PHYSIOLOGICAL RESPONSES OF LETTUCE TO SUGARCANE RIPENERS

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Destaque: The secondary physiological effects of ripeners can help the understanding of the pathways leading to interferences in the PSII and biomass reduction.

Resumo: Sensitive crops cultivated near sugarcane production areas in Brazil, such as lettuce, can suffer deleterious effects caused by plant growth regulators drift. Therefore, the aim of this work was to evaluate the effect of fractional doses of glyphosate, which is registered at 216 g a.e. ha^{-1}, trinexapac-ethyl at 200 g a.i. ha^{-1} and sulfometuron-methyl at 15 g a.i. ha^{-1} in sugarcane as a ripener on the growth of 'Lucy Brown' and 'Vanda' lettuce cultivars. The experiment consisted in a randomized complete block design in a 3 x 5 factorial, with five replications. The first factor corresponded to plant growth regulators and the second factor to dose used., 0 ,3%, 6%, 9% and 12% of the recommended dose of each product were applied when the plants presented the beginning of the head formation for ‘Lucy Brown’ and the 6 to 7 leaf stage for ‘Vanda’. Plant growth regulators were applied in a closed spray room, with a constant pressure (CO_2) costal sprayer, coupled to a bar containing four fan-type spray (XR11002) nozzles on fifty centimeters spacing, calibrated to deliver 200 L ha^{-1}. After application, evaluations occurred at 5, 10, 15 and 20 days after application (DAA) for chlorophyll content, quantum efficiency of photosystem II, and dry mass at 20 DAA. For the two cultivars tested, effects were observed from the sub dose referring to 3% of the recommended dose as a ripener for all products. The results showed that for the ‘Vanda’ cultivar the reductions in chlorophyll content (15 and 20 DAA) were later than what was observed for the quantum efficiency of photosystem II (5 DAA and 10 DAA) resulting in reduction in dry mass. For ‘Lucy Brown’, the chlorophyll content reduction was observed at 15 DAA, for all ripeners. The treatments did not affect the quantum efficiency of photosystem II, and dry mass was negatively affected by ripeners. Thus, the drift of the products have a potential to decrease 'Lucy Brown' and 'Vanda' cultivars production, even at lower doses.

Palavras-chave: Saccharum spp; Plant growth regulators; Lactuca sativa

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