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Opinion

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on the competition for the academic position "**Associate Professor**" in the professional field 4.3. "Biological Sciences", scientific specialty "**Hydrobiology**", for the needs of the "Bioindicators, monitoring and ecological classification of freshwater ecosystems" Research Group to the "Biodiversity and functioning of freshwater ecosystems" Division, Department of Aquatic Ecosystems of the Institute of Biodiversity and Ecosystem Research (IBER) of the Bulgarian Academy of Sciences (BAS), announced in the State Gazette No. 48/ 07.06.2024.

The opinion is written in fulfillment of Order No 50/05.08.2024 г. by the Director of the IBER-BAS, Assoc. Prof. Dr. Vladimir Vladimirov.

The single candidate has submitted the necessary documents for participation at the competition for the academic position "Associate Professor" - **Chief Assistant Dr. Violeta Georgieva Tyufekchieva** from IBER-BAS.

Dr. Violeta Tyufekchieva has a long experience in the specialty, over 32 years, working at the Institute of Zoology - BAS in the period 1995-2010 and at IBEI - BAS - since 2010. In 2014, Violeta Tyufekchieva successfully defended her dissertation with a title "Composition, distribution and ecology of Plecoptera (Insecta) in Bulgaria", and obtained a doctoral degree in "Hydrobiology". From 2014 and until now she is a Chief Assistant at IBER, BAS.

The documents submitted by the candidate have been prepared accurately and contain the necessary administrative documents and publications relating to the competition. They are in accordance with the Act for the Development of the Academic Staff in the Republic of Bulgaria and the Regulations of BAS and IBER for the implementation of this Act.

In addition to the publications related to the dissertation (3 in total), Dr. Violeta Tyufekchieva has presented a total of 29 publications, distributed by groups as follows: 9 publications in group V and 20 publications (12 in scientific journals and 8 - in book chapters) in group G. All of them are co-authored with scientists from Bulgaria and abroad, and in 4 of them she is the first author.

Publications in scientific journals are distributed by quartiles as follows: five in journals from the first quartile (Q l) (Diversity - 1, Nature - 1, Nature Ecology & Evolution - 1, Scientific data - 1 and Water -1 paper), one in Q2 (Ecologica Montenegrina), four in Q3 (Acta zoologica bulgarica)

and 11 publications in journals with Q4 (Acta zoologica bulgarica – 8 and Ecologia Balkanica – 3 papers). Of the publications listed by quartiles, four were published in journals that are indexed only in Scopus (have a Scimago Journal Rank (SJR) and have no impact factor.

In the group of indicators D, Dr. Tyufekchieva has submitted a list of 126 citations in Web of Science and Scopus refereed journals. In the Scopus and Web of Science databases, the scientometric indicator (*h*-index), of the candidate is 8 and 6, respectively.

The review of the scientometric indicators submitted by Dr. Violeta Tyufekchieva shows that all the minimum requirements for the academic position "Associate Professor" are fulfilled, and even exceeded – a total of 141 points for the publications in indicator group V (a minimum requirement of 100 points), 303 points for the publications in indicator group G (a minimum requirement of 220 points), and the number of citations is 126, resulting in 252 points in Group D (a minimum requirement of 60). The sum of the points is 746 with a minimum requirement of 430 points. The number of publications with impact factor is 17, with a minimum requirement of 10. For publications with more than 30 authors (Haase et al. 2023; Sinclair et al. 2024), letters from the first authors about the contributions of Dr. Tyufekchieva to the investigations are provided.

