



Yield, fruit quality and nutrients content of pomegranate leaves and fruit as influenced by iron, manganese and zinc foliar spray

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Abstract: This study was carried out in a private orchard at El-Tall El-Keppeer, Ismailia Governorate Egypt under sandy soil conditions, during 2011 and 2012 growing seasons. It was aimed to investigate the influence of foliar sprays of iron, manganese and zinc sulphates on the fruit yield and quality as well as nutrients content of fruit and leaves of pomegranate (Manfalouty cv.) with four years old. Foliar spraying treatments were applied three times at mid of March, April and June at the rate of 500, 1000 mg L⁻¹ for Fe, 800, 1600 mg L⁻¹ for Mn and 1000, 2000 mg L⁻¹ for Zn. The obtained results showed that Fe, Mn or Zn sprays had positive significant effects on fruit fresh and dry weights, fruit dimensions and fruit yield as well as juice volume/fruit, and fruit juice quality i.e., total soluble solids (TSS), total acidity (TA), Total sugars, Anthocyanin and Vitamin C in both seasons as compared with the control treatment. The results also, showed that foliar spraying of Fe, Mn, or Zn led to positive increases of all macro (N, P, K, Ca and Mg) and micro (Fe, Mn, Zn and Cu) nutrients concentration in pomegranate leaves, fruit peel and arils. The highest fruit yield, fruit average weight (peel and grains), fruit dimensions, fruit chemical quality i.e., TSS, Total sugars and Anthocyanin were recorded by Zn foliar spraying at 2000 ppm in both growing seasons. The distribution of nutrients in leaves and fruit parts was differed according to treatment and kind of mineral nutrient. The correlation coefficient between nutrients concentrations of pomegranate leaves, peel and grains and fruit yield and quality, as an average of the two seasons showed positively significant and highly significant relationship of most nutrients with most studied pomegranate fruit characteristics.

Key words: Pomegranate, iron, manganese, zinc foliar application, fruit physico-chemical properties, fruit quality, correlation coefficient.