

Título: USING THE COLUMN TEST FOR SCREENING OF FUNGI SECRETING BETA-1,3-GLYCANASES

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Resumo: The fungal enzymes are widely used today in various processes, ranging from the chemical industry to bioremediation. Among its advantages of use are the easily obtainable/extraction of medium, higher stability, versatility, and reduced production cost compared with bacterial enzymes. However, screening of specific enzymes is a time consuming, laborious and costly process. Thus, alternative methods are being proposed for this process to be more streamlined, inexpensive and efficient. The objective was the development of a rapid screening test to assess the potential of enzyme 1,3-beta-glycanases producing fungi. Was used six strains of *Aspergillus niger*, 2 of *Aspergillus fumigatus* and 2 of *Aspergillus terreus*, and a fungus as a negative control (no producer), all from the Collection of Microorganisms of Industrial Microbiology (CMMI) of UNISC. As substrate we used beta-1,3-glucan which has been obtained by *Saccharomyces cerevisiae* biomass subjected to different treatments (alkaline hydrolysis, acid and oxidation). For screening producers of 1,3-beta-glycanases, all strains was incubated at 25°C for 24 hours on agar containing 1,3-beta-glucan and a saline solution (Bushnell-Haas), in petri dishes. When fungi grown, was obtained a mycelium disc, which was transferred to vials containing the same medium, with and without addition of peptone, as a vertical column. The tests were performed in quintuplicate, at 25°C, for 10 days. The presence vertical halo (1,3-beta-glucan degradation indicator) formed below the mycelium line, measured every 48 hours. In medium containing peptone, strain *A. niger* CMMI 898 showed the highest vertical halo (4.1 mm), followed by *A. niger* CMMI 10A (3.4 mm). The lower halo was attributed to strain *A. niger* CMMI 01 1.2 mm. In medium without peptone, *A. niger* CMMI 10A had the highest vertical halo (11.4 mm), followed by *A. niger* CMMI 01 (10,9mm). *A. fumigatus* CMMI 02 had the lowest extent of halo (4.1 mm). All strains showed secretion of enzymes active on the 1,3-beta-glucan. The column test proved easy preparation and allows evaluating the efficiency of different strains producing 1,3-beta-glycanases. The proposed method can be used to exploit other organisms secreting enzymes requiring only the exchange of the substrate

Palavras-chave: beta-1,3-glycanases, *Aspergillus*, enzyme screening, column test and *aspergillus niger*.

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