



Department of Biology and Ecology,  
Faculty of Sciences and Mathematics  
University of Niš  
Institute for Nature Conservation of Serbia

# ABSTRACTS APSTRAKTI

**14<sup>th</sup> Symposium  
on the Flora of Southeastern Serbia  
and Neighboring Regions**

Kladovo 26 to 29 June 2022

**14. Simpozijum  
o flori jugoistočne Srbije  
i susednih regiona**

Kladovo 26. do 29. jun 2022.

Niš-Belgrade, 2022

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Abstracts

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## ***Populus x euramericana* tension wood as a model for selection of microscopic methods for rapid screening of cell wall structure in the analysis of plant stem properties**

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The plant cell wall (CW) is a cell compartment lying outside the plasma membrane forming a continuum throughout the plant body. The composition of CWs varies between plant species and cell types, while changes in CW constituents occur as a result of growth and developmental processes, or as a response to various environmental stimuli. In the herein study, we present a selection of microscopic methods for rapid, relatively simple, and low-cost visualization of CW structure/composition in tissues of stems in trees, shrubs, or herbs. Selected microscopic methods imply the use of unfixed, intact, both fresh and dried, plant tissues for the analysis, as well as free-hand or microtome sectioning. UV microscopy, phloroglucinol-HCl and toluidine blue O staining, SEM microscopy, and RAMAN microspectroscopy, separately or in combination, can provide valuable information in plant ecology, plant physiology studies, or for applications in agronomy and forest products industry. As a model, stem samples of juvenile *Populus x euramericana* trees exposed to severe long term static bending were selected: tension wood fibers (gelatinous fibers, specialized sclerenchyma cells) could be considered as representatives of CWs with the most complex structure, while the genus *Populus* is considered as a model woody Angiosperm.

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