



Effect of Cadmium concentrations on the Vegetative Growth, Flowering and Chemical Constituents of *Tagetes erecta* L. Plant

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Abstract: This investigation was carried out at Experimental area of National Research Centre, Dokki, Giza, during the two successive seasons of 2012 and 2013. The objective of this study is to investigate the effect of cadmium concentrations on vegetative growth, flowering and chemical constituents of *Tagetes erecta* L. plants. Results indicated that cadmium concentrations at 80 ppm decreased all vegetative growth and flowering parameters (plant height, branches number /plant, fresh and dry weight of herbage, flowers number /plant and dry weight of flowers) compared with the control plants. In this respect, cadmium at 20 and 40 ppm slightly increased carbohydrates percentage and didn't affect essential oil percentage. Catalase and peroxidase enzymes increased by increasing cadmium concentrations, but decreased superoxidase enzymes. Additionally, all macroelements (nitrogen, phosphorus and potassium percentage) in roots and herbage decreased by increasing cadmium concentrations. The same results were obtained by cadmium concentrations on microelements content (manganese, iron, zinc and copper). On the contrary, cadmium content increased by increasing cadmium concentrations. This study recommends that *Tagetes erecta* L. plants can tolerate cadmium concentrations up to 40 ppm.

Keywords: *Tagetes erecta* L, marigold plants, cadmium, growth, chemical constituents