

The Evaluation of the Effect of a Weed-Killer Sulfonylurea on Durum Wheat (Triticum durum Desf)

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Abstract : The wheat is the cereal the most consumed in the world. In Algeria, the production of this cereal covers only 20 in 25 % of the needs for the country, the rest being imported. To improve the efficiency and the productivity of the durum wheat, the farmers turn to the use of pesticides: weed-killers, fungicides and insecticides. However this use often entrains losses of products more at least important contaminating the environment and all the food chain. Weed-killers are substances developed to control or destroy plants considered unwanted. That they are natural or produced by the human being (molecule of synthesis), the absorption and the metabolization of weed-killers by plants cause the death of these plants. In this work, we set as goal the evaluation of the effect of a weed-killer sulfonylurea, the CossackOD with various concentrations (0, 2, 4 and 9 µg) on variety of Triticum durum: Cirta. We evaluated the plant growth by measuring the leaves and root length, compared with the witness as well as the content of proline and analyze the level of one of the antioxydative enzymes: catalase, after 14 days of treatment. Sulfonylurea is foliar and root weed-killers inhibiting the acetolactate synthase: a vegetable enzyme essential to the development of the plant. This inhibition causes the ruling of the growth then the death. The obtained results show a diminution of the average length of leaves and roots this can be explained by the fact that the ALS inhibitors are more active in the young and increasing regions of the plant, what inhibits the cellular division and talks a limitation of the foliar and root's growth. We also recorded a highly significant increase in the proline levels and a stimulation of the catalase activity. As a response to increasing the herbicide concentrations a particular increases in antioxidative mechanisms in wheat cultivar Cirta suggest that the high sensitivity of Cirta to this sulfonylurea herbicide is related to the enhanced production and oxidative damage of reactive oxygen species.

Keywords : sulfonylurea, Triticum durum, oxydative stress, Toxicity

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