Characterization of Thermostable Tannases Produced by *Emericela nivea*

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Tannases (tannin acyl hydrolase, EC 3.1.1.20) are inducible enzymes that catalyses the break down of ester and depsidie bounds in hydrolysable tannins, producing gallic acid and glucose. There are many organisms with the capacity to produce this enzyme, especially filamentous fungi, as the *Aspergillus* and *Penicillium.* Hence, tannases can be used in different industrial sectors, such as chemical and pharmaceutical. The aim of this work was to study the production of tannases by *Emericela nivea* isolated from Brazilian soil, under submerged (SbmF), and also determine several biochemical properties. The tannase activity was determinated using methyl gallate as substrate (0.2%) according to Sharma *et al.* (2000) and protein was quantified according to Lowry *et al.* (1964). Among the 42 strains tested for production of tannase, *Emericela nivea* was one of the better fungi, producing higher levels of both intra (1825 Total U) and extracellular (3050 Total U) enzymes, in Khanna medium (Khanna *et al.*, 2001) with 2% tannic acid as carbon source, at 30°C, for 3 days. The extracellular enzyme was partially purified 1.87-fold by Caulin treatment and DEAE-Celullose. The optimal temperature of activity for tannases from *E. nivea* was 45-50°C, for extra and intracellular form, respectively, and the optimum pH was 5.0 for both enzymes with a good stability in the pH 4.0 and 5.0. In addition, the extracellular enzyme was stable at 30-90°C for more than 24 hours. The tannases activities was enhanced by 1mM of Mn^{2+} and inhibited by Fe^{3+}, among others. In conclusion, *E. nivea* was a good producer of thermostable tannases with biotechnological potential. Support: FAPESP and CAPES.