

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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Shoot regeneration from root segments in *AtCKX* transformed centaury lines grown at graded NaCl concentrations *in vitro*

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Common centaury (*Centaureum erythraea* Rafn) is a medicinal plant that can inhabit saline soils. Previous *in vitro* studies revealed centaury's tolerance to salinity concerning shoot regeneration and development. Centaury is known to spontaneously regenerate shoots from root segments *in vitro* on hormone-free medium, probably due to endogenous levels of cytokinins (CKs) and indolyl-3-acetic acid and their balance in roots. In this study we have investigated *in vitro* shoot regeneration from root segments, i.e. frequency of shoot regeneration, the average number of regenerated shoots per explant and shoot biomass production in three transformed centaury lines, bearing *AtCKX1* or *AtCKX2* genes. Graded concentrations of NaCl (0–200 mM) were added to the nutrition medium during 8-week cultivation period. As previously shown, selected transformed centaury lines grown *in vitro* were characterized by differently reduced bioactive CK contents, as a consequence of different expression of transgenes. The main goal was to elucidate if changed CK homeostasis interferes with salt-tolerance and affects shoot regeneration in centaury. The selected *AtCKX* centaury lines significantly differed from each other in terms of capacity for spontaneous shoot regeneration and biomass production *in vitro*. NaCl lowered shoot regeneration in all of the investigated lines, although they differed in their sensitivity to salt. Both *AtCKX2* lines showed increased sensitivity to NaCl with the highest sensitivity found in one with the highest potential for spontaneous regeneration (*AtCKX2-26*). Concentration of 50 mM NaCl enhanced biomass production only in control and line *AtCKX1-29*. Our results indicate connection between CK homeostasis, regeneration capacity and tolerance to salinity.

Keywords: centaury, regeneration *in vitro*, *AtCKX*, salinity, cytokinin

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