

Effects of some precursors on development of secondary products in tissues and media of embryogenic callus of date palm cv. Sewi

(Received: 27.10.2003; Accepted : 27.11.2003)

Sherif F. El-Sharabasy

The Central Laboratory of Date Palm Research & Development, Agricultural Research Center, Giza, Egypt.

ABSTRACT

*This work was conducted to study the effect of pyruvic acid, squalene and cholesterol on the growth and development of metabolic products in the tissues and media of embryonic callus of date palm (*Phoenix dactylifera* L.) cv Sewi. Different concentrations (0.0, 0.01, 0.1, and 10.0 mg/l) from pyruvic acid, squalene, and cholesterol as precursors were added to the media. The obtained results showed clearly that morphogenesis characters responded differently to the different precursors used in this study. Squalene was the most suitable for stimulating and increasing embryos number specially with the concentration of 0.01 mg/l, while cholesterol had more stimulating effect on embryos fresh weight and volume followed by pyruvic acid in case of embryos volume. Moreover, pyruvic acid was the most suitable for steroids formation in embryos cells specially with the concentration of 0.1 mg/l followed by cholesterol (0.01 mg/l).*

Key words: Steroids, cholesterol, squalene, pyruvic acid, secondary products, embryogenesis, date palm.

INTRODUCTION

Date palm (*Phoenix dactylifera* L.) plant is widely distributed in Egypt, West Asia and North Africa and extensively planted in the Arab countries and to some extent, in Southern Europe. It is used for nutritive and therapeutic purposes. Their pollen grains are utilized as antisterility agent (Ateya, 1975). Plants and some animal products are used in folklore medicine for treatment of several diseases e.g. hypertension, cardiac diseases, kidney disjunction and diabetes, ... etc. However, nothing could be traced concerning drugs which are used in the treatment of sterility except date palm pollen

grains, which are known by the Egyptians and Arabs to be nutritive and are used as antisterility agent. Cholesterol and coprostanol are the animal sterols, while B-sitosterol, campesterol, stigmasterol, ergosterol and brassicasterol are the principal plant sterols (Bailey, 1964). Cholesterol one of the typical animal sterols has recently been found to be rather widely distributed among plants. So far, cholesterol has been identified in the pollens of many plants including the date palm (Bennett *et al.*, 1996) and oil palm (Slover *et al.*, 1983).

Plants possess solar-powered biochemical factors, which manufacture what they need to survive (both primary and