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VEGETATIVE AND REPRODUCTIVE ABNORMALITIES IN SECOND GENERATION OFFSHOOTS OF TISSUE CULTURE-DERIVED DATE PALM (PHOENIX DACTYLIFERA L.)

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Several abnormalities have been reported in tissue culture-derived seedlings but it is still unclear that if their offshoots show any abnormality or not. This study focused on vegetative and reproductive growth conditions of second generation offshoots of date palm cv. Barhee tissue culture-derived seedlings and traditional date trees offshoots. This research has been carried out in Date palm and Tropical Fruits Research Center mother plantations. In this study, vegetative and reproductive traits including survival rate, percentage of fruit set, parthenocarpic fruits, and abscission percentage were assessed. The results showed that both offshoot types had similar survival rate without significant differences. Based on observations, both types of offshoots did not show vegetative abnormalities. But in terms of reproductive traits, fruit set of tissue culture-derived seedlings offshoots had less fruit set than traditional offshoot with significant differences. Traditional offshoot showed about 65% fruit set but offshoots of tissue culture-derived seedlings showed just about 22% fruit set. Parthenocarpic fruit percentage was higher in offshoots of tissue culture-derived seedlings (about 45%) than traditional offshoot with significant differences. In traditional offshoot, Parthenocarpic fruit percentage was only about 3 percent in the first year, but it decreased to almost zero in the third year of this study. Abscission percentage in both plant types was significantly different at second year, but it showed no differences at first and third years. In conclusion, it seems that in second offshoot generation of tissue culture-derived date palm seedlings, vegetative abnormality moderated but reproductive abnormalities still maintain.

Keywords: date palm, Barhee, Offshoot of tissue culture-derived seedlings, traditional offshoot, Offshoot survival rate, vegetative and reproductive abnormalities