

Production of somatic embryos and plantlets in seedless grapevine varieties (*Vitis vinifera* L.) by anther culture

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Abstract: Breeding for seedless table grapes is now currently done by hybridization of seedless varieties using the technique of *in ovulo* rescue. The qualities required for the new varieties are mainly improved bud fertility, earlier ripening and increased berry size. Somaclonal variation induced by *in vitro* tissue culture can be an interesting alternative to hybridization for improving seedless varieties of major importance, like Sultanina, or seedless varieties having technological characteristics difficult to recover after cross-breeding, like aptitude for canning. With this objective, the embryogenic ability of the anther somatic tissues was measured on 8 seedless varieties: Sultanina, Perlette, Delight, Beauty Seedless, Canner Seedless, Sultana Moscata (75 Pirovano), 45 Bruni and 116 Bruni. Callus induction, somatic embryo production and somatic embryo conversion into plantlets depend considerably on the variety used. From this point of view, the most interesting ones are Sultanina, Canner Seedless, 75 Pirovano and 116 Bruni. On the whole, 952 plantlets were obtained from 3213 somatic embryos. The influence of developmental stage of the anther on the different parameters of embryo somatic production was studied on the variety 116 Bruni, and results show that some of these parameters are antagonistic processes: Promotion of one generally results in depression of the other. Somaclonal variation among the somatic embryos of 116 Bruni was observed with the occurrence of sub-lethal plantlets showing a delayed chlorophyll deficiency.

Vegetative multiplication of five Dalmatian autochthonous grape cultivars *in vitro*

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Abstract: Possibilities of micropropagation of Debit, Plavac mali, Plavina, Posip and Vugava cultivars were investigated.

Explants for culture were prepared from the sterilized shoot apices. All tested genotypes were successfully established in culture when placed on the medium containing the salts of MURASHIGE and SKOOG, 0.5 mg l⁻¹ IAA, 0.1 mg l⁻¹ BA and 3 % sucrose. Vigorous plantlets were consistently produced by transferring to media with BA (0.02-2.2 mg l⁻¹) and 0.1-0.5 mg l⁻¹ IAA. The growth habit of the *in vitro* grown shoots exhibited three main characteristics of grape seedling morphology: lack of tendrils, spiral phyllotaxy and leaves lacking the lateral sinuses.

The goal of this work was to test the feasibility of *in vitro* propagation of grapevine. Furthermore, this method may be of significance for virus elimination of infected plants.