

STATEMENT OF OPINION

From: Prof. Dr. Nadja G. Ognjanova-Rumenova, Institute of Geology at the BAS, Member of the Scientific Jury, appointed by Order No. 41/27.05.2024 of the Director of the Institute of Biodiversity and Ecosystem Research at the BAS, Sofia

Subject: Submitted documentation for a competition for the academic position "Professor" - professional direction 4.3. Biological sciences, scientific specialty "Hydrobiology", for the needs of the research group "Bioindicators, monitoring and ecological classification of freshwater ecosystems", section "Biodiversity and functioning of freshwater ecosystems" at the Department "Aquatic ecosystems" at the IBER-BAS, announced in the State Gazette, issue 27 of 29.03.2024

Procedure: The documents of only one candidate - Associate Professor Dr. Emilia Dobrinova Varadinova - were submitted within the legally established deadline for participation in the competition. The presented set of documents is in accordance with the requirements of the Regulations for the implementation of the ZRASRB, the Regulations for the conditions and procedure for acquiring scientific degrees and holding academic positions at the BAS, and the relevant regulations of IBER-BAS.

Dr. Emilia Varadinova has been an Associate Professor in the "Aquatic Ecosystems" Department at the Institute of Biodiversity and Ecosystem Research at the BAS since 2014. In 2015, she was appointed as an Associate Professor in the Department of Geography, Ecology and Environmental Protection at the Faculty of Science and Mathematics of the Southwest University "Neofit Rilski", Blagoevgrad. In 2007, he received the educational and scientific degree "doctor" in the scientific specialty "Hydrobiology" in the Central Laboratory of General Ecology at the BAS. She has more than 33 years of work experience in the specialty - part of her work experience was spent at the Central Laboratory of General Ecology at the BAS, and from 2010 to now at the Institute of Biodiversity and Ecosystem Research at the BAS. She specialized in prestigious scientific institutions - the University of Amsterdam, Netherlands and the University of Dublin, Ireland, which supports her research work. Her additional studies at "Spiru Haret" University, in the city of Bucharest, Romania, enriched her teaching activity with the application of innovative learning models in higher education. Main areas of scientific interest are studies of the composition and structure of aquatic invertebrates, bioindication of the macrozoobenthos and assessment of the condition of different types of surface water bodies. Extensive studies have been conducted on macrozoobenthos communities in various categories of surface waters, including lotic and lentic, natural and influenced to varying degrees by various types of human activity.

General characteristics of the applicant's activity

Assessment of scientific production

Dr. Varadinova is the author of 93 scientific works. The presented list includes her dissertation (not the abstract) and 5 research papers on the topic of the dissertation, as well as 48 research papers related to a previous habilitation. In the current competition, the candidate participated with 39 scientific works, distributed as follows: 22 articles in refereed and indexed journals with an impact factor; 11 – in journals with impact rank (SJR) according to

Scopus, without IF; 2 articles in non-refereed and indexed publications and 6 chapters in books/ collective monographs. Four of the articles are in Q1 journals (“Nature”, “Diversity”, “Water”) and 2 in Q2.

Most publications reflect the results of the implementation of scientific research projects. All presented articles are collective, as in 10 of them - Dr. Varadinova is the lead author. H-index = 6.

She participated with reports and posters at 23 scientific forums, 22 of which are international.

Contributions

The presented reference of the contributions fully and objectively reflects the research work of Dr. Varadinova, characterized by precision and thoroughness. Her research activity is in the field of hydrobiology. I would pay particular attention to her scientific contributions in the study of:

1) Biodiversity of macrozoobenthos in surface continental waters.

The taxonomic composition and structure of the macrozoobenthos in different types of rivers, lakes and reservoirs located on the territory of Bulgaria was studied. The composition and distribution of benthic invertebrates is monitored.

- The personal contributions of Dr. Varadinova in determining the macrozoobenthos composition are the representatives of the taxa/species of the class Turbellaria, subclass Hirudinea, the orders Coleoptera, Odonata, Hemiptera, Megaloptera and Diptera (without the family Chironomidae), as well as the determination of the taxa of the subclass Oligochaeta and the orders Ephemeroptera and Plecoptera to genus/family level.
- Research has also been conducted in lentic ecosystems, which belong to mountain-type water bodies and which are characterized by insignificant anthropogenic impact. A complete taxonomic list of the aquatic invertebrate fauna in these stagnant bodies of water has been published.
- A large-scale national survey was conducted in 139 river and 79 lake sites (representative of all types of standing and flowing water bodies) in 2020. Up-to-date species lists of aquatic invertebrates have been prepared in all studied monitoring points.
- In the process of studying the macrozoobenthos in the different river types, more detailed data on the distribution of aquatic invertebrates, as well as the inclusion of invasive species, have been published.

