

Effects of different precursors on characters and production of some secondary products from date palm (*Phoenix dactylifera* L.) cv. Sewi tissues during embryogenesis stage

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Sherif F. El-Sharabasy

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

ABSTRACT

This study was carried out in the Central Lab of Date Palm Research and Development, Agric. Research Center, Ministry of Agriculture, Cairo, Egypt during 2002, to find out the most effective precursor treatment that maximize the growth, development and biosynthesis of secondary products in somatic embryo tissues and media of date palm cv. Sewi. Different concentrations (0.0, 0.01, 0.1, 1.0, 10.0 mg/l) of pyrovic acid, squalene, and cholesterol were added to the media as precursors. Embryo formation responded differently and increased by increasing different precursor levels from 0.0 mg/l to 10 mg/l. Whereas, squalene levels seem to be the most suitable precursor used to stimulate embryo formation, with the optimum level of 0.1 mg/l. Shoot formation was of negative correlation responses with using and increasing pyrovic acid levels from 0.0 to 10.0 mg/l, while this process was stimulated by increasing squalene levels from 0.0 to 0.1 mg/l. The different cholesterol levels had a significant stimulating effect on embryo fresh weight as compared with the other precursors used at the different rates. The concentration 0.01 mg/l is the most suitable one for pyrovic acid or squalene precursors, while, 0.1 mg/l was the most effective level among studied cholesterol levels for biosynthesis of steroids in embryo tissues and media.

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

INTRODUCTION

Tissue culture micropropagation has been employed to aid in the clonally propagation of numerous plant species. The inherent advantage of tissue culture over field propagation is the greater plant production potential from a single plant. Tissue culture techniques may offer a possible method to produce large numbers of genetically uniform palms. Several reports

dealing with tissue culture in palms have appeared in the literature in the 1970's. Production of asexual embryos and their subsequent development into free-living plants in oil palms was the first published report in the literature. Tisserat (1983) has obtained free-living plants from clonally date palm explant tissues derived from shoot tips, lateral buds, and inflorescences.

Date palm can be propagated both by somatic embryogenesis and via maxillary buds