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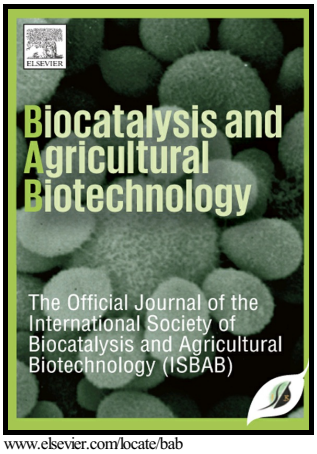
Pooja Saharan, Pardeep sadh, Joginder Singh Duhan



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Comparative assessment of effect of fermentation on phenolics, flavanoids and free radical scavenging activity of commonly used cereals

Pooja Saharan*, Pardeep sadh, Joginder Singh Duhan

Department of Biotechnology, Ch. Devi Lal University, Sirsa-125 055, India

*Corresponding author: Tel.: +91 9910093316. pooja.0409@gmail.com

Abstract

The fermentation based enrichment of polyphenolics and antioxidants of commonly used cereals i.e. wheat, rice, oat, maize and sorghum was done using GRAS fungal strain *A. oryzae*. Significant ($P < 0.05$) increase in phenolics, flavonoids, DDPH (2, 2-diphenyl-1-picrylhydrazyl) and ABTS (2, 2-azinobis-3-ethylbenzothiazoline-6-sulphonic acid) diammonium salt radical scavenging potential of all fermented cereals was observed mainly on 5th day of incubation. Enhanced levels of polyphenols and antioxidants after fermentation was observed maximum in *O. sativa* and *T. aestivum* followed by > *S. bicolour* > *A. sativa* > *Z. mays* which is mainly due to high enzyme activities as observed during their fermentation. A positive correlation was obtained between total phenol and flavanoid content with antioxidant activity. Role of α-amylase, xylanase and β-glucosidase enzymes in release of polyphenols and antioxidants during solid state fermentation of cereals was justified by a linear correlation obtained between total phenolic and flavanoid contents with enzyme activities.

Keywords: cereals, fermentation, phenolics, flavanoids, enzymes