1-Purification and characterization of xylanase from a thermophilic Streptomyces sp. K37

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Abstract

Extracellular xylanase (EC 3.2.1.8) from Streptomyces sp. K37 was purified 33.53 by ultrafiltration and cation exchange chromatography followed by gel filtration chromatography. The optimum pH and temperature for purified xylanase were found to be pH 6.0 and 60 degrees C. The Km and V (max) values of the purified xylanase were 15.4 mg ml(-1) and 0.67 micromole reducing sugar min(-1) ml(-1). High performance liquid chromatography (HPLC) gel filtration of the purified xylanase eluted xylanase activity as a peak corresponding to the molecular weight of about 24.3 kDa while the molecular weight determined by SDS-PAGE was found to be 26.4 kDa. The purified xylanase of Streptomyces sp. K37 was found to be endoxylanase and non arabinose liberating enzyme and was highly glycosylated (73.97%).

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Enzymes of Candida albicans cell-wall lytic system produced by Streptomyces thermodiastaticus.

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Abstract

The production of the enzymes of Candida albicans cell-wall lytic system by S. thermodiastaticus was found to be affected by some growth conditions and nutritional factors. The highest lytic activity was obtained after 18 h of incubation at pH 5.5 and an incubation temperature of 50 degrees C. The carbon source influenced the production of the enzymes of the yeast cell wall lytic system. Maximum lytic activity was obtained when Candida albicans cell-wall (1 g/100 ml) was used as the sole carbon source. NaNO3 at 0.1 g/100 ml level was the best nitrogen source for the biosynthesis of the enzymes of the yeast lytic system. From all phosphor sources, microelements, and growth factors tested, KH2PO4 (1 g/l), ZnSO4 (1 mg/l) and Tween 80 (0.1%), respectively were found to favour highest enzymes production of the lytic system. The Candida albicans cell-wall lytic system produced by S. thermodiastaticus mainly contained chitinolytic and proteolytic activities.

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3- Candida albicans cell wall lytic enzyme produced by Streptomyces thermodiastaticus

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Abstract

The production of lytic enzyme by Streptomyces thermodiastaticus was found to be affected by some growth conditions and nutritional factors. The highest enzyme production was obtained after 18 h of incubation at pH 5.5 and at 50 degreesC. The carbon source influenced the lytic enzyme production. A higher enzyme yield was obtained when Candida albicans cell wall (1 g/100 mi) was used as the sole carbon source. NaNO3 at 0.1 g/100 mi was the best nitrogen source for enzyme production. From all phosphorous sources, microelements, and growth factors tested, KH2PO4 (1 g/l), ZnSO4(1 mg/l) and Tween 80 (0.1%), respectively, were found to favour the highest production of lytic enzymes by S. thermodiastaticus. The lytic enzymes mainly produced chitinolytic and proteolytic activities.

Keywords: Streptomyces thermodiastaticus; lytic enzyme; Candida albicans; chitinase; protease

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4- Use of microorganisms for improvement of Egyptian kaolins 
ceramic properties

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Abstract

The present study showed that the proper treatment of kaolins by microrganisms can be a possible way to improve their ceramic properties and hence to meet the requirements of the line ceramic industry. Fungi culture cultivated in the presence of different poor kaolin samples improved their densification parameters, whiteness, workability and mechanical strength.

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5- Effect of the culture filtrates of Streptomyces on growth and productivity of wheat plants

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Abstract

Streptomyces olivaceoviridis;, S. rimosus and S. rochei proved to possess a high capacity for the production of auxins, gibberellins and cytokinin-like substances, together with substantial levels of alpha-amylase and proteinase. Grain priming with culture filtrates of S. olivaceoviridis, S. rimosus or S. rochei appeared to enhance growth vigor and crop yield of wheat plants. In the majority of cases, the culture filtrate of S. olivaceoviridis appeared to be the most effective in this respect. The present results are discussed in relation to the indirect role played by these bacteria in producing plant growth-regulating substances and their effects on growth and yield of wheat.

KeyWords: AZOSPIRILLUM-BRASILENSE; SUBSTANCES; ROOTS

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