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The effect of different potassium doses on the ion content of hyacinths under salt stress*

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Abstract

This study aimed to determine the responses and ion exchange of hyacinth plants to different doses of potassium and salt. The *Hyacinth orientalis* cv. Pink Pearl was used as plant material. To observe the effects of different doses of potassium and salt on the leaves of hyacinths planted in one-liter pots filled with peat and perlite, all flowers were removed after pink blossom formation. The study was designed based on factorial randomized plots with four replicates and five plants per replicate. The study employed four different potassium and salt doses: 0 K mg kg⁻¹ (control), 500 mg kg⁻¹ K, 1000 mg kg⁻¹ K, and 2000 mg kg⁻¹ K, and salt doses: 0 mmol (control), 50 mmol, 100 mmol, and 150 mmol NaCl. Hyacinths were kept in a growth chamber with daytime temperatures of 24-26°C and nighttime temperatures of 19-20°C. The hyacinths were exposed to potassium and salt doses for 15 days from the first application. Fifteen days after the salt applications, K, Ca, Mg, and Na analyses were performed on leaves taken from the hyacinths. Membrane damage index and leaf water potential were also examined. At the end of the study, increasing the applied salt doses decreased the amounts of K, Ca, and Mg, and the relative water content of hyacinth leaves, while increasing the membrane damage index. Adding K doses to the salt doses increased the amounts of K, Ca, and Mg, and the relative water content of hyacinth leaves, while decreasing the membrane damage index. The best effect was observed with the K3 application, which is 2000 mg kg⁻¹ K. K3 application has been shown to reduce the negative effects of salt and to improve plant growth.

Keywords: hyacinth, ion, leaf, potassium, salt stress

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