PARTIAL CHARACTERIZATION OF THE β-(1→3)-GLUCANASE FROM TRICHODERMA HARZIANUM RIFAI PRODUCED UNDER SOLID-STATE FERMENTATION IN OAT BRAN

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A knowledge about the physical and chemical properties of enzymes is fundamental for the industrial or biochemical application of the enzyme. In this study, β-(1,3)-glucanase was obtained from the fungus Trichoderma harzianum Rifai by solid-state fermentation using 3g of oat bran. The β-(1,3)-glucanase was partially characterized by variations in pH and temperature. Laminarin (0.2%) was used as a substrate to determine enzyme activity. The pH levels studied ranged from 3.5 to 5.5 with a 0.1-M sodium acetate buffer and from 6.0 to 8.0 with a 0.1-M sodium phosphate buffer, and temperatures ranged from 25°C to 75°C. The optimal pH was 4.5 after 10 minutes of reaction time, and the enzyme was considered stable between 3.5 and 5.0 when maintained at 25°C for 24 hours. Maximum activity occurred at 60°C, and 84% activity was maintained after 1 hour at 50°C. The enzyme reached optimal pH levels within the range of stability; however, optimal temperature was not reached within the range of stability. This finding supports the idea that when the enzyme is involved in long-term applications, information on its stability over a certain period of time is important.