

TITLE: PRODUCTION OF B-1,3-GLUCANASE BY *MUCOR FRAGILIS* URM 7769.

AUTHORS: SANTOS-OLIVEIRA, A.C.A.; SOUZA, C. A. F.; SOUZA-MOTTA, C. M.; SANTIAGO, A. L. C. M. A.; SILVA, G. A.; MOREIRA, K. A.

INTITUTION: *Programa de Pós-Graduação em Biologia de Fungos, Departamento de Micologia, Universidade Federal de Pernambuco.*

ABSTRACT:

β -1,3-Glucanases or laminarinases are extracellular enzymes which hydrolyze the β -1,3-D-glucan. Extracellular β -glucanases have been also purified from several fungi and most of them are belonging to Trichocomaceae, others purified b-1,3-glucanase have been isolated from different ecological niches as well as rumen and fungal plant pathogen. Mucorales are saprobic, acting in the degradation of organic matter being facultative parasites of animals and plants, however, species of the genus *Mucor* present great potential for the production of fermented foods, being also promising microorganisms for biotransformation, drug production and generation of energy, given its rapid growth and ability to produce metabolites. The purpose of the present work was to identify and quantify β -1,3-glucanase activity in *Mucor fragilis* URM 7769 from the fungal bank of Biotechnological interest of the Departamento de Micologia at the Centro de Biociências of the Universidade Federal de Pernambuco, cultivated in potato-dextrose-agar (PDA) and incubated for 5 days at 28-30 °C. From this culture, 5 mm discs were suspended in 30 mL Tween 80 solution (0.02%) and 1 mL from this suspension was transferred to 250 mL Erlenmeyer flasks containing 50 mL of submerged culture medium (YEPD) performed at 32 °C, under stirring at 90 rpm for 60h. The metabolic liquid was filtered through filter paper and 0.45 μ M membrane, we obtained a free cell filtrate and the crude enzyme extract was considered. The determination of the enzymatic activity was measured by the colorimetric quantification of glucose released from the laminarin substrate. The microplate reaction was incubated at 37 °C for 1h, containing 10 μ L of 0.1 M sodium acetate buffer, pH 5.0, 40 μ L culture medium and 50 μ L laminarin (4.0 mg mL⁻¹). After this time, was added 200 μ L of DNSA (3,5-dinitrosalicylic acid), which corresponds to the mean activity of 2.3 U mL⁻¹. The specific activity obtained was 63 U mg⁻¹. The results showed that *Mucor fragilis* URM 7769 has an excellent potential for production of the β -1,3-glucanase.

KEYWORDS: Fungi; enzyme; Culture Collection URM

FINANCIAL SUPPORT: FUNDAÇÃO DE AMPARO A CIÊNCIA E TECNOLOGIA DO ESTADO DE PERNAMBUCO (FACEPE IBPG-0177-2.12/18)