

BOOK OF ABSTRACTS

3rd International Conference on Plant Biology (22nd SPSS Meeting)



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Institute for Biological Research "Siniša Stanković", University of Belgrade

Faculty of Biology, University of Belgrade

**3rd International Conference
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(22nd SPPS Meeting)**



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Secondary somatic embryogenesis in *Centaureum erythraea*

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Centaureum erythraea Rafn is a widespread medicinal plant from the Gentianaceae family. Grown *in vitro*, centaury displays enviable developmental plasticity, often being capable of re-generating the whole plant from root or shoot tissues through pathways of organogenesis and somatic embryogenesis. Somatic embryogenesis (SE) is especially interesting for mass plant propagation, production of virus-free material, synthetic seeds and cryopreservation, and is known to produce less somaclonal variation than organogenesis. In *Centaureum*, both pathways have been reported to occur both spontaneously and induced by plant growth regulators (2,4-D and CPPU). It has been noted that subculturing of embryogenic callus for multiplication over extended period of time results in the reduction of embryogenic potential. One way to overcome this problem is initiation of secondary embryogenesis from primary cotyledonary embryos. Here we report successful secondary embryogenesis in *C. erythraea* induced both directly and indirectly from cotyledonary somatic embryos. Several combinations of different 2,4-D and CPPU concentrations were tested for efficiency to initiate secondary embryogenesis in the dark. After four weeks, several parameters were recorded: presence of callus and new cotyledonary embryos, number of cotyledonary embryos per explant and whether new embryos were formed directly or indirectly. Secondary embryos were capable of producing tertiary somatic embryos, effectively entering cyclic SE. Secondary embryos, as well as primary, were able to germinate into plantlets by transferring them on hormone-free medium.

Keywords: *Centaureum erythraea*, somatic embryogenesis, 2,4-D, CPPU

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