

Pearsai Khaibuddee 2014: Production, Partial Purification and Characterization of Xylanase from *Streptomyces mexicanus* 901. Master of Science (Biotechnology), Major Field: Biotechnology, Department of Biotechnology. Thesis Advisor: Associate Professor Mangkorn Rodprapakorn, Ph.D. 92 pages.

*Streptomyces mexicanus* 901 was thermophilic actinomycete isolated from waste water in paper industry and growth occurred between pH 5.0-9.0. When actinomycetes were grown on different medium it was found that *S. mexicanus* 901 grew well on ISP2 agar. Enzyme production of *S. mexicanus* 901 on agar medium containing with 1.0% xylan, CMC and starch were investigated. The result found that *S. mexicanus* 901 could produce xylanase, CMCase and amylase. Optimum condition on xylanase production in ISP2 medium with various agricultural waste as carbon sources at various concentrations (0.5-2.0%) was studied. The maximum level of xylanase production by *S. mexicanus* 901 was observed when used 2.0% corncob as carbon source at initial pH 7.0, 50° C in shaking condition at 250 rpm for 5 day. Crude xylanase was partially purified by ultrafiltration and gel filtration chromatography. The result showed that xylanase was purified 6.41 fold. Partial purified xylanase exhibited highest activity at pH 5.0 and 50°C. Stability was high at pH range 3.0-6.0 and 30-50°C. Xylanase activity was stimulated by 10 mM Mn<sup>2+</sup> and was inhibited by EDTA. The inhibitory effect of EDTA indicates that metal ions are needed for xylanase activity.

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