

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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nitrogen content. Differences in the total soluble protein content varied significantly under nitrate treatments, depending on the concentration. Activity of antioxidant enzymes varied regarding the nitrogen forms as well as concentrations. Significant differences were noticed in A-POX activity, and the highest activity was under low KNO₃ content. The highest activity of G-POX was under high content of KNO₃ and NH₄NO₃. Opposite of G-POX, P-POX was induced under low content of KNO₃ and NH₄NO₃. It may be concluded that the form and concentration of nitrogen have a significant effect on the processes of primary metabolism in *Ocimum basilicum* L. var. *basilicum* L. (cultivar Genovese).

Keywords: *Ocimum basilicum*, nitrogen, pigments, antioxidant enzymes

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Effects of 6-benzyladenine on the tuberization process in two *AtCKX*-transformed potato lines under strong tuber-inducing conditions *in vitro*

PP1-11

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Transformed potato plants, bearing genes for cytokinin oxidase/dehydrogenase (CKX), the key enzyme in cytokinin (CK) catabolism, represent a valuable model-system for investigations of CK role in the fine tuning of tuberization. CKs are known to affect tuber initiation *in vitro*, while their effects on other processes, such as tuber enlargement and dormancy break, are less clear. In this study we have investigated dynamics of tuber formation (observed every 5 days during 30-day long experimental period) and parameters of tuber enlargement (tuber diameter and mass measured at the end of experiment) under strong tuber-inducing conditions *in vitro* (continuous darkness and high sucrose concentration [8% w/v] in the medium) in two transformed potato lines, bearing *AtCKX1* or *AtCKX2* genes. As previously shown, selected transformed potato lines grown *in vitro* were characterized by slightly elevated (line *AtCKX1*-36a) or manifoldly increased (line *AtCKX2*-51) CKX activity, resulted in differently reduced bioactive CK contents. 6-benzyladenine (BA), being neither substrate nor inhibitor of CKX, was added to the medium (at the concentration of 1 μM) in order to investigate whether it could substitute for the lack of endogenous CKs and their effect on tuberization in *AtCKX* potato lines. Tuber initiation on single-node stem cuttings showed different dynamics in two investigated *AtCKX* lines, although in both lines it was completed earlier than in non-transformed control. BA at 1 μM enhanced and accelerated tuber formation in control and *AtCKX1*-36a. In both *AtCKX* lines, tuber diameter and mass were decreased, which could be restored to control values by addition of BA. BA also shortened tuber dormancy.

Keywords: tuberization, *AtCKX*, cytokinins, potato

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