**Scholars Academic Journal of Pharmacy (SAJP)** **ISSN 2320-4206**
**Sch. Acad. J. Pharm., 2013; 2(2):31-35**

(An International Publisher for Academic and Scientific Resources)
www.saspublisher.com

## Research Article

# Characteristic Analysis of Crude and Purified α-amylase from *Bacillus licheniformis* ATCC 6346 and comparison with Commercial enzyme

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**Abstract:** Thermostable α-amylases are generally used for industrial applications. The objective of this study is to compare the kinetic properties of crude and purified α-amylase from *Bacillus licheniformis* ATCC 6346 with commercial (Termamyl[R], NOVO industries from Denmark) α-amylase from *Bacillus licheniformis*. Commercial and crude α-amylases showed zero order kinetics for 10 min while purified α-amylase showed 8 min at pH 7.0 and 85°C. The activities of crude, purified and commercial α-amylases were measured at different temperatures ranging from 40 to 95°C and the optimum temperature for the activities of crude and purified enzymes was 85°C while that for the commercial enzyme was 90°C. The optimum pH was 7.0 for the crude, purified and commercial enzymes at 85°C. When the crude enzyme was pre-incubated at 85°C and at pH 7.0, it lost 40% of its initial activity at 10 min while the purified enzyme lost 75% of its initial activity at 10 min and the commercial enzyme did not lose activity at 10 min. Half-life of crude and purified α-amylases were 13.9 and 4.7min respectively while that for commercial enzyme was 823.97 min at pH 7.0 and 85°C.
**Keywords**: *Bacillus licheniformis*, Zero-order kinetics, α-amylase, Half-life