

Title

Induction somatic embryogenesis and plant regeneration from cell suspensions of grapevine using different growth regulators and selection at the cell level in vitro

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Institute for Vine and Wine "Magarach". The study was done when the Authors were with the Institute for Vine and Wine "Magarach".

Abstract

A process of plant regeneration from cell suspensions via somatic embryogenesis in liquid media was developed for interspecific hybrids of *Vitis* cvs. 'Bianca', 'Intervitis Magaracha' and 'Podarok Magaracha', with different regeneration stages employing various levels of growth regulators in media. Proembryogenic calluses and cell suspensions were formed at different 2,4-D and BA levels [?????, ?????, 1993], to produce globular and heart-stage embryos at 0.5 mg l⁻¹ BA which further developed into torpedo-stage embryos at 0.1 mg l⁻¹ IAA and 30 mg l⁻¹ sodium humate [Zlenko, Kotikov, Troshin, 2002]. To provide growth of plantlets with green hypocotyls and cotyledons from these embryos, 0.5 mg l⁻¹ GA₃ was applied. The plantlets developed shoots at 0.5 mg l⁻¹ BA. At each regeneration stage, levels of mineral elements and vitamins in media proved to be significant. By using mathematical design of experiment, an improved CG medium for callus growth, in liquid and agar-solidified versions was achieved which differed from MS [Murashige, Skoog, 1962] medium in the levels of some mineral elements and vitamins. For the cultivars examined, different IAA and BA levels proved to be optimum. In cooperation with Dr. B.A. Levenko (Institute of Plant Physiology and Genetics, Kiev), callus cells of the three cultivars suspended in the liquid media were subject to γ -irradiation at 5000 rad as mutagenic factor and plated on the CG solid medium of the identical IAA and BA composition. The media used contained active lime at increased levels as selective factor. Resistant cell lines for the three cultivars were obtained, displaying evident differences as to the growth morphology of some callus lines during further subculturing. Research of plant regeneration from calluses of mutant lines is underway.

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