The studies on the chitosanase from Aspergillus fumigatus Fresenius

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ABSTRACT

This thesis is a study of the utilization of chitosan by microbes to produce chitosanase. The chitosan-producing microorganism was identified as a strain of Aspergillus fumigatus Fresenius. Maximum chitosanase activity (0.4 U/mL) was obtained when the strain was grown aerobically in a medium consisting of 1g shrimp and crab shell powder, 0.1 g ammonium sulfate、0.1 g ferrous sulfate、0.1 g K2HPO4 and 0.05 g MgSO4 · 7H2O in 100 mL medium (pH 4.0) at 37°Cfor 5 days. The chitosanase was purified from the culture supernatant of Aspergillus fumigatus Fresenius by ammonium sulfate fractionation, DEAE Sepharose CL-6B column chromatography and Sephacryl S-200 gel filtration. The purified enzymes estimated by SDS-PAGE have a molecular weight of 45 kDa . The optimal temperature , optimal pH and pH stability for chitosanase was 70°C, 4 , 4~6 respectively. The activity of chitosanase was activated by Mg2+ and 0.5 M Urea, but strongly inhibited by SDS、Mn2+ and Hg2+.

Keywords : chitosan ,shrimp and crab shell powder , chitosanase , Aspergillus fumigatus Fresenius

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