



University of Zabol
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Department of Horticulture science and Landscape
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(In The Field of Horticulture science)

Title

Morpho-physiological response of *Rosa damascena* Mill to different methods of nutrition by nanoparticles of oxide, chelate and iron sulfate.

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Abstract

Damask rose (*Rosa damascena* Milli.) is one of the most important species of aromatic and essential plants of the Vardsanan family, which has high economic value in terms of food and medicine. Iran is considered as one of the most important major producers of this plant in the world. Therefore, considering the importance of this plant, an experiment to The purpose of investigating the effect of feeding nanoparticles of acid, chelate and iron sulfate on the morpho-physiological response of the rose in Zabul University in 1399-1400 was conducted in three separate experiments and each experiment was carried out as a randomized complete block design with three replications. The experimental treatments included different concentrations. Acid nanoparticles (0, 25, 50 and 100 mg/liter) as foliar spraying, iron chelate as surface application (0, 2.5, 5 and 10 grams/liter) and foliar spraying (0, 250, 500 and 1000 mg/L) and surface iron sulfate (0, 2.5, 5 and 10 g/L) and chalcod (0, 25, 50 and 100 g). The morphological traits investigated in this experiment include: The length of the flowering branch, the number of leaves and leaflets of the flowering branch, the width of the leaflets, the weight and dryness of the flower and the physiological traits included: essential oil, chlorophyll a, b and total chlorophyll, carotenoid, anthocyanin and phenol. Based on the obtained results, the use of 100 grams of chalcod iron sulfate as a chalcod increased the number of open flowers, fresh and dry weight of petals compared to other treatments. The investigation of biochemical traits also showed that the treatment of 25 mg/liter foliar application of iron oxide nanoparticles had the greatest effect in increasing the amount of anthocyanin and the rest of the treatments had the same effect in increasing this trait compared to the control treatment. The amount of essential oil has also increased in all treatments compared to the control treatment.

Keywords: Iron, Essential oil, Morphological and Physiological indices, Damask rose.