% and 45.98% of canola oil and olive oil were converted to free fatty acids (FFA), respectively. The knowledge obtained from this study can give an insight on understanding the PKC-lipase properties in order to be used in industrial and biotechnological applications, particularly in biodiesel production. © 2006-2016 Asian Research Publishing Network (ARPN).

## Author keywords

*Candida cylindracea*; Enzyme stability; Hydrolysis; Lipase; Palm kernel cake; Residual activity

ISSN: 18196608 Source Type: Journal Original language: English

Document Type: Article

Publisher: Asian Research Publishing Network

## References (31)

[View in search results format](#)

## Cited by 0 documents

Inform me when this document is cited in Scopus:

 Set citation alert Set citation feed

## Related documents

## Exploring the alternatives

(2011) Dairy Industries International

Kinetics of lipase production from *Candida cylindracea* by solid-state by conversion of palm kernel cake

Elgharabawy, A.A., Alam, M.Z., Salleh, H.M.

(2014) Asian Journal of Microbiology, Biotechnology and Environmental Sciences

Effect of different carbon sources of lipolytic activity of *Candida* spp. | Wpływ różnych źródeł węglowych na aktywność lipolityczną *Candida* spp.

Wróblewska, J., Ciok-Pater, E., Gospodarek, E.

(2011) Mikologia Lekarska

[View all related documents based on references](#)

Find more related documents in Scopus based on:



Authors



Keywords

## Metrics



5

Mendeley Readers

WITH PERCENTILE

 View all metrics