



STATEMENT

By: Assoc. Prof. Yovana Todorova Todorova, PhD, Department of General and Applied Hydrobiology, Faculty of Biology at Sofia University "St. Kliment Ohridski", member of scientific jury according to the order of the director of IBER-BAS No17/14.02.2025

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

Author of dissertation work: GALIA NIKOLAEVA GEORGIEVA-MLADENOVA – PhD student in 4.3. Biological Sciences; scientific specialty 01.06.11 Hydrobiology

Topic of the dissertation: CURRENT CHARACTERISTICS OF THE STATUS OF AQUATIC OLIGOCHAETAS AND ASSESSMENT OF THE INVASIVE POTENTIAL OF BRANCHIURA SOWERBYI BEDDARD, 1892 IN BULGARIAN SURFACE WATER BODIES

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

The materials submitted under the procedure for acquiring the educational and scientific degree Doctor, by Galia Georgieva-Mladenova, 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 procedures for acquiring scientific degrees and for occupying academic positions at the IBER-BAS. According to the materials, the doctoral student has collected a total of 334 credits/number of points with a required minimum of 250 credits (distributed respectively under criterion 1 – 130; criterion 2 – 64 and criterion 3 – 140). The report on similarity of the dissertation text as a result of a plagiarism prevention procedure shows that the discovered similarities are regulated and do not bear signs of plagiarism. The dissertation complies with the requirements for dissertation works for acquiring the educational and scientific degree Doctor, applied at IBER – BAS. I have no critical remarks on the documents submitted by the doctoral student, rather I would like to note their clear, well-structured arrangement, which significantly facilitated the work with them.

2. GENERAL CHARACTERISTICS OF THE PhD THESIS:

The dissertation represents a thorough and large-scale study that significantly enriches the knowledge of the aquatic oligochaete fauna in Bulgaria with a focus on their current characteristics, distribution and ecology. The author demonstrates a high level of scientific training and a flair for the complex interpretation of faunal, hydrobiological and ecological data. One of the most significant advantages of the work is its comprehensiveness - a wide range of water bodies were studied, including those poorly or completely unstudied in terms of the oligochaete complex, which significantly increases the value of the results obtained. An undeniable contribution of the study is the large number of processed and analyzed samples, which guarantees reliability and comprehensiveness of the results and allows tracking of patterns in the distribution and composition of oligochaete communities. The approach adopted by the author combines faunal analysis with ecological assessment, which makes the conclusions more in-depth and applicable in the context of monitoring and protection of aquatic ecosystems.

The new methods and emphases used in the dissertation deserve special attention - the assessment of the invasion potential of *Branchiura sowerbyi* is an innovative contribution that could find practical application in the management of biological invasions. The author's own database is not only evidence of high scientific and technical competence, but also represents a valuable tool that could be used effectively to extract important information about oligochaetes.

The text itself is written in a well-maintained 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 known scientific information. In terms of volume, the thesis is developed on 342 pages, of which 143 pages are appendices, the structure follows generally accepted criteria and includes nine chapters from a content point of view.

3. ACTUALITY OF DISSERTATION:

In the context of the growing environmental challenges related to climate change and human impact, knowledge of the diversity and distribution of bioindicator taxa to which oligochaetes belong is essential for the sustainable management of water resources. In this regard, I believe that a more in-depth knowledge of the oligochaete complex is not only a current scientific topic, but also extremely necessary from the point of view of the applied aspect of hydrobiology in connection with the implementation of monitoring programs, the assessment of the ecological state and the functioning of aquatic ecosystems. From these positions, I also find that the methodology, the working framework and the chosen complex approach are modern, scientifically sound and reflect the good research and scientific practices of the unit in which the dissertation work was developed.

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

PhD student Galia Georgieva has done impressive work on the collection and determination of oligochaetes. As a result of the applied combinatorial and large-scale approach, serious in volume and valuable in content results have been accumulated, which sound convincing and suggest in-depth scientific and applied knowledge of the research problem. I consider the sections related to the assessment of some environmental factors for the distribution of aquatic oligochaetes, the assessment of the invasive potential of *B. sowerbyi* and the developed database to be particularly significant. The dissertation ends with a large number of summarized results and conclusions, which I consider to be the correct approach for such a large volume of work. They correspond to both the scope of the conducted research and the significance in a fundamental and applied aspect. The PhD thesis also has undoubted contributions, which the PhD student has formulated correctly and in a balanced manner.

5. 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 three publications – two were presented at a scientific forum and published in full text in conference proceedings, and the third was published in *Acta Zoologica Bulgarica*, Quartile 4. In all three publications, PhD student Georgieva is a lead author, which is another indication of personal participation and contribution. This is the place to make my recommendation to the doctoral student – the significance of the results suggest much more intensive publication activity, which I hope she will focus on as soon as possible.

I would also like to share my personal impression of the PhD student. I have known Galia Georgieva since she was a student – she has always been distinguished by curiosity, a desire to upgrade her knowledge and skills, hard work, dedication and perseverance in every initiative. Her responsible attitude in the implementation of various activities is undeniable, she has always demonstrated collegiality and readiness for cooperation. I express my personal satisfaction with the progress in her development, demonstrated with this PhD work and the result of enormous personal efforts.

6. CONCLUSION:

Based on the above arguments, I believe that the presented PhD work represents a complete and in-depth study on a current and important topic, including modern and innovative approaches and bringing significant contributions to the scientific field. It convincingly reveals the good theoretical preparation, the upgrading of knowledge and the acquired wide range of methodological skills of the PhD student. In my opinion, Galia Georgieva has already proven herself as a competent scientific specialist, a worthy successor to the work of her scientific supervisor and an undisputed authority regarding the oligochaete complex. I believe that the presented work fully meets the criteria for a PhD dissertation according to the Act on the Development of the Academic Staff in the Republic of Bulgaria and the Rules for its implementation. All this gives me enough reasons to POSITIVELY evaluate the presented PhD thesis, I confidently vote "YES" and recommend to the other members of the esteemed Scientific Jury to support the awarding of the educational and scientific degree "Doctor" in the scientific specialty Hydrobiology to Galia Nikolaeva Georgieva-Mladenova.

02.05.2025

Member of scientific jury:

/Assoc. Prof. Yovana Todorova/
