Enzymatic Characterization of L-asparaginase Excreted by *Pseudomonas aeruginosa* Isolated from *Poincianella pyramidalis* of the Caatinga Biome.

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INTRODUCTION: L-asparaginase (L-ASNase, E.C. 3.5.1.1), present in microorganisms, animals and plants, is responsible for converting L-asparagine to L-aspartic acid and ammonia. L-ASNase is essential for the normal course of cell cycle, used in the food industry and acting as a chemotherapeutic and anti-carcinogenic. Among L-asparaginase-producing microorganisms is the *Pseudomonas aeruginosa* with the ability of yielding this enzyme, which may be present as L-asparaginase type I or II. **OBJECTIVE:** The present study aimed to characterize the L-asparaginase in different pH values, temperature, substrate and metal ions, excreted by *P. aeruginosa* isolated from *Poincianella pyramidalis* rhizosphere. **MATERIAL AND METHODS:** The effect and the stability of pH was performed using citrate buffer (pH 2.0 to 7.0), Tris-HCl buffer (pH 8.0) and glycine-NaOH buffer (pH 10.0). The effect and temperature stability were measured over 4 to 80 °C range. The affinity of L-asparaginase to different substrates was assayed using L-aspartic acid, L-asparagine, L-glutamine and ornithine. The effect of different metal ions was evaluated with chloride ions Fe^{2+}, Fe^{3+}, Hg^{2+}, Ca^{2+}, Mg^{2+}, Zn^{2+}, Cu^{2+}, Co^{2+}, Pb^{2+} e Mn^{2+}, among others, in 2 mM concentration. **RESULTS AND DISCUSSION:** The results of the enzymatic characterization showed an optimum pH of 7, the highest activity at 30 °C, the best substrate L-asparagine and finally, sodium nitrate ($NaNO_3$) mercury chloride ($HgCl_2$), magnesium chloride ($MgCl_2$) and urea ions gave the best effect. **CONCLUSIONS:** L-asparaginase characterized, isolated from *P. aeruginosa*, showed significant results and extremely important for the biotechnological industry, showing the feasibility and reliability of the study performed.

Key words: L-asparaginase; *Pseudomonas aeruginosa*; *Poincianella pyramidalis*.

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