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Effects of plants growth regulators and carbon sources on *in vitro* shoot elongation, rooting, and plantlet acclimatization of date palm (*Phoenix dactylifera* L.) cv. Mejhoul

Meziani Reda[1,2], **Mazri Mouaad Amine**[1] and **Jaiti Fatima**[2]
[1]Institut National de la Recherche Agronomique, Morocco
[2]Faculté des sciences et techniques, Errachidia, Morocco

Date palm (*Phoenix dactylifera* L.) is an agronomically, ecologically and socio-economically important fruit tree in many countries. This species is mainly propagated by somatic embryogenesis. However, this technique may result in somaclonal variation within regenerants. Recently, date palm micro-propagation through organogenesis has gained much interest since it allows to produce true-to-type plantlets. Organogenesis is the technique by which adventitious buds are formed directly on the explant. It comprises numerous steps: initiation of vegetative buds, bud multiplication, shoot elongation and rooting then plantlet acclimatization. In previous works, we evaluated the effects of numerous factors on bud initiation and multiplication. Thus, the purpose of this study was to evaluate the effects of different plant growth regulator combinations and carbon sources on shoot elongation, rooting and plantlet acclimatization of date palm cv. Mejhoul. The results of this study showed that the combination of 1 mg/L NAA, 1 mg/L BAP and 1 mg/L KIN resulted in the highest leaf length with an average of 19.2 cm. The use of KIN alone in the culture medium resulted in leaf lengths ranging from 12 to 14 cm. Root formation was strongly stimulated using NAA alone or in combination with IBA. Regarding leaf greening, the PGR-free medium gave the highest chlorophyll content with 6.78 CCI. After one month in the glasshouse, the plantlet survival rate was higher within those that have been grown on PGR-free medium. On the other hand, the carbon source (sucrose, mannitol, sorbitol or commercial granular sugar) showed a significant effect on shoot development and plantlet acclimatization. The use of sucrose gave the best results *in vitro* and *ex vitro*, with an average shoot length of 13.6 cm, a high chlorophyll content (10.04 CCI), and a high survival rate after acclimatization 80%. The use of commercial sugar as carbon source has also given satisfactory results, with a survival rate of 70 %.

Biography

Meziani Reda has obtained his Engineer Degree from the National School of Agriculture of Meknes in 2009. He is currently a PhD student in University Moulay Ismail, Faculty of Science and Technology of Errachidia. His research is focused on the micro-propagation of date palm. He has published many papers in reputed journals and participated to many international congresses in numerous countries.

redameziani@yahoo.fr.

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