

## Effect of nitrogen form (ammonium and nitrate) on quantitative and qualitative indices of *Tulipa gesneriana* cv. Apricot parrot

H. Abbasi<sup>1</sup>, M. Babalar<sup>1\*</sup>, H. Lesani<sup>1</sup> and R. Naderi<sup>1</sup>

(Received: Mar. 09-2014 ; Accepted: Aug. 14-2014)

### Abstract

Effects of nutrient solutions on quantitative and qualitative indices of tulip (*Tulipa gesneriana* cv. Apricot parrot) were studied in a completely randomized design with 5 nutrient solutions, 4 experimental units and 3 replications. Plants were fed with five nutrient solutions (S<sub>1</sub>, S<sub>2</sub>, S<sub>3</sub>, S<sub>4</sub> and S<sub>5</sub>) having NH<sub>4</sub><sup>+</sup>-N/total N ratios of 0, 0.038, 0.074, 0.11 and 0.14, respectively. All nutrient solutions had similar concentrations of mineral elements. The five treatments consisted of 2.5 meq/L total N, and concentration of all the nutrients was 8.4 meq/L. Based on the results, increasing the ammonium level in nutrient solutions decreased N and total protein storage in the bulbs, but increased N concentration in the shoots. The ammonium level had no significant effect on potassium concentration of shoots, but increased phosphorus concentration in the shoots. Maximum calcium and magnesium concentration in shoots, wet weight and length and diameter of flowering stem were obtained in plants fed with S<sub>2</sub> solution. Increasing the ammonium level increased number of bulblets, but decreased their size. Increasing the ammonium level decreased time to flowering of bulbs. The highest longevity of cut flowers was observed in plants fed with S<sub>2</sub> solution. In general, based on the results of this research, with increasing the ammonium level in the nutrients solution, the qualitative traits of tulip, such as length and diameter of flowering stem, were increased, but longevity of cut flowers and number of produced bulblets were decreased.

**Keywords:** Nutrient solutions, NO<sub>3</sub><sup>-</sup>-N, NH<sub>4</sub><sup>+</sup>-N.

---

1. Faculty of Agric. and Nat. Resour., Univ. of Tehran, Karaj, Iran.

\*: Corresponding Author, Email: mbabalar@ut.ac.ir