

BIOCHEMICAL CHARACTERIZATION OF THE EXTRACELLULAR POLYGALACTURONASE FROM THE FUNGUS *HUMICOLA grisea TRAAEN*

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Pectic substances occur in higher plants and are constituted by a main chain of polygalacturonic acid branched with other sugars. These substances are degraded by pectolytic enzymes, mainly produced by filamentous fungi. These enzymes may be classified in esterases and depolymerases, and they have a high potential for biotechnological use in olive oil extraction, oils recovery from fruit peel, fruit juices clarification, wine production and textile industry. The aim of this work was to select fungi with good production of pectinases, isolated from soil or plants of several São Paulo regions, according to Biota program. An isolate of *Humicola grisea Traaen* produced high levels of polygalacturonase (PG) in Czapeck medium. Pectinesterase (PE), pectin lyase (PL), and pectate lyase (PGL) activities were not detected. Optimum conditions for growth were: pH 7.0, 30°C for 120 h. Among 26 carbon sources tested, 1.25% pectin (Sigma) was the best inducer of PG although the production was partially constitutive. Temperature optimum of PG was 65°C, and was stable up to 50°C for 300 min. Optimum pH was 4.5 and the enzyme was very stable at pH 3.0 to 5.5. Crude enzyme was stimulated by NH₄⁺, Ca⁺⁺, Zn⁺⁺, EDTA, Na⁺, Mn⁺⁺ and Al⁺⁺⁺ and inhibited by Hg⁺⁺, Ba⁺⁺, Cu⁺⁺ and Mg⁺⁺.

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