Dr. Varadinova has significant achievements in research related to the structuring of benthic communities and their formation depending on the characteristics of the aquatic environment.

The trophic structure of the macrozoobenthos in the larger lakes and reservoirs in Bulgaria was studied and analyzed.

(2) Bioindication and assessment of ecological status

Dr. Varadinova has made significant achievements in assessing the bioindicative potential of macrozoobenthos in lotic and lentic ecosystems.

- In accordance with the requirements of European and national legislation, the microzoobenthos is defined as a key biological quality element in the assessment of

the ecological status of surface water bodies. By applying the specified indices based on the macrozoobenthos, the ecological status of 15 types of standing water bodies in Bulgaria was determined.

- Targeted studies of rivers flowing in the territories of reserves with the aim of protecting waters in protected areas are very interesting.
- In order to validate the typology and classification system in Bulgaria, the ecological status of 218 monitoring points belonging to 175 flowing and standing surface water bodies was determined. The results are summarized and included in the new River basin management plans (2022-2027) of the four basin directorates in Bulgaria. Based on the accumulated data, a comparative analysis and parallel assessment of the ecological status of 367 river points from 15 river types was carried out according to two key biological elements for quality - macrophytes and macrozoobenthos.
- The classification system for assessing the status of surface water is compared with that of different ecoregions in Europe and on different continents.

(3) Methodology of biological water monitoring

- The boundaries of the ecological quality classes of the type-specific scales of the Biotic Index, based on macrozoobenthos, were refined. The assessment scales are published in the latest amendments to Ordinance H-4/2012 on the characterization of surface waters (State Gazette, issue 67/04.08.2023).
- When testing a variety of experimental metrics for assessing the ecological status in standing waters in Bulgaria, a new methodology/multimetries and type-specific scales for assessing the ecological status of different types of surface standing waters using a biological element for quality - "macrozoobenthos" were approved. assessment were published in the latest amendments to Ordinance H-4/2012 on characterization of surface waters (State Gazette, issue 67/04.08.2023).

(4) Conservation of biodiversity and the ecological condition of water bodies and wetlands

The presented reference for Dr. Varadinova's citations proves that she is an internationally recognized specialist with significant and recognized results. The total number of citations is 261 (72 included in her previous habilitation), of which 147 are in publications referenced and indexed in Web of Science and Scopus.

Recognition of Dr. Emilia Varadinova's expertise and competence is her involvement in various national and international teams. After 2015 (the period of her first habilitation), she is the scientific leader of 6 national scientific and applied projects and a participant in 5 international and 15 national projects. Her contributions to the field of macrozoobenthos research are clearly distinguishable in collective research.

Assoc. Prof. Varadinova's experience as a teacher is significant. Since 2015, she has been a tenured teacher at Southwestern University "N. Rilski", where he introduced more than 10 lecture courses. Since 2017, he has been a part-time teacher in the master's program of the Plovdiv University "Paisiy Hilendarski", he is a guest lecturer at the Forestry University, Department of Ecology and Environmental Protection, Sofia (2017-2019). Dr. Varadinova is the supervisor of successfully defended graduate students and two doctoral students. He is a mentor and supervisor of interns.

Comment

The evaluation of the presented materials in relation to the recommended criteria shows that Dr. Varadinova's scientometric indicators significantly exceed the requirements for the selection of a "Professor". Scientific contributions are visible internationally, which proves their citability and participation in scientific projects (including international and scientific-applied ones). I have very good personal impressions of her work, her precision and competence are impressive.

Conclusion: Associate Professor Emilia Varadinova is an established specialist in the field of hydrobiology with significant original scientific-fundamental and applied developments. She meets all the criteria and indicators for the occupation of the academic position of "Professor" according to the ZRASRB and the Regulations for the implementation of the ZRASRB of the Ministry of Education, the BAS, and the IBER at the BAS. All the foregoing gives me grounds to recommend with full confidence to the the Scientific Jury and the Scientific Council at IBER to vote for awarding the academic position "Professor" in the scientific specialty "Hydrobiology", section "Biodiversity and functioning of freshwater ecosystems" at the Department "Aquatic ecosystems", Institute of Biodiversity and Ecosystem Research – BAS, to Dr. Emilia Dobrinova Varadinova.

July 25. 2024

Sofia

Signature:

(Prof. Dr. Nadja Ognjanova-Rumenova)