



ABSTRACT

Caldicellulosiruptor bescii previously known as *Anaerocellum thermophilum* is an anaerobic, rod shaped and asporogenous organism. Hydrolytic enzymes in this bacillus species are not studied before but these are very important enzymes in industries. This cloned gene from *C. bacillus* was grown in LB-ampicillin media for the production, purification and characterization purpose of the enzyme which was latterly found to be β -1,4-endoxylanase. Enzyme was partially purified through a scheme initiated from ammonium sulphate precipitation, moved onto dialysis and ended upto anion exchange chromatography. Partially purified enzyme's molecular weight was 72kDa as determined by SDS-PAGE and its specific activity against beech wood xylan was 13.33 U/mg. Optimum behavior of endoxylanase at 60°C temperature and pH-6 was observed. The enzyme activity was inhibited by EDTA, Urea, mercury, cobalt and magnesium while the metal ion and surfactants proved to be enhancers were nickel, calcium, cadmium, Tween-80, SDS and β -mercaptoethanol in small concentrations. Potential substrates of enzyme were beech wood, birch wood, pNP-Galactopyranoside and little activity was observed at CMC, starch, avicel, Laminarin, biomass B, wheat bran and baggase.
