



***Cladosporium tenuissimum* URM 7803: a promising new β -galactosidase producer**

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ABSTRACT:

The *Cladosporium* genus, defined by Link in 1816, is one of the largest and most heterogeneous Hyphomycetes genus. It comprises more than 189 species still rarely explored biotechnologically. One of the most studied microbial enzymes, β -galactosidase is a glycoside hydrolase enzyme that catalyzes the hydrolysis of β -galactosides into monosaccharides through the breaking of a glycosidic bond. Recently, new studies comprising new microbial sources of β -galactosidase, presenting biotechnologically interesting characteristics, have been encouraged. In this context, the present study evaluated the production of β -galactosidase by a new isolate of *Cladosporium tenuissimum*. A *C. tenuissimum* inoculum was prepared adding 10^7 spore/mL in sterile saline solution 0.85% (w/v) NaCl containing 0.01% (w/v) Tween 80 and added to fermentation medium for enzyme production. The fermentation medium, composed of (% w/v): lactose (2), peptone (0.4), yeast extract (0.4) and salts (KH_2PO_4 (0.2), $\text{Na}_2\text{HPO}_4 \cdot 12\text{H}_2\text{O}$ (0.8) and $\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$ (0.025), pH 6.5, was maintained at 28° C and 180 rpm for 13 days. One sample (50 mL erlenmeyer) was removed every 24 hours and β -galactosidase activity was evaluated using ONPG (ortho-Nitrophenyl- β -galactoside) method. The results showed maximum β -galactosidase production by *C. tenuissimum* URM 7803 on thirteenth day, displayed enzymatic activity of 462.13 U/mL. The *C. tenuissimum* URM 7803 isolate proved to be a powerful new β -galactosidase producer with potential application for food processing.

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