

DATE PALM SOMATIC EMBRYOS: VARIABILITY IN PROTEIN EXPRESSION LEVEL ASSESSED BY 2-DE AND PROTEIN IDENTIFICATION

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The multiplication of date palm is traditionally achieved by seeds and by off-shoots. However, these methods can be improved by biotechnological approaches such as somatic embryogenesis. Date palm somatic embryos have been obtained from embryogenic suspension cultures. Previous works dealt with the effects of several culture media combinations on some physiological parameters related to the multiplication and maturation of somatic embryos, but few of them have studied the process at the molecular level. By using a 2-DE based proteomic approach, the protein profile of mature somatic embryos obtained from seeds of three date palm cultivars (Barhi, Deglet Nour, and Deglet Nour Grand Caliber) has been analyzed. Embryo extracts were obtained by homogenization in TCA-acetone-phenol media. Proteins were separated by 2-DE (IEF on 17 cm IPG strips, pH 5-8, as the first dimension, and SDS-PAGE on 12 % polyacrylamide gels as the second one, 500 µg proteins). After Coomassie staining gel images were captured and analyzed. The number of resolved spots for Barhi, Deglet Nour, and Deglet Nour Grand Caliber 1 and 2 were of, respectively, 118, 262, 211 and 122, with qualitative and quantitative differential spots found among them. Fifty-six of the differential spots were subjected to MS analysis, with 47 identified. A significant number corresponded to enzymes involved in the energy metabolism, with stress-related redox maintenance proteins also being well represented.