

OPTIMIZATION OF EXTRACELLULAR KERATINASE PRODUCTION BY *ASPERGILLUS CLAVATUS*

Gioppo, N.M.R.¹, Marcondes, N.R.¹, Kadowaki, M.K.¹ & Peralta, R.M.²

¹ Centro de Ciências Médicas e Farmacêuticas Unioeste- Cascavel-Paraná-Brazil

² Departamento de Bioquímica- UEM- Maringá- Paraná- Brazil

Keratinases (EC 3.4.9.11) are proteases able to hydrolyze insoluble and are produced specially by microorganisms. The degradation of keratinous material is important medical and agriculturally. World-wide poultry processing plants produce millions of tons of feathers annually as a waste product and their content in beta-keratin is largely responsible for their high degree of recalcitrance. However, they also represent a potentially valuable source of protein as animal feedstock if keratinolysis can be achieved. In addition, keratin partially or completely hydrolyzed by keratinases, could be used for the development of slow nitrogen fertilizers, glues and biodegradable films. Considering that keratinase production by microorganisms is influenced by number of culture factors, investigation was carried out to optimize the culture conditions for the production of extracellular keratinolytic protease by *Aspergillus clavatus* in submerged cultures. The highest enzyme production by this fungus (36.0 U/ml and 1,070 U/mg protein) was obtained in submerged conditions, using poultry feather meal at 1% (w/v) as substrate, at pH 7.0, and temperature of 25° C after seven days of cultivation. Considering that keratinases are mostly isolated from pathogenic dermatophytes, and the ability of geophilic fungi to degrade keratin seems to be rare, *A. clavatus* appear as potential source of keratinase for future biotechnological applications.

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