Effects of spraying ammonium sulfate on growth, yield and qualitative traits of cucumber plants under greenhouse conditions

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Abstract

Nowadays, spraying and foliar feeding represent one of the most effective techniques of applying essential nutrient elements to crops and to optimize the application of fertilizers in agriculture. In this research, effect of foliar application of different concentrations of ammonium sulfate on quantity and quality traits of cucumber under greenhouse conditions was investigated. The research was performed under completely randomized design with 6 treatments of foliar application of ammonium sulfate (0, 25, 50, 75, 100 and 150 mM) with 4 replications. Results of this research showed that plants in 25 mM ammonium sulfate and control treatments had the highest chlorophyll content, number of lateral shoots, number of fruits, and fruit yield. Vegetative traits such as chlorophyll index, number of lateral shoots, number of fruits, and fruit yield were reduced significantly under 100 and 150 mM foliar application of ammonium sulfate. The lowest number of fruits and yield were obtained in 150 mM treatment. Plants in 100 mM treatment had the highest percent of leaf dry weight. Foliar application of ammonium sulfate, except 25 mM, resulted in fruit firmness reduction as compared to control plants. On the other hand, foliar application of ammonium sulfate, regardless of concentration, resulted in higher fruit weight loss compared to fruits from control plants under normal room temperature. Therefore, for optimum growth and production of cucumber under greenhouse conditions, foliar application of 25 mM ammonium sulfate (low concentration) is recommended.

Keywords: Foliar feeding, Fruit yield, Plant nutrients, Vegetative growth.

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