

Effect of Fe and Nano Fe chelated on micropropagation of olive cv. Dezful

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Abstract

Aim and Background: Olive tree (*Olea europaea* L.) has a high economic value and many countries such as Iran and Mediterranean countries use its oil and canned fruits. Conventional propagation programs are time consuming. Tissue culture technique allows producing high quality and rapid growing plants. The objective of the present study was to evaluate the effect of chelated iron and nano-chelated iron on the growth rate of *in vitro* microshoots.

Material and Methods: Uninodal explants of young shoots from a mature olive (*Olea europaea* L.) (cv. Dezful), were cultured in DKW medium supplemented with 2ip ($4\text{mg}\cdot\text{L}^{-1}$). Sterile microshoots were subcultured in DKW medium supplemented with different concentrations of nano-Fe and Fe chelate (60, 120, 180, 240 μM). Forty-five days after subculture, growth parameters were investigated.

Results: Results indicated that the growth parameters (number of nodes, microshoots, leaves and stem length) significantly decreased in the presence of nano Fe. The maximum level of leaves number and stem length was achieved in the high concentration of Fe (180 μM). Upon increasing the Fe or nano Fe content in the medium, the chlorophyll b and carotenoid levels were significantly increased. Fe chelate was more effective than nano Fe.

Conclusion: Microshoots couldn't survive in the highest concentration of nano Fe and Fe (240 μM). The best results were obtained in the presence of Fe (120, 180 μM).

Keywords: olive, Nano Iron, micropropagation, pigments

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