Abstract

In order to evaluate the effect of mycorrhizal inoculation and oxidative consumption on the growth of saffron corm stands under two experimental irrigation regimes, the present research was carried out in the research farm of Sarayan Agricultural College, 33°51′N 58°31′E, with a randomized complete block design with three replications. Irrigation which was considered as the main factor was done at the intervals of 20 and 40 days. The application of this treatment started after the end of the flowering period when all the plots had been once irrigated (Algae) and continued until the end of the growing season. Humic acid and mycorrhizal consumption factors were regarded as sub and sub-sub-subtypes factors, respectively. Mycorrhizal treatment was carried out at planting time and Humic acid treatment was also done simultaneously with irrigation water as fertigation in four phases (5 kg / ha). According to the predefined action plan, irrigation management treatment was also carried out separately and flood- irrigated after the third irrigation (irrigation after the phytoplankton stage) till the end of the growing season in each plot. The flowers of each plot were picked daily and early in the morning and then, were transferred to the laboratory to be counted and weighed. After that, the stigmas and styles of the flowers were picked and separated manually from petals and after drying at laboratory temperature and in shade conditions, the dry weights of the petals and pimp were measured. Also, just the same as in 1395, sampling and harvesting of identical flowers were done in November 1396, except that the stigmas and style were separated and dried and weighed distinctly. After the last spring irrigation (May, 2017) and as the leaves dried (the beginning of the actual dormancy phase), a number of plants (clones) on each plot were randomly extracted from the soil. The extracted seedlings were then placed in lab conditions for a month, and then, the indices related to the growth of the female mosses including the weight and number of moths per plant were determined. Besides, the leaves of the five corresponding plants were separately harvested, dried, and weighed. The results showed that in general saffron plant nutrition with Humic acid and mycorrhizal inoculation had a significant effect on the growth and yield of saffron flowers and stalks. Also, a close relationship was observed between the growth status of the female stands in the 1st growing season and the yield of saffron in the 2nd growing season. Treatments with greater weight of the corm in each clone, the yield of saffron flower and stigma rose significantly.

Key words: Humic acid, Organic fertilizers, Corm yield, Water use efficiency, Corm weigh

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