Effect of humic acid contained nano-fertile fertilizer spray on concentration of some nutrient elements in two lettuce cultivars in hydroponic system

H.R. Roosta[1*], M. Safarizadeh[1] and M. Hamidpour[2]

(Received: 20 Dec. 2014 ; Accepted : 15 Sep 2015)

Abstract

In order to study the effects of nano-fertile fertilizer containing humic acid on uptake of nutrients of two lettuce (*Lactuca sativa* L.) cultivars in a nutrient film technique (NFT) system, a factorial experiment based on completely randomized design with four replications was conducted. The experiment consisted of two factors, the nano-fertile fertilizer (0, 500 and 1000 mg/L) and cultivar (Great Lake and Super salad). In this experiment, nutrient elements (K, P, Ca, Mg, Fe, Zn, Mn and Cu) concentration in plant shoots and roots were measured. Results showed that concentration of 1000 mg/L of nano-fertile fertilizer increased concentration of these nutrient elements in shoots and roots of the lettuce plants. But, in the treatment of 500 mg/L nano-fertile fertilizer, only Zn, K and Mg in shoots and Zn, K and Ca in roots were higher compared to control. Great Lake cultivar was better than Super salad cultivar in the uptake of Zn in shoots and Ca, Fe, Mn, Zn and Cu in roots. According to results of this experiment, concentration of 1000 mg/L of nano-fertile fertilizer containing 75% humic substances can have positive effects on improving uptake of nutrient elements in treated plants.

Keywords: Super salad cultivar, Great Lake cultivar, Nutrient film technique (NFT).

1. Dept. of Hort. Sci., Faculty of Agric., Vali-e-Asr Univ. of Rafsanjan, Rafsanjan, Iran.
2. Dept. of Soil Sci., Faculty of Agric., Vali-e-Asr Univ. of Rafsanjan, Rafsanjan, Iran.
* Corresponding Author, Email: roosta-h@yahoo.com

[DOR: 20.1001.1.20089082.1395.7.4.6.8]
[DOI: 10.18869/acadpub.ejgcst.7.4.51]