EFFECT OF EXTRACT *Heliopsis longipes* IN ENZYME ACTIVITY RELATED TO THE DEFENSE AND PROTECTION OF TOMATO SEEDLINGS INOCULATED WITH *Fusarium oxysporum f. sp. lycopersici*

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Introduction. FOL is a facultative pathogen globally distributed in soil, causing vascular damage in tomato varieties of economic importance (1). It has been studying the possibility of reducing the severity in the symptoms of plant diseases by inducing resistance (2). The plant of *H. longipes* (HL) specifically in roots is rich in alkamides molecules, specifically affinin (3), which could act as elicitor in plants.

The objective of this work is determine the concentration of key metabolites in the induction of resistance in tomato seedlings sprayed with HL and inoculated with FOL.

Methods. The *in vivo* experiment was performed with tomato plants 5 to 6 true leaves of the variety Rio Grande potted with a mixture of peatmoss: perlite (70:30). The foliar application of concentrated ethanol extract of HL was in a concentration of 300 ppm (affinin). After four days of extract application was inoculated FOL by root immersion of spore solution. The activity in leaves phenylalanine ammonia lyase (PAL), chitinase and β 1,3 glucanase (2) and salicylic acid (4) was determined at 0.5, 1, 1.5, 2, 3, 4, 5 and 6 days after the HL extract application.

Results. HL extract can activate enzymes related to induction of resistance in plants. In the specific activity of plants sprayed with HL extract the greatest activity was observed at 12 hours of application of the extract, with an increase of 304% in PAL, 136% in β1,3 glucanase and 107% in chitinase. Once inoculated with FOL at fourth day, this plants present increases in specific activity with increases of PAL in 108% and 31% in β1,3 glucanase (5 th day of the application of HL extract) relative to the absolute control. In salicylic acid production, this was not detected in plants sprayed with HL extract or in inoculated plants, only was detected in the plants sprayed with the commercial positive controls recommended to induce resistance in plants.

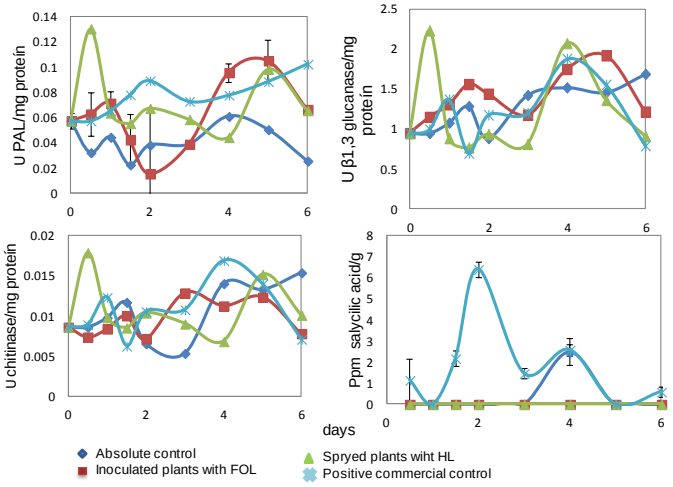

Figure 1. Effect of HL extract application and FOL inoculation in enzymatic activity (PAL, β1,3 glucanase and chitinase) and concentration of salicylic acid.

Conclusions. The application of *H. longipes* extract in tomato seedlings, could act as resistance elicitor, inducing more key metabolites in tomato plants compared with induction with FOL.

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