Development Of A Cost-effective Protocol For Micropropagation Of Date Palm.

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Abstract

Micropropagation of Date Palm (Phoenix dactylifera L.) is being practiced for more than two decade by laboratories or commercial enterprise. Most published protocols are using the MS media in different stages for propagation. This media is either purchased as a ready-made mix or mixed from stock solutions prepared from high grade chemicals. The price of the MS affecting directly the sale price of the produced plantlets.

A novel approach to reduce the cost of the date palm micropropagation was attempted by replacing the main media ingredient with commercially available fertilizer. A nutrient solution (NS) was developed form the available fertilizers in Qatar. First, it was tested on newly produced date palm plantlets in a prototype aeroponic device at the Department of Agricultural Research, Ministry of Environment, Qatar. After the success of the NS, an experiment were designed to test its potentiality to replace the MS media on two date palm cultivars. Plantlets in different development stages were kindly provided by the Tissue Culture Department. They were planted on both NS and MS media. Once they reached the right stage for transplanting to the soil, they were evaluated then transplanted for adaptation. Shoots and roots length and plantlet weight were recorded. No statistical significant differences were found between plantlets grown on NS or MS media. Also it was possible to reduce the number of cycles from embryo’s germination to adaptation stage.

More experiments are planned to standardize the new protocol with respect to the ideal concentration and hormone combination.