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OPINION

by Prof. Eng. Ekaterina Ivanova Todorova, Ph.D

Workplace Forestry University - Sofia
Member of a scientific jury, appointed by Order No. 41/ 27.05.2024 of the Director of the Institute of Biodiversity and Ecosystem Research, BAS
in connection with a competition for the occupation of the academic position "professor", announced in the State Gazette no. 27 of 29.03.2024, by field of higher education:
4. "Natural sciences, mathematics and informatics";
Professional direction: 4.3. "Biological Sciences"; Scientific specialty: **"Hydrobiology"** at the IG "Bioindicators, monitoring and ecological classification of freshwater ecosystems",
Section "Biodiversity and functioning of freshwater ecosystems", Department "Aquatic ecosystems"

One candidate submitted documents in the mentioned competition - Assoc. Prof. Emilia Dobrinova Varadinova. During their review, it was found that the candidate meets the National minimum requirements for occupying the academic position "Professor", according to the Law on the Development of the Academic Staff of the Republic of Bulgaria, the Rules for its Implementation, and the requirements according to the Rules for the Terms and Conditions for Acquisition of scientific degrees and for holding academic positions in the Bulgarian Academy of Sciences and the Rules for the terms and conditions for acquiring scientific degrees and for holding academic positions at the Institute of Biodiversity and Ecosystem Studies - BAS, according to indicators group A, B and G, and exceeds almost three times indicators D and E for Professional direction: 4.3. "Biological Sciences".

The most striking positive aspects of the candidate's work are related to the refinement of the boundaries of the ecological quality classes of the type-specific scales of the Biotic Index based on macrozoobenthos. A new methodology/multimetrics and type-specific scales for the assessment of the ecological status of different types of surface stagnant waters using the biological quality element "macrozoobenthos" was proposed and approved. The assessment scales are published in the latest amendment to Ordinance H-4/2012 on the characterization of surface waters (SG, 67/04.08.2023). Assoc. Prof. Varadinova is the contact person for water (BEC macrozoobenthos), in connection with the fulfillment of Bulgaria's obligations in the process of intercalibration and application of European legislation on water.

The main scientific contributions in the works of Assoc. Prof. E. Varadinova are in 2 directions: **Characterization of the taxonomic composition and structure of macrozoobenthos communities in surface waters** and **Bioindication and evaluation of the ecological state.** The dependence between the characteristics of the aquatic environment and the structuring of benthic

communities, including the preferences of aquatic invertebrates to different habitats, was established. The impact of pollutants, climate change and the spread of invasive species have been found to generate permanent pressure on freshwater ecosystems and have a negative effect on freshwater biodiversity. The analysis of the relationships of the functional groups with the physicochemical parameters of the water environment prove that the altitude, shading and anthropogenic pressure are key factors in the formation of the trophic structure of bottom invertebrate communities. It was established that the seasonal dynamics and longitudinal distribution of the functional groups obeys the general regularities laid down in the River Continuum Concept, but broken through the effects of anthropogenic pressure. To validate the typology and classification system in Bulgaria, the ecological status of 218 monitoring points, which belong to 175 flowing and standing surface water bodies, was determined. A comparison of the classification systems for assessing the status of surface water between countries located in different ecoregions in Europe and on different continents was carried out.

The scientific-applied and methodical contributions are related to the creation of the **Methodology of the biological monitoring of waters** and **Analyzes and evaluations for the protection of biodiversity and the ecological state of water bodies and wetlands**.

The scientific research work and its contributions are extremely relevant for science and society, because they are aimed at information about the state of surface water bodies and their protection. This is vital for the environment and people in the future.

The educational activity of the candidate is related to the development of electronic lecture courses in the period 2015-2024 and the delivery of lectures to bachelor's and master's students from the Southwest University "N. Rilski" - Blagoevgrad and Plovdiv University "P. Hilendarski" in 12 academic disciplines related to the characterization of surface waters, their management and monitoring, environmental norms, methods of analysis and assessment of the state of waters. This is also the clearly outlined profile of the candidate's research work.

The review of the scientific, research and teaching activities of Assoc. Prof. Emilia Dobrinova Varadinova showed that she fulfills all the scientometric requirements for the academic position "Professor" at the national level and at the Institute of Biodiversity and Ecosystem Studies - BAS, and some indicators significantly exceed them. Established and internationally recognized scientist with 3 specializations in the Netherlands, Ireland and Romania, participation in 5 international projects and leader of 6 and participation in 15 national scientific and scientific-applied projects and packages, 2 successfully defended PhD students and over 140 citations in journals with IF. This gives me reason to propose to the respected scientific jury that Assoc. Prof. Emilia Dobrinova Varadinova be elected as a "professor" in professional direction 4.3. "Biological Sciences"; Scientific specialty: "Hydrobiology" to the research group "Bioindicators, monitoring

and ecological classification of freshwater ecosystems", Section "Biodiversity and functioning of freshwater ecosystems", Department "Aquatic ecosystems".

Date: 18.07.2024 Signature:

/Prof. Eng. E. Todorova, Ph.D./