The effect of different levels of N, K and Mg on yield and growth indices of strawberry in hydroponic culture

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Abstract

To study the effects of different levels of N, K and Mg on yield and growth indices of strawberry, a factorial experiment with completely randomized design and three replications was performed. Treatments included three levels of N (110, 220 and 330 mg/L), three levels of K (120, 240 and 360 mg/L) and three levels of Mg (12, 24 and 48 mg/L) that were applied to strawberry (cv. Gavita) in a hydroponic system. The yield, number of fruits, fresh and dry weight of aerial parts and roots of strawberry were measured in each treatment. Results of ANOVA showed that the effects of different levels of N were significant on yield and growth indices of strawberry. The yield decreased as the level of N increased in the growth medium, such that the highest yield was obtained in the 110 mg/L N treatment. The effects of K levels were also significant on yield and growth indices of strawberry, except for number of fruits. The yield decreased as the level of K increased. The highest yield was observed in the 120 mg/L K treatment. The Mg levels had significant effects on yield and fresh and dry weight of aerial parts of the plants. The highest strawberry yield was obtained when 24 mg/L Mg was used in the hydroponic culture. All interactive effects of N, K and Mg were significant on yield and growth indices of strawberry, and the highest yield was obtained when the levels of N, K and Mg in the hydroponic solution were 110, 120 and 24 mg/L, respectively. In general, these levels of nutrients are recommendable to obtain maximum strawberry yield in hydroponic media.

Keywords: Strawberry, Yield, Potassium, Magnesium, Nitrogen.

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