

Characterization of Thermostable Chitin Deacetylase from Bacteria Strain Pancuran Tujuh, Baturaden, Center of Java

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Abstract

Chitin deacetylase is the enzymes that has important role in converting chitin to chitosan. In nature, chitin is the second most abundant natural biopolymer after cellulose. Generally, chitin easily obtained from outer shell of crustaceans, arthropods, and also detectable on cell wall of some type of fungal (Zygomycetes). The chitin deacetylase was isolated from Bacillus sp PT2-3. It was found that the highest specific activity was attained at pH 8 60C. The addition of 5 mM Zn²⁺ and 5 mM Mn²⁺ increased the specific activity of the enzyme, 4.39% and 7.8%, respectively, and the increase was only 2.19% when the addition was 2 mM Mn²⁺. On the contrary the addition of Ca²⁺, Mg²⁺ and Fe²⁺ decrease the specific activity 46.83%, 41.22% and 47.32%, respectively. The enzyme activity was relatively stable at 60⁰C for 60 minutes, while lengthen the time to 90 minutes, decreased the activity 15.05 %, and the decrease was 26.13% at temperature of 70⁰C for 180 minutes.

Key words: chitin deacetylase, Bacillus, thermostabil i