Partial Characterization of Cmcase, Xylanase And Lichenase Enzymes Produced by Newly Isolated *Bacillus* Sp. Cxl

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Abstract

In the study, cellulase, xylanase and lichenase producing bacterium *Bacillus* sp. CLX was isolated from the soil samples collected from agricultural greenhouse. The optimum enzyme activities were observed at 50 ºC for CMCase and lichenase, whereas at 40 ºC for xylanase. On the other hand, optimum pH values for CMCase, xylanase and lichenase were 8.0, 6.0 and 7.0, respectively. CMCase, xylanase and lichenase were showed 71, 63, and 78% residual activity after pre-incubation at 80 ºC for 15 min, respectively. The relative residual activities between 40-80 ºC were occurred as 84.4, 86.6, and 92.6%, in the same order. Maximum CMCase, xylanase and lichenase productions of isolate were observed after 36, 24, and 12 hours later from inoculation time. All three enzyme activities were stimulated by CaCl₂, MnCl₂, CoCl₂, and MnCl₂, whereas inhibited by HgCl₂, and FeCl₃. While ZnCl₂ and EDTA stimulated the CMCase and xylanase activities, CuCl₂ stimulated CMCase and lichenase. If xylanase activity is accepted as 100%, the activities of CMCase and lichenase in comparison to the xylanase remain 34 and 56%, respectively.

Keywords: *Bacillus* Sp, Cmcase, Xylanase, Lichenase, Characterization