

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

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

Stara planina Mt., 20th to 23th June, 2019

Abstracts

This Symposium is organized with the financial support of the Ministry of Education, Science and Technological Development of Republic of Serbia

13th Symposium on the Flora of Southeastern Serbia and Neighboring
Regions, Stara planina Mt., 20th to 23th June 2019

Book of Abstracts

Organizers

Department of Biology and Ecology, Faculty of Science and
Mathematics, University of Niš

Institute for Nature Conservation of Serbia

Editors

Vladimir Ranđelović, Zorica Stojanović-Radić, Danijela Nikolić

Scientific Committee

Vladimir Ranđelović, Serbia, President

Dörte Harpke, Germany	Marjan Niketić, Serbia
Lorenzo Peruzzi, Italy	Dmitar Lakušić, Serbia
Beata Papp, Hungary	Gordana Tomović, Serbia
Chavdar Gushev, Bulgaria	Marko Sabovljević, Serbia
Nejc Jogan, Slovenia	Biljana Božin, Serbia
Ivana Rešetnik, Croatia	Goran Anačkov, Serbia
Danijela Stešević, Montenegro	Milan Stanković, Serbia
Adisa Parić, Bosnia & Herzegovina	Nedeljko Manojlović, Serbia
Renata Čušterevska, Macedonia	Biljana Panjković, Serbia
Lulëzim Shuka, Albania	Dragana Ostojić, Serbia
Osman Erol, Turkey	Biljana Nikolić, Serbia
Ana Coste, Romania	Verica Stojanović, Serbia
Andrea Alejandra Abarca, Argentina	Niko Radulović, Serbia
Dragos Postolache, Romania	Bojan Zlatković, Serbia
Siniša Škondrić, Bosnia & Herzegovina	Marina Jušković, Serbia
	Dragana Stojičić, Serbia

Printed by

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 (CeO₂) nanoparticle ecotoxicity using non-biting midge *Chironomus riparius* (Diptera, Chironomidae)

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

¹Department of Biology and Ecology, Faculty of Sciences and Mathematics, University of Niš, Višegradska 33, 18000 Niš, Serbia

²Department of Materials Science and Nanotechnology Engineering TOBB University of Economics and Technology, Söğütözü Cad. 43, 06560 Ankara, Turkey

³Department of Biology and Ecology, Faculty of Science, University of Kragujevac, Radoja Domanovića 12, Kragujevac, Serbia

⁴Department of Natural Resource Management and Ecology, Iowa State University, Ames, IA, USA

* dimitrija.savic@pmf.edu.rs

The toxicity of Cerium-oxide nanoparticles (nano-CeO₂) 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.

Acknowledgements. This work was financed by the Ministry of Education, Science and Technological Development, Republic of Serbia, Grant No. III43002