Вх.№ 550/НО-05/31.05.2024 г.

STATEMENT

By prof. PhD Snejana Petrova Moncheva, Institute of oceanology-BAS (retired)
Appointed member of the scientific jury by Order N 26/05.03.2024 of the Director of IBER - BAS on a PhD thesis for obtaining the educational and scientific degree "Doctor" in the field of higher education: code 4. "Natural sciences, mathematics and informatics"; Professional direction: cipher 4.3. "Biological Sciences"; Scientific specialty: "Hydrobiology"
Topic: „Study on benthic diatom assemblages in intermittent rivers in Southern Bulgaria and their application for assessment of ecological status ”
Author: Tsvetelina Jasenova Isheva,
Scientific supervisor: prof. PhD Yordan Ivanov Uzunov
Scientific consultant: chief assistant PhD Plamen Nikolaev Ivanov

This statement was prepared in accordance with the requirements of the Regulations for the terms and conditions for acquiring scientific degrees and for occupying academic positions at IBER-BAS.

1. GENERAL CHARACTERISTICS OF THE DISSERTATION

The thesys is a large-scale and in-depth study of current problems of modern hydrobiological science: biodiversity and ecology of poorly studied benthic diatom communities in habitats particularly vulnerable to extreme climatic events, such as intermittent rivers and development/update of a methodology for their ecological status assessment, as an element of the process of adequate transposition of European environmental legislation (WFD). The aim and tasks of the research are clearly formulated, in accordance with the proposed working hypothesis. The description of the field and experimental work, as well as the presentation of the obtained results, are logical, clear and consistent. The design of the field studies and the applied modern analytical methods ensure the representativeness and reliability of the obtained data. The structural and functional floristic metrics used in combination with multimetric ecological data, a variety of modern statistical methods and a set of indices contribute to description of important characteristics of the microalgal flora and significant relationships biota/environmental variables, skillfully and creatively interpreted in the context of existing scientific concepts and disputable hypotheses. The analysis of the data is detailed and competent and preconditions reliable results and objective conclusions. The results are presented correctly and discussed in depth. As a volume, the thesis comprises 152 pages, structured following the classical scheme, the text is written in a precise scientific style and is richly illustrated with precisely presented 31 figures, 19 tables and 7 appendices with photos of the established diatom species. The list of references contains 310 titles, of which 19 are in Cyrillic and 291 in English, and 69 of the sources were published in the last 10 years. My overall impression of the thesis is excellent and reflects the PhD student’ interest in the research process, high level of awareness, professional competence and erudition.

2. SIGNIFICANCE OF RESULTS, CONCLUSIONS AND SCIENTIFIC CONTRIBUTIONS

The large-scale studies carried out are pioneer in the study of the microphytobenthos communities of intermittent rivers in Bulgaria, impressive in volume and valuable in content data have been accumulated, analyzed convincingly and creatively, a sign of in-depth knowledge of the research problem. Original results of fundamental and scientific-applied significance have been achieved. The conclusions and contributions correspond to the obtained results and emphasize the complex nature and significance of the research. New data on the qualitative composition, dominant structure and seasonal dynamics are obtained with an original scientific contribution to the study of the biodiversity and ecology of the diatom microflora, including fourteen new species for Bulgaria and one new for Europe. I believe that the supplement of light and scanning microscope photos have an additional scientific value not only as validating material.

The analyzed functional metrics contribute new knowledge about the ecological traits of microalgae, and the in-depth analysis of representative arrays of biotic and ecological data and indices - new information about the specificity of interactions, including non-linear ones, essential for the scientifically based conclusions about the indicator potential of diatoms of the hydrological regime and different types and degrees of pressure, which is essentially a confirmation of the formulated working hypothesis.

The merit of the thesis is the realization of a completed cycle of the process scientific research - application of the scientific results in practice. Undoubtedly, the developed and updated classification system and methodology, as well as the assessment made for the first time of the ecological status of national river type R14 according to BQE microphytobenthos, are contributions of a proven and documented scientific and applied nature, related to Bulgaria's commitments to bring the national legislation into compliance with European environmental policies and achieving the WFD environmental goals.

3. ASSESSMENT OF THE QUALITY OF THE PRESENTED SCIENTIFIC PAPERS

The scientific achievements on the topic of the dissertation are published in 2 papers and 4 reports presented at scientific forums, three of which international. Both publications are in international journals with IF, quartiles Q3 and Q2, respectively, referenced in the international scientific database SCOPUS and cited in 11 articles, of which 10 are by foreign authors. In both articles and 3 of the reports, Ischeva is the lead author, which is an undoubful confirmation of the personal participation of the candidate in the processing and interpretation of the results and the formulation of important scientific conclusions, which are also of interest to the international academic community.

The abstract reflects correctly the content of the dissertation and presents adequately the main results and contributions and is well illustrated with graphs and figures.

4. CONCLUSION

The presented thesis is an up-to-date, comprehensive and complete study with significant scientific and applied contributions. The PhD student has mastered and successfully applied modern methods and approaches, interprets data creatively and competently and obtains reliable results. I believe that the dissertation meets all the requirements of the SRASR, the Regulations for its

implementation, as well as the specific requirements of the IBER-BAS Regulations for the application of the SRASR .

I consider all the above a solid bases to vote positively and to recommend to the respected Scientific Jury to award Tsvetelina Yasenova Isheva the educational and scientific degree "doctor" in the field of higher education: code 4. "Natural sciences, mathematics and informatics"; Professional direction: cipher 4.3. "Biological Sciences"; Scientific specialty "Hydrobiology".

27.05.2024

Member of the scientific Jury:
/prof. Snejana Moncheva/