

## TANNASE PRODUCTION BY *ASPERGILLUS TAMARII* IN SUBMERGED AND SOLID-STATE CULTURES.

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Tannase (EC 3.1.1.20) is an extracellular inducible enzyme that hydrolyses ester and deposite bonds of hydrolysable tannins, releasing gallic acid and glucose. It is an important key in the fruit juices industry and coffee-flavoured soft drinks as a clarifying agent, and in the production of gallic acid, a potent nutraceutical compound. In this work, tannase production by *Aspergillus tamaris* was studied in submerged and solid state cultures. Tannase activity was assayed by the spectrophotometric method of methanolic rhodanine, and one tannase unit was defined as the enzyme amount able to release 1 µmol of gallic acid per ml per min. The best condition to produce tannase was in submerged cultures using gallic acid (6.4 U/ml) and tannic acid (4.6 U/ml) as substrate. None of 20 different agricultural wastes was able to induce tannase in both submerged and solid state cultures. The supplementation of the cultures with ammonium sulphate and ammonium nitrate improved the production of enzyme at least twice, while organic nitrogen sources such as yeast extract and peptone had a negative effect. The supplementation of cultures with different carbohydrates severely repressed the production of enzyme, what could be the reason of low levels of tannase found in solid state cultures.

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