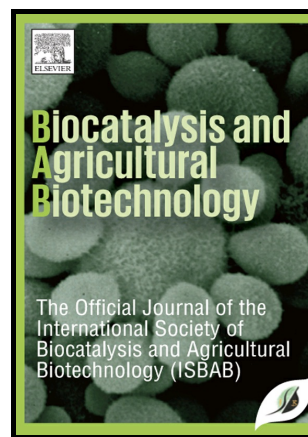


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Purification and characterization of xylanase isoenzymes from red palm weevil *Rhynchophorus ferrugineus*

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Abstract

Xylanase activity in the guts of *Rhynchophorus ferrugineus* during larval development had been investigated. The activity in the guts from the 5th to the 12th instars ranged from 12.5 to 67 U/gut with specific activity ranged from 50 to 124 U/mg protein. The 10th instars larvae had the highest enzyme activity. Purification of two predominant xylanase isoenzymes was performed by gel filtration on Sephacryl S-200 and chromatography on DEAE-Sepharose. XyI and XyII had specific activities of 468.6 and 402 U/mg proteins, native molecular weights of 25 and 42 kDa, respectively. They had monomeric forms, showed identical optimum activity at pH 5.5 and 40°C. XyII exhibited higher thermal stability and activation energy than XyI. Inhibition by Hg²⁺, Cu²⁺, EDTA and stimulation by dithiol-reducing agents revealed the presence of at least one sulfhydryl group in the active site of the enzyme and they were metalloenzyme. They exhibited high specificity towards natural xylans. They produced xylotriose, xylotetraose and

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