

EFFECT OF ALLELOCHEMICAL STRESS CAUSED BY *SICYOS DEPPEI* ON *LYCOPERSICON ESCULENTUM* GROWTH AND OXIDATIVE DAMAGE

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In a greenhouse experiment we evaluated the effect of the allelochemical stress caused by the decomposition of the allelopathic weed *Sycios deppei* (Cucurbitaceae) on *Lycopersicon esculentum* (Solanaceae) growth. Dry and fresh leaves of *S. deppei* were mixed with soil in pots and we analyzed relative growth rate parameters (RGR, NAR, SLA, and LWR), and oxidative damaged by measuring lipid peroxidation, levels of hydrogen peroxide and the activity of the antioxidant enzymes: catalase (CAT), ascorbate peroxidase (APX), glutathione reductase (GR) in leaves, shoots and roots of 30 days old tomato plants. Classical relative growth analysis showed that both fresh and dry leaves of *S. deppei* have an effect on growth of tomato plants; net assimilation rate (NAR) was the main growth component, being reduced by 26 and 13% respectively. Both treatments caused lipid peroxidation in leaves (94% and 44% with dry and fresh *S. deppei* respectively) but treatments did not cause any peroxidation neither in shoots or in roots. Hydrogen peroxide levels were also higher in tomato leaves with fresh *S. deppei* (30%), but the levels of H₂O₂ did not change neither in shoots or roots with both treatments. CAT activity significantly increased (94 and 90%) in leaves and in roots (82%) with fresh *S. deppei*. On the other hand, APX activity was reduced in leaves 84% and 76%, in shoots 75% and 45% in shoots, and increased 75% and 58% in roots with dry and fresh *S. deppei* respectively. GR activity increased only 37% and 35% in leaves, 77% and 100% in shoots and decreased 68% and 42% in roots with dry and fresh *S. deppei* respectively. All these results showed that allelochemical stress, caused by the decomposition of *S. deppei*, affected tomato growth parameters and caused and unbalance in the antioxidant metabolism. At present we are measuring superoxide dismutase (SOD) activity and the plasma membrane NADPH oxidase, the latter as a source of free radicals. We discussed that oxidative damaged as one of the modes of action of *Sicyos deppei*.