



BOOK of **ABSTRACTS**

4th INTERNATIONAL CONFERENCE ON PLANT BIOLOGY (23rd SPPS Meeting)



**6-8 OCTOBER 2022
BELGRADE**

Serbian Plant Physiology Society

**Institute for Biological Research “Siniša Stanković”
National Institute of Republic of Serbia, University of Belgrade**

Faculty of Biology, University of Belgrade

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Effect of moderate water deficit on biochemical and physiological parameters of tomato leaves and fruits

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Drought affected growth and productivity of vegetables by inducing different changes in plants, which consequently reduces the yield and its quality. The aim of this work was to evaluate the effect of moderate drought stress on physiological and biochemical parameters of the cultivated tomato genotype Stupicke. Plants were grown in the greenhouse and exposed to water deficit from anthesis of 2nd flower truss until fruit harvesting (red-ripe stage). Control plants were optimally irrigated, while treated plants were exposed to drought and soil humidity was maintained around 25% of maximum WHC. Drought-induced reduction of leaf growth parameters was followed by changes in stomata conductance and photochemical efficiency. The results of biochemical analysis indicated that the soluble sugar content decreased under drought conditions, while organic acid level and vitamin C was increased. The significant decrease in fruit diameter and dry matter content was accompanied with stable sugars and organic acid content which implicates the maintenance of main fruit taste components under water deficit. The drought also affected the level of other important nutritional components by the increase of the total carotenoid and vitamin C content. Accumulation of the vitamin C in leaves and fruits are also a response to secondary, oxidative stress under prolonged drought, while the increase of ABA content in both organs is related to drought adaptive responses. These results indicated the potential of this genotype for breeding programs to create new drought-resistant tomato lines with the stable or improved nutritional fruit quality under variable environmental conditions.

Keywords: tomato, moderate drought, leaf growth, fruit quality, breeding programs

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