

PARTIAL PURIFICATION AND CHARACTERIZATION OF α -AMYLASES
FROM ONE INSECTICIDE-RESISTANT POPULATION OF *SITOPHILUS*
*ZEAMAI*S

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α -Amylases (EC 3.2.1.1) constitute a family of endo-amylases that catalyze the hydrolysis of α -D- (1,4)-glucan linkages in starch components and various other related carbohydrates. They play a central role in carbohydrate metabolism of animals, plants and microorganisms. Many insects, especially those that feed on grain products during larval and/or adult life, depend on their amylases for survival. This is particularly true for the *Sitophilus zeamais* Motschulsky, a cosmopolitan pest of stored products. It is mainly controlled by insecticides. Amylases from adults of *S.zeamais* insecticide-resistant were purified by using a sequential procedure of glycogen-complex precipitation and ion exchange chromatography. Specific activity increased from 58,0454 AU/dL/mg protein in the crude homogenate to 2558,8720 AU/dL/mg protein in the final purified sample. Amylase unit (AU/dL) refers to the amount of amylase that hydrolysis 10 mg starch in 30 min at 37°C. The purified amylase ran as a single protein band on SDS-PAGE. From a plot of log molecular weight against relative mobility in 10% acrylamide gel, molecular weight was estimated to be 56 kDa. The enzyme had a K_m of 0,2243 g/L for soluble starch and was most active at pH 5,0. The temperature of major activity was 40 °C. The activity of enzyme was unaffected by presence or absence of Cl^- and Ca^{2+} .

Key word: α -Amylases, *Sitophilus zeamais*, characterization

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