

STATEMENT

By: Assoc. Prof. Yovana Todorova Todorova, PhD, Department of General and Applied Hydrobiology, Faculty of Biology of Sofia University "St. Kliment Ohridski", member of scientific jury according to the order of the director of IBER-BAS No31/11.04.2025

Subject: Dissertation submitted for awarding the scientific and educational degree "Doctor"

Author of dissertation work: MONIKA ATANASOVA SUBEVA

Topic of the dissertation: ZOOPLANKTON AS A BIOINDICATOR OF ECOLOGICAL STATUS OF STANDING WATER BODIES

1. GENERAL ANALYSIS OF THE DOCUMENTS SUBMITTED UNDER THE PROCEDURE:

The materials submitted under the procedure for acquiring the PhD Degree, by Monika Subeva, include all mandatory documents according to the Act on the Development of the Academic Staff in the Republic of Bulgaria, the Regulations for its implementation and the Regulations on the terms and conditions for acquiring scientific degrees and for occupying academic positions at IBER-BAS. The report on the similarity of the text of the dissertation as a result of a plagiarism prevention procedure shows that the discovered similarities are regulated and do not bear signs of plagiarism. The dissertation fully complies with the requirements for dissertation theses for acquiring the PhD Degree, applied at IBER-BAS. I have no critical remarks on the documents submitted by the PhD student.

2. GENERAL CHARACTERISTICS AND RELEVANCE OF THE PHD THESIS:

The PhD thesis is structured as a "stitched" publication with accompanying text and a total volume of 121 pages. The transition between the two types of scientific text is made professionally, with a flair for interpretation from different perspectives. The general impression that the dissertation gives is of an in-depth study on a topical and not yet fully explored topic, namely the application of zooplankton communities as bioindicators for the ecological and trophic state of standing water bodies in Bulgaria. The study stands out for its scientific applicability, its connection with the current environmental regulatory documents, and its focus on filling the gaps regarding the bioindicative potential of zooplankton. A purposeful comparison and determination of the trophic and ecological state of eight reservoirs was carried out through the analysis of zooplankton and macrozoobenthos communities, as well as physicochemical parameters of the aquatic environment. I find the methodology used, the working setting, and the chosen complex approach to be modern, scientifically sound, and reflecting the good research and scientific practices of the unit. The text itself is written in a sound scientific style; the description of the collected materials and the applied methods, as well as the presentation of the obtained results is logical, clear and consistent, and the discussion of the data is comprehensive, well-argued and creatively presented in the context of the known scientific information.

3. SIGNIFICANCE AND CONVINCINGNESS OF THE RESULTS, CONCLUSIONS, AND SCIENTIFIC CONTRIBUTIONS:

The results obtained are significant and convincing, having direct relevance for the implementation of the requirements of the Water Framework Directive (2000/60/EC) and the implementation of the ecosystem approach in water management. The scientific work has serious applied value for the development of the national surface water monitoring system. The study describes for the first time the taxonomic composition and structure of zooplankton communities in four reservoirs, as well as macrozoobenthos communities in two. A saprobiological assessment was made, which shows differences between the littoral and pelagic zones, determined by macrozoobenthos and zooplankton, respectively. The applicability of the RCC index for assessing the trophic state through zooplankton communities in standing water bodies was confirmed. Key indicator taxa have been identified that can be used to assess the trophic state and ecological potential of dams in the country. It has been found that the new biotic index, BMMI, is more sensitive than BI for assessing ecological potential through macrozoobenthos. The systematic approach in selecting reservoirs with different typologies and a wide range of ecological conditions increases the representativeness of the results and provides a reliable basis for further monitoring and management decisions.

4. ASSESSMENT OF THE QUALITY OF THE SUBMITTED SCIENTIFIC PAPERS:

The scientific achievements of the doctoral student on the topic of the dissertation are summarized in four publications. Two of them are in refereed journals, respectively assigned to quartiles 3 and 4, and two are in journals without a rank and impact factor. In all four publications, PhD student Subeva is the lead author, which is a strong indication of personal participation and contribution, both in obtaining the results and in their processing and scientific interpretation.

5. CRITICAL NOTES AND QUESTIONS:

I have one critical remark about the work – I believe that the PhD thesis would only benefit if there was a more detailed working hypothesis presented, which would be logically related to the experimental design and serve as an argument for the choice of communities, methods, metrics. I also have a question that I would like to ask PhD student Subeva: The results presented in Figures 14 – 17 for the relative abundance and biomass of the main zooplankton groups show a large fluctuation in both indicators up to a practical absence of representatives of some of the groups in certain reservoirs (e.g. rotifers in the samples from Bebreesh Reservoir in the spring, cladocerans - in Telish Reservoir in the autumn and Pchelina Reservoir in the summer). What do you think are the reasons for these large variations, and how do they affect the bioindicative potential of zooplankton?

6. PERSONAL IMPRESSIONS FROM THE PhD STUDENT:

I have known PhD student Monika Subeva personally since her student years. She has always been distinguished by her hard work, deep curiosity, and dedication in field and laboratory work. The efforts she puts into her research as a young specialist testify to serious professionalism and commitment, worthy of respect.

7. CONCLUSION:

The presented PhD thesis is on a current and significant topic in the field of hydrobiology and fully meets the requirements of the Act on the Development of the Academic Staff in the Republic

of Bulgaria and the specific requirements of the IBER-BAS Regulations. It convincingly reveals the good theoretical competencies, the upgrading of knowledge, and the acquired wide range of skills of the PhD student. Monika Subeva has mastered a number of methods and approaches for planning, analysis, and processing of experimental tasks, which establishes her as a serious young scientist. The results obtained in the PhD thesis are original and represent a solid basis for future research. In conclusion, I positively and highly evaluate the dissertation, and I strongly recommend that the esteemed scientific jury evaluate the presented work on its merits by voting positively for the award of the educational and scientific degree "Doctor" in area 4. Natural sciences, mathematics and informatics; professional field 4.3 Biological sciences, scientific specialty Hydrobiology to Monika Atanasova Subeva.

19.06.2025

Member of scientific jury:

/Assoc. Prof. Yovana Todorova/