

عنوان مقاله:

Optimization of Aeroponic and Ultrasonic Soilless Culture Systems in Terms of Timing and Growth Characteristics of
Lilium OT Hybrid

محل انتشار:

مجله بین المللی علوم و فنون باغبانی، دوره 11، شماره 2 (سال: 1403)

تعداد صفحات اصل مقاله: 15

نویسندگان:

Azizolah Khandan-Mirkohi - *Department of Horticulture Sciences, University College of Agriculture and Natural Resources, University of Tehran, Karaj, Iran*

Fereshteh Abbasi - *Department of Horticulture Sciences, University College of Agriculture and Natural Resources, University of Tehran, Karaj, Iran*

Ali Haji Ahmad - *Department of Horticulture Sciences, University College of Agriculture and Natural Resources, University of Tehran, Karaj, Iran*

Mohsen Kafi - *Department of Horticulture Sciences, University College of Agriculture and Natural Resources, University of Tehran, Karaj, Iran*

Majid Shokrpour - *Department of Horticulture Sciences, University College of Agriculture and Natural Resources, University of Tehran, Karaj, Iran*

خلاصه مقاله:

The purpose of this study was to optimize an efficient nutrient system to produce cut Lilium flowers in respect to the severe water crisis in recent and the high cost of chemicals and fertilizers. So, Lilium bulbs (Lilium OT Hybrid cv. "Zambesi") were grown in aeroponic (centrifugal) and ultrasonic systems with variable pulse periods. In an ultrasonic system on/off time in seconds was ۱۰/۱۰، ۱۵/۵ and ۲۰/۰ and in aeroponic system was ۳/۲۷، ۶/۲۴ and ۹/۲۱ in seconds. A modified Hoagland nutrient solution was applied. Plants were grown to flower then plant growth response in the form of morphological and photosynthetic traits to different systems and operation times was evaluated. According to the results, the growth rate in the vegetative stage and plant height was higher in the aeroponic system, but the effect of pulses was not significant. The highest reproductive growth was observed in ۱۰ and ۲۰% pulses of this system. Maximum root length was obtained in ۱۰% of the aeroponic system operation. The most but not serious bulb rot was observed in ۱۰% of the aeroponic system compared to the others. According to the overall obtained results, ۱۰% of the aeroponic system operation was recommendable for Lilium cultivation. As a considerable finding water consumption in the ultrasonic system was less than half of that of the aeroponic system. Also, although quantum performance of PSII decreased a little, in the time performance of ۵۰% showed better results than the other pulses in the ultrasonic system.

کلمات کلیدی:

bulb flower, growth response, nutrient system, pulse spraying

لینک ثابت مقاله در پایگاه سیویلیکا:

