

PECTINOLYTIC ACTIVITY OF *ASPERGILLUS* SECTION *NIGRI* STRAINS

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Pectinases are a heterogeneous group of related enzymes that hydrolyze pectic substances present mostly in plants. Pectinases are produced by plants, fungi, yeasts and bacteria. Filamentous fungi are good producers of pectinolytic enzymes (e.g., exopolygalacturonase (exo-PG) and endopolygalacturonase (endo-PG) and *Aspergillus niger* is the most commonly used fungal species for industrial production of pectinolytic enzymes. The application of pectinolytic enzymes plays an important role in food technology. In juice production, these enzymes have been used to improve the yield, decrease the viscosity, clarify the juices and make them more stable. In this context, the concept of using filamentous fungi and low and cheaper materials for pectinase production is an important parameter in technological development. In the present study a microplate method was developed for a rapid screening of *Aspergillus* strains. Fifty-three strains of *Aspergillus* section *Nigri* obtained from the University of Recife Mycology (URM) culture collection and 8 of the Micoteca da Universidade do Minho (MUM) culture collection were used. Orange peel was the unique carbon source in the composition of the culture medium. The samples were incubated at 25 °C for 120 h. After 24, 48, 72, 96 and 120 h the exo-PG and endo-PG were assessed using absorbance colorimetric and decrease in viscosity methods, respectively. The utilization of orange peel allowed the detection of exo-PG and endo-PG activity for all strains studied. The maximum exo-PG and endo-PG activity was obtained by strain URM5162 to the values 4.37 U and 2.13 U, respectively. This method and substrate may be useful to reduce the time for selecting promising strains and in reducing the enzyme production costs. The strain is now being used in a bioreactor and the enzymes and their mechanisms are also under further investigation.

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