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

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21st Symposium of the Serbian Plant Physiology Society

COST ACTION FA1106 QUALITYFRUIT Workshop

Book of Abstracts

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Galactan content and localization as a measure of compression wood severity in *Picea omorika* (Pančić) Purkyně

PP8-30

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Response to leaning, as a part of the gravitropic response of the tree, in conifers is a formation of compression wood (CW). Changes in morphology and anatomy that characterize CW are reduced tracheid length, increased cell wall thickness, reduced lumen diameter, rounder cell cross-sectional profile, and the presence of intercellular spaces. Concerning its chemical composition, CW is highly lignified and consequently contains less cellulose, increased amounts of galactan, and lower amounts of mannan and xylan. *Picea omorika* (Pančić) Purkyně is a slow growing Balkan endemic coniferous species, considered to be one of the most adaptable spruces. Our investigation is aimed at understanding the reaction wood response in a slow growing conifer species under conditions of severe and long-term bending stress, which would correspond to the impact of winter snow loads or snow falls on juvenile conifers in their natural habitats. Galactan content was increased in stem samples of bent *P. omorika* trees compared to the control. It decreased from the stem base to the top, in line with the decrease in calculated bending moment, i.e. with the decrease in compression wood severity. Additionally, immunostaining using the LM5 antibody showed galactan localization almost exclusively to the compression wood. Expected accompanying decrease in arabinan, glucan, xylan and mannan contents, was also registered.

Keywords: bending stress, compression wood, galactan

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Effect of high irradiation on chlorophyll *a* fluorescence in young and mature fig leaves

PP8-31

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Combination of high irradiation and elevated temperature most often causes inactivation of oxygen evolving centre (OEC) of photosystem II (PSII). In this work we aimed to investigate influence of high irradiation on PSII photochemistry in young (YL) and mature leaves (ML) of common fig (*Ficus carica* L.) exposed to elevated temperature. Both leaf types were detached from the tree, acclimated at room temperature in dark for 12h and then exposed to 35 ± 1 °C combined with low (LI, ~50 μmol m_{-2} s_{-1}) or high irradiation (HI, ~800 μmol m^2 s^1) for 4h. To evaluate PSII photochemistry, normalizations and subtractions of polyphasic fluorescence transients (OJIP) were used. While YL revealed negative L-band after HI treatment, indicating high energetic connectivity of PSII, positive L-band shown in ML suggested light induced antenna dissociation and lower PSII stability. Inflection in K-band in