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ENZYMATIC ACTIVITY OF *Lippia sidoides* CHAM. AND ENDOFITIC FUNGI[1] / Atividade enzimática de *Lippia sidoides* Cham. e fungos endofíticos. T.P.S. FEREIRA[2]; G.R. SANTOS[3]; D.S.C. MOURÃO[3]; C.A. SIQUEIRA[2]; A.H.M. ABREU[2]; B.L. DIAS[2]; I.M.A.S. BASTOS[2]; R.W.S. AGUIAR[2]. [2]Biotechnology Bioprocess and Engineering, Federal University of Tocantins, 77402 970, Gurupi, Brazil / [3]Agronomy, Federal University of Tocantins, 77402 970, Gurupi, Brazil. E-mail: cupufer@gmail.com

Secondary metabolites may play a number of roles, among them the activation of plant defense mechanisms, such as phytoalexins and the synthesis of antioxidative enzymes, which aid in the elimination of reactive species in plants. This study aimed to test six endophytic fungi extracts from *Lippia sidoides* and the extract of its leaves to verify the synthesis of the enzymes superoxide dismutase (SOD), ascorbate peroxidase (APX), phenol peroxidase (POX), catalase (CAT) and chitinase (QUIT), as a response to the antioxidative and antifungal system. In addition, the assays for determination of the enzymatic activity of the enzymes mentioned above were performed by spectrophotometric methods. The activity of the SOD enzyme, the highest value, 130 U g^{-1} E^{-1} min^{-1}, was presented by the fungus LS-14; APX, the highest value was 3821 µmol ASA g^{-1} E^{-1} min^{-1} for *L. sidoides* extract. CAT activity was also highlighted for *L. sidoides* extract with 2429 µmol H_2O_2 g^{-1} E^{-1} min^{-1}; POX activity, the highest value was for the fungus *Fusarium* sp. 2 of 87 µmol H_2O_2 g^{-1} E^{-1} min^{-1}; and activity QUIT, the highest result was 0.214 U min^{-1} for the fungus *Fusarium* sp. 1. Thus, the presence of enzymes related to antioxidative activity such as SOD, APX, POX and CAT and related to the hydrolysis of chitin polymers, such as QUIT, both in the leaves of the plant and in the fermented liquid of the endophytic fungi were verified and proved. In this way, there are important and potential commercial products to activate the defense of plants and promote their resistance.

Key words: Antioxidative enzymes; Plant defense; Extract; Antifungal system.

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