Plant regeneration *via* somatic embryogenesis in date palm (*Phoenix dactylifera* L.)

(Accepted: 13.08.2000)

S.A. Bekheet, M.M. Saker, H.S. Taha and H. A. Moursy
Plant Cell and Tissue Culture Department, National Research Centre, Dokki, Cairo, Egypt

ABSTRACT

A method for somatic embryogenesis and plantlets formation of the Egyptian date palm (cv. Zaghlool) was accomplished. Embryogenic callus was established from shoot tip explants on Murashige and Skoog (MS) medium supplemented with 10 mg/l dichloro-phenoxyacetic acid (2,4-D) + 3 mg/l dimethylaminopurine (2ip). High frequency of conversion to embryos as well as high number of embryos per explant were observed when MS medium devoid of growth regulators was used. Also, subculturing of obtained embryos on MS-hormone-free medium led to regeneration of plantlets. Decreasing sucrose to 2% obviously improved the embryo germination and plantlets elongation. The highest percentages of survival of transferred plantlets to free living conditions were registered when a mixture of vermiculite and peat moss (1:1) was used.

Key words: *Date palm, callus induction, somatic embryogenesis, plantlet formation, acclimatization.*

INTRODUCTION

Date palm is commercially propagated by offshoots. The production of offshoots from mother plants is limited and consequently, clonal multiplication rate is low. To satisfy the increasing demand in international markets, it is necessary to develop alternative methods of vegetative propagation to produce a large number of plants from selected genotypes. Propagation of date palm through tissue culture techniques would offset slow growth rates and limited vegetative propagation potential and would provide large numbers of desirable clones on demand. *In vitro* somatic embryogenesis is employed for mass propagation, genetic transformation and preservation (Bajaj, 1995). Several attempts have been made to establish micropropagation protocols of date palm based on either somatic embryogenesis or organogenesis (Tisserat, 1979 and 1982; Zaid and Tisserat, 1983; Sharma *et al*., 1984 and 1986 and Mater, 1986).

This paper describes a modified method to regenerate whole plants of female date palm through somatic embryogenesis using the tip of offshoots as explants.

MATERIALS AND METHODS

Sterilization and culturing of explants

Two years old offshoots of female date palm cv. Zaghlool grown in Giza governorate were used as a source of explants. Offshoot leaves were removed acropetally till the tender portion was reached. It was further trimmed to completely remove the woody tissues and keep in the succulent shoot tip intact. The tips obtained were kept in an anti-oxidant solution