

Production, purification and characterization of cellulase free xylanase from a mold strain UL-4209 isolated from the soil in South Africa

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Xylan, a major component of wood and agricultural wastes, constitute a significant resource of renewable biomass which can be utilized for preparation of many useful products such as fuels, solvents, chemicals and paper-pulp industry¹. For most bioconversion processes, xylan is first converted to xylose or xylooligosaccharides by xylanases². Recently, we isolated a new mold strain (UL-4209) from the soil in George, South Africa. This mold was grown in YMP medium containing 1% oat spelt xylan. Maximum extracellular xylanase activity (33.12 U/ml) was obtained after 6 days culture at 35°C and the crude enzyme was free of any cellulase activity. The crude enzyme was purified to homogeneity by gel filtration on Sephacryl S-200 HR column after concentration by ultrafiltration with Amicon Ultra- 15 centrifugal filter device. The purified endo- -1,4 xylanase had molecular mass 41 kDa as determined by the SDS-PAGE. The optimum pH and temperature for the purified enzyme activity were 6 and 35°C respectively. The enzyme retained 85% activity after incubating for 10 h at pH 6 and 60% activity at 50°C for 4 h. The enzyme had a Km of 3.57 mg/ml and a Vmax of 135.14 U/mg protein.

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2. Beg QA, Kapoor M, Mahajan G and Hoondal S. (2001). Microbial xylanases and their industrial application: A review. Appl. Microbiol. Biotech. 56: 326-328.