Investigation of the growth and development, essential oil and minerals content in two species of mint in hydroponics and aquaponics

H. R. Roosta[1]* and F. Ghorbani[2]

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Abstract

Aquaponic is the combined culture of fish and plants. This experiment was arranged as a factorial in the framework of completely randomized design with two factors of growing system (aquaponics and hydroponics) and plant species (*Mentha piperita* and *Mentha sativa*) with 3 replications. The results showed that most growth factors of the two species were higher in hydroponics compared to aquaponics. Aerial parts and root fresh and dry mass, leaf area and number of nodes were higher in hydroponics compared to aquaponic culture. SPAD index was influenced by the culture system and its value was higher in hydroponic system. Essential oil content of *M. sativa* was higher in hydroponics and of *Mentha piperita* was higher in aquaponics. Lower amount of Mn and Mg in *Mentha sativa* shoots and N, P, Mg and Mn in *Mentha piperita* was the probable reason for growth reduction of plants in aquaponics as compared to hydroponics.

Keywords: Aquaponics, Essential oil, Nutrient elements, Hydroponics, Mint.

1. Assist. Prof., Dept. of Hort., Faculty of Agric., Vali-e-Asr Univ. of Rafsanjan, Rafsanjan, Iran.
2. Former MSc. Student, Islamic Azad Univ. of Jiroft, Jiroft, Iran.
*: Corresponding Author, Email: roosta_h@yahoo.com