Effect of potassium in reducing cadmium stress and chemical composition of tomato fruit

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Abstract

Plants often accumulate cadmium (Cd) in their edible parts that causes a decrease in crop yield and quality. In order to evaluate the effect of different concentrations of potassium (100, 200 and 300 mg/L) in tomatoes under Cd stress (0, 2 and 4 mg/L) and its efficiency in reducing stress effects, a factorial experiment was carried out based on completely randomized design with 3 replications. Results showed that application of Cd significantly increased Cd concentration in fruits. Existence of Cd in nutrient solution significantly decreased fresh and dry weight of fruit, firmness, titratable acidity, and finally yield. Also, the negative effect of Cd stress on fruit titratable acidity and firmness was neutralized by increasing the potassium (K) level. Potassium caused an increase in total soluble solids and color by affecting a^* color parameter and fruits had more red color and ripeness. The treatments had no significant effect on fruit pH and pericarp thickness.

Keywords: Lycopersicon esculentum cv. Super Chief, Heavy metals, Membrane stability index, Fruit quality.

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