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Purification and Characterization of Maltotriose-producing Amylases from an Alkaliphilic *Nocardiopsis* sp. TOA-1

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An alkaliphilic actinomycete, *Nocardiopsis* sp. strain TOA-1, produced extracelluar maltotriose-producing amylases. Two amylases (AmyA-1 and AmyA-2) were purified to homogeneity by three steps of chromatography. The molecular masses of AmyA-1 and AmyA-2 were estimated to be 56 and 60 kDa, respectively. Optimal pH and temperature of both AmyA-1 and AmyA-2 were pH 9.5 and 65°C. These enzymes were stable at pH 7 and even at 13. AmyA-1 and AmyA-2 produced only maltotriose from starch, amylose, amylopectin, glycogen and γ-cyclodextrin at an early stage of reaction and small amounts of glucose and maltose were also produced upon prolonged incubation. The activities of AmyA-1 and AmyA-2 were significantly inhibited by Fe^{2+}, Fe^{3+} and *N*-bromosuccinimide. Substrate specificities were slightly different between AmyA-1 and AmyA-2.

Key words: maltotriose-producing amylase, alkaline enzyme, alkaliphilic, *Nocardiopsis* sp.

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