Interaction of cadmium and different levels of organic and inorganic nitrogen on some physiological and morphological characteristics of purslane (*Portulaca oleraceae*) medicinal plant

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Abstract

In order to investigate the interaction of cadmium (Cd) and different levels of organic and inorganic nitrogen (N) on some physiological and morphological traits of purslane **(***Portulaca oleraceae*) medicinal plant, an experiment was conducted in Research Greenhouse of Shahrekord University, in 2012. Nitrogen treatments were consisted of four separate application levels **(**60 and 120 mg N/kg soil in the form of urea and cattle manure), three levels of combined-fertilizer application (90 mg N/kg as ratios of 2:1, 1:1 and 1:2 from urea and cattle manure, respectively), and control **(**no fertilizer and manure) as the first factor and two levels of Cd **(**10 mg Cd per kg soil and no Cd application) as the second factor. Results showed that Cd significantly decreased leaf chlorophyll, leaf carotenoids, plant height, number of leaves, leaf dry weight, stem dry weight and shoot dry weight. However, increasing N application significantly increased the aforementioned traits under Cd and without Cd application. The greatest purslane yield was obtained in 120 mg N/ kg as cattle manure. On the other hand, there was no significant difference between 120 mg N/kg as urea and combined treatment (1:1) as cattle manure and chemical fertilizer. In general, it can be concluded that application of animal manure not only would increase potential yield of purslane, but also mitigates the Cd stress effect on growth of purslane crop.

Keywords: Medicinal plants, Stress mitigation, Cattle manure, Chlorophyll, Heavy metals.

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