

Screening of *Metarhizium anisopliae* Soil Isolate for Production of Chitinase

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Chitin, a polymer of β -(1,4)N-acetyl-D-glucosamine (GlcNAc), is the second most abundant polysaccharide existing in nature and is a major structural component of most biological systems such as molluscs, insects, crustaceans, fungi and marine invertebrates. Chitin and its derivatives are of commercial and biotechnological interest because of their wide range of biological activities. The enzymes responsible for chitin degradation and modification are chitinases (EC. 3.2.1.14), which are found in a variety of organisms such as bacteria, fungi, yeasts, plants, molluscs, arthropods, etc. *Metarhizium anisopliae* fungi deuteromycete produce chitinase, protease and lipase for penetration through the insect cuticle. The objective of this work was to analyze five strains of the *M. anisopliae* isolated of soil for production of chitinase. The production medium used contained (g/L): KH_2PO_4 , 3.0; K_2HPO_4 , 1.0; MgSO_4 , 0.7; $(\text{NH}_4)_2\text{SO}_4$, 1.4; NaCl, 0.5; CaCl_2 , 0.5; $\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$, 0.2, KCl, 0.2, $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$, 0.2, $\text{ZnSO}_4 \cdot 7\text{H}_2\text{O}$, 0.2, $\text{MnSO}_4 \cdot 7\text{H}_2\text{O}$, 0.2, yeast extract, 0.5; bacto-peptone, 0.5, and crustaceans fibers, 5.0. The pH of the medium was 5.5. The fermentation occurred at 28° C for 7 days. Crustaceans chitin (0,1g/mL) in acetate buffer 50 mM, pH 5,0 was used as a substrate to assay chitinase activity incubate with 1 mL of enzyme at 30° C for 1 h. The product was evaluated by the dinitrosalicylic acid. One unit of enzyme activity was defined as the amount of enzyme that catalyzed the release of 1 μmol of GlcNAc per mL in 60 min. The results showed that the strain CG46 was the best producer with 2.5 times higher than the strain CG343 that was the second best producer. This study is very important for the discovery of news strains of *M. anisopliae* producer of chitinases in larger quantities.

Palavras Chaves: *quitinases, Metarhizium anisopliae, enzimas*
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