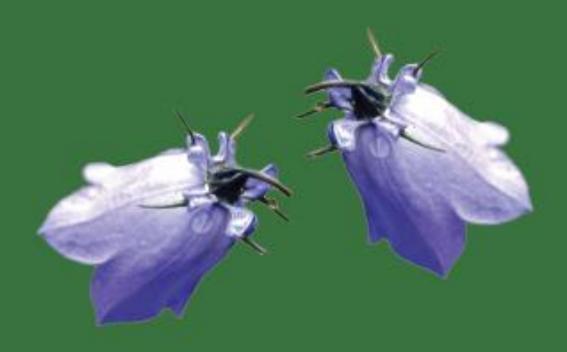
Department of Biology and Ecology, Faculty of Sciences and Mathematics, University of Niš Institute for Nature Conservation of Serbia

### 13th Symposium on the Flora of Southeastern Serbia and Neighboring Regions

Stara planina Mt. 20 to 23 June 2019



13. Simpozijum o flori jugoistočne Srbije i susednih regiona

Stara planina 20. do 23. jun 2019.

# ABSTRACTS APSTRAKTI

Niš-Belgrade, 2019

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

## 13<sup>th</sup> Symposium on the Flora of Southeastern Serbia and Neighboring Regions

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Abstracts

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Štamparija Beograd Number of copies 200 and dominant species were identified for each VG. Eight macrophyte vegetation assemblages were found to be of high conservation interest for the region of Serbia.

# Assessment of cerium-oxide (CeO<sub>2</sub>) nanoparticle ecotoxicity using non-biting midge *Chironomus* riparius (Diptera, Chironomidae)

Savić-Zdravković, D.<sup>1</sup>, Milošević, Dj.<sup>1</sup>, Stanković, J.<sup>1</sup>, Đurđević, A.<sup>1</sup>, Duran, H.<sup>2</sup>, Uluer, E.<sup>2</sup>, Matić, S.<sup>3</sup>, Stanić, S.<sup>3</sup>, Jovanović, B.<sup>4</sup>

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The toxicity of Cerium-oxide nanoparticles (nano-CeO<sub>2</sub>) on freshwater midge Chironomus riparius, Meigen, was assessed by observing several biomarkers. The experiments were designed using measured concentrations of nano-CeO2 in the sediment, according to the OECD guidelines for testing of chemicals, in the laboratory setup. The full characterization of the CeO2 nanoparticles was made and the concentrations of 2.5, 25, 250 and 2500 mg of nano-CeO2 per kg of sediment were tested. The increase of nano-CeO2 content in the chironomid larvae was observed when its content was increased in the sediments (Spearman rho test rho=0.73, p<0.01). The toxicity was not detected at the developmental level, causing no observable effects on life traits. At the lower biological level, toxicity was detected through significant DNA damage in the midges exposed to higher nano-CeO2 levels (one-way ANOVA p < 0.05). In addition, investigated oxidative stress parameters showed no significant differences between the treatments. There is a need for further investigation in order to understand causal relationships between molecular and higher-level responses to nano-CeO2 exposure. Nevertheless, obtained results indicate that C. riparius could be used as bioindicator, providing valuable information for nano-CeO2 risk assessment freshwaters and environmental protection planning.

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