Christine Helsen
Stefan Prekovic
Bojan D. Petrovic
Thomas Van den Broeck

Editors

PROCEEDINGS

Arandjelovac and Belgrade, Serbia
February 02-08, 2014

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Publisher:

Bojan Petrovic, Valjevo (Serbia), February 2014

Editors:

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Stefan Prekovic, MSc
Bojan D. Petrovic, BSc
Thomas Van den Broeck, MD

Design:

Natalija Nikolic and Stefan Prekovic

CIP - Каталогизација у публикацији
Народна библиотека Србије, Београд

57(082)

WIBIOSE Conference (2014 ; Aranđelovac, Belgrade)
Proceedings / WiBioSE [Winter Biology Students in Europe] Conference, Arandjelovac and Belgrade, Serbia, February 02-08, 2014 ; [organizers Students' Parliament at Faculty of Biology, University of Belgrade, Serbia ... et al.] ; editors Christine Helsen ... [et al.]. - Valjevo : B. Petrović, 2014 (Beograd : Copy studio). - [12], 102 str. : ilustr. ; 25 cm

Tiraž 90. - Str. [6]: Preface / Stefan Prekovic. - Bibliografija uz svaki rad. - Registar.

ISBN 978-86-917469-0-2
1. Helsen, Christine [уредник] 2. Students' Parliament at Faculty of Biology (Belgrade)
а) Биологија - Зборници

COBISS.SR-ID 204366092

ISBN: 978-86-917469-0-2

Print: ''Copy Studio'' Printing Comp, Belgrade - 90 copies

Organizers:

Students' Parliament at Faculty of Biology, University of Belgrade, Serbia

Faculty of Biology, University of Belgrade, Serbia

Serbian Society of Medical Mycology, Serbia

Students' Association at Faculty of Biology, University of Belgrade, Serbia

Town of Arandjelovac, Serbia

Conference Chronology:

2014 Arandjelovac/Belgrade, Serbia

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NEW TAXON OF THE GENUS *NAVICULA* (BACILLARIOPHYCEAE) FOR THE DIATOM FLORA OF SERBIA

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1. INTRODUCTION

Diatoms are large and diverse group of single-celled algae [1]. They are distributed throughout the world in nearly all types of aquatic systems and are one of the most important food resources in marine and freshwater ecosystems [2,3].

The main objective of this paper is to report benthic, epilithic diatom species from the Raška River. First time Husted described *Navicula jakovljevicii* in 1945 [4]. This taxon has been found outside the Balkan area for the first time, in the Lake Zug, Switzerland [5]. Until now, there is no published data about diatom flora in Raška River. In the present study, we sampled benthic diatoms to evaluate the floristic richness of the river.

2. EXPERIMENT

The material was collected in April, June, August and November 2011 and March and May 2012 from 5 localities along the Raška River. Epilithic samples were scraped from the surface of stone by brush. Samples were fixed immediately with formaldehyde to a final concentration of 4%. Samples were treated with concentrated sulphuric acid and potassium permanganate [6]. Light microscope observations and micrographs were made using the Zeiss AxioImager M.1 microscope. Terminology of valve morphology is based according Hofman & Lange-Bertalot [7]. The abundance was estimated by counting 400 valves of each taxa present on slide.

3. RESULTS AND DISCUSSION

The paper present the description and distribution of the new species for the diatom flora of Serbia and its ecology.

Navicula jakovljevicii Hustedt 1945.

Description: Valves lanceolate to elliptic-lanceolate with obtusely to broadly round ends, 36.06-70.08 μm long, 8.53–11.46 μm wide. Raphe fissures weakly lateral, more or less distinctly curved. Axial area very narrow, linear, central area small, weakly asymmetrically rounded. Striae moderately lateral, parallel to weakly convergent at the ends, 15–16/10 μm. **Ecology**: According to Lange-Bertalot [8], the species prefer waters which are calcium carbonate buffered and oligo- to eutrophic. Total hardness at the sampling sites was 31.58-31.96 mg $CaCO3/dm^3$. Torrisi & Dell'Uomo [9] reported that *Navicula jakovljevicii* is alkaliphilic species. Our data showed that water is alkal (7.7-7.85). Water temperature range from 11.05 to 11.53°C, conductivity was moderately

with low concentrations of nutrients. **Distribution (Serbia)**: *N. jakovljevicii* was found in June, August and November 2011 and March and May 2012 along the flow of the investigation, in relatively low abundance (0.5 %). **Distribution (Europe)**: South-east and central Europe, (ex) Yugoslavia, the Lake Zug (Switzerland), the River Ager, a tributary of the Traun River (Austria) [8], France [9], central Apennine rivers [10], and Macedonia [11].

4. CONCLUSION

Navicula jakovljevicii is a new species to the Serbian diatom flora. Evaluation of the floristic richness of diatoms in the rivers is a necessary, further step. This new information increases our knowledge of the river system and chemical parameters, which is important for further predictions of diatoms as bio-indicators, and monitoring [12].

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ISBN 978-86-917469-0-2