Nutritional status of greenhouse cucumber and bell pepper in Isfahan province

F. Aghili[1], A. H. Khoshgoftarmanesh[2], M. Afyuni[2], M. Mobli[3],M. Pirzadeh[1*] and A. Sanaei Ostovar[1]

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Abstract

Despite of increasing request for greenhouse vegetables, there is quite limited information on their nutritional quality. This study was carried out to investigate nutritional status of macronutrients (Ca, Mg, P and K) and micronutrients (Fe, Mn, Cu and Zn) in greenhouse cucumber and bell pepper in Isfahan province. After selecting 25 greenhouses, the concentration of macronutrients and micronutrients was measured in soil and edible parts of cucumbers and bell peppers. The results showed that mean concentration of P and K in the soils was much higher than their critical deficiency level. Mean concentration of DTPA-extractable Fe, Zn, Cu and Mn of the soils was 12.0, 4.9, 1.9, and 14.5 mg kg^{-1}. Mean fruit Mg, P and K concentrations in the cucumber and bell pepper were greater than their sufficiency level, while more than 75% of the greenhouse cucumbers were Ca deficient. Also more than half of the greenhouse cucumbers and about 20% of greenhouse bell peppers had Mn deficiency. Also more than 60% of greenhouse cucumbers were Fe and Zn deficient. According to the results, high concentration of some macronutrients such as P and K, and widespread deficiency of Ca and micronutrients in greenhouse production, is probably due to nutritional mismanagement, unbalanced fertilizer application, unstable greenhouse conditions and environmental pollution risks.

Keywords: Greenhouse, Cucumber, Bell pepper, Macronutrients, Micronutrients.

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1. Members of Soilless Culture Research Centre, Isf. Univ. of Technol., 84156-83111, Isfahan, Iran.
2. Dept. of Soil Sci., College of Agric., Isf. Univ. of Technol., 84156-83111, Isfahan, Iran.
3. Dept. of Hort. Sci., College of Agric., Isf. Univ. of Technol., 84156-83111, Isfahan, Iran.
*: Corresponding Author, Email: mahnaz.pirzadeh@gmail.com