

## Effect of slow-release fertilizer and humic acid application on New Guinea impatiens (*Impatiens haawkeri* “Divine Scarlet Red”) transplant production quality

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### Abstract

Optimum nutrition is one the most effective strategies in floriculture industry. In this regard, a factorial experiment designed based on CRD with three replications on New Guinea impatiens in greenhouse. Treatments were slow release fertilizer (12-11-18-2.7MgO-8S) at 5 levels (0, 1.5, 3, 4.5 and 6 kg/m<sup>3</sup>) and humic acid at three levels (0, 2 and 4 kg/m<sup>3</sup>), mixed with substrate. The F<sub>1</sub> seeds of New Guinea impatiens planted in plug trays consisting of 50% peat moss, 40% perlite and 10% rice husk (v/v) as medium. After 70 days, traits such as transplant height, number of leaves, shoot diameter, total fresh and dry weight of shoots and roots, chlorophyll content and leaf nutrient concentration was evaluated. Results showed that the highest transplant height (4.38 cm) was observed in applying 3 kg/m<sup>3</sup> of slow-release fertilizer mixed with 4 kg/m<sup>3</sup> of humic acid, the greatest stem diameter (3 mm) was observed in 4.5 kg/m<sup>3</sup> of slow-release fertilizer treatment and the highest number of leaves (18.9) was observed in 3 kg/m<sup>3</sup> of slow-release fertilizer treatment. It seems that slow-release fertilizer increased nutrient elements efficiency and decreased their leaching from the substrate and also, humic acid increased plant nutrient uptake during transplant production. According to the results of this research, it could be recommended to use 3-4.5 kg/m<sup>3</sup> of slow- release fertilizer and 2-4 kg/m<sup>3</sup> of humic acid in the substrate for transplant production of New Guinea impatiens.

**Keywords:** Transplant vegetative traits, Optimum nutrition, Nutrients' use efficiency.

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