The presented summary of contributions reflects objectively the research work of Dr. Violeta Tyufekchieva. Her scientific contributions are mainly on faunistics, zoogeography and ecology of stoneflies (Insecta: Plecoptera). As stoneflies are one of the most endangered insect groups and they are a bioindicator of the ecological status of aquatic ecosystems and water quality a part of her studies is about conservation status of Plecoptera fauna. Research on this group of insects is reflected in 19 scientific publications. Due to the similarity in ecological features of insects of different orders, some of these publications are combined with data on species of the Ephemeroptera and Trichoptera orders, but the contributions of Dr. Tyufekchieva are clearly distinguishable. The scientific contributions on the order Plecoptera can be briefly summarized in the following:

Faunistic contributions*:*

Three new taxa have been recorded for the fauna of Bulgaria for first time - two species and one subspecies:

- *Protonemura rauschi* Theischinger, 1975 – Malko gradishte village, Haskovo Province,
- *Isoperla chius* Zwick, 1978 – stream, Madzhari village, Haskovo Province and
- *Brachyptera beali beali* (Navás, 1923) – Luda reka river, Pirin Mts.

As a result of targeted studies, data on the species composition of the order Plecoptera in a number of water bodies in Bulgaria and North Macedonia were obtained. For 19% of the species distributed in Bulgaria the knowledge about their distribution has been extended. They belong to the genera *Amphinemura*, *Arcynopteryx*, *Besdolus*, *Dinocras*, *Isoperla*, *Leuctra*, *Nemoura*, *Perla*,

Perlodes, *Siphonoperla* and *Taeniopteryx*. New data were obtained on the distribution of 4 taxa in North Macedonia.

Zoogeographical contributions

The zoogeographic characterization of the representatives of the order Plecoptera from 22 mountain and semi-mountain rivers in Bulgaria and 16 in Northern Macedonia was made. A conclusion is made that stoneflies of the European and Palaearctic species complex dominate (78%).

A number of papers are devoted to the endemic and rare stonefly species from Bulgaria. There are 31 endemic taxa. The Balkan endemics are 19 species and 2 subspecies while the number of the Bulgarian endemics is ten.

The northernmost point of the known distribution of the rare species *Brachyptera beali beali* in North Macedonia has been defined - Orevovechka River.

Contributions of conservation significance

The conservation significance of the plecopteran fauna of Bulgaria and North Macedonia is assessed, which is important for the conservation of the species.

More than 50% of the Bulgarian species are assigned to the following IUCN categories: one species is considered Extinct, two – Regionally extinct, two – Possibly Extinct, 22 – Critically endangered, nine – Endangered and 21 – Vulnerable.

Three stonefly species are considered extinct from the Bulgarian section of the Danube river - *Taeniopteryx nebulosa* (Linnaeus, 1758), *Oemopteryx loewii* (Albarda, 1889) and *Marthamea vitripennis* (Burmeister, 1839).

Ecological contributions

A complex assessment of various factors (substrate types, elevation, hydrological, physical and chemical parameters) relevant to the distribution and abundance of stoneflies was made. Vertical gradient, temperature and organic load are among the main factors influencing the species composition and population density of members of the order Plecoptera.

Contributions to the taxonomic and functional diversity of benthic organisms in continental waters; ecosystem functions

Data on the species composition of aquatic invertebrates have been obtained from a significant number of lentic (dams and natural lakes) and lotic (rivers and streams) water bodies on the territory of Bulgaria and the corresponding faunal lists have been compiled.

Results on the distribution of invasive species of aquatic invertebrates in Bulgaria including the Asian clam *Corbicula fluminea* (O.F.Müller, 1774) (East Aegean water basin in Bulgaria), *Dreissena polymorpha* (Pallas, 1771) (Bivalvia) (Bebresh Reservoir, Hristo Smirnenski Reservoir, Ognyanovo Reservoir, Yovkovtsi Reservoir – tail and Yovkovtsi Reservoir – wall), *Potamopyrgus antipodarum* (Gray, 1843) (Gastropoda) (Devnenska river), are presented.

The ecological status and ecological potential of the water bodies have been assessed.

The analysis of the taxonomic and functional biodiversity in macroinvertebrate communities within a large-scale European study, in which Dr. Tyufekchieva participated, shows that after 2010 there has been some reduction in the effect of the implemented water quality improvement measures on biodiversity. The role of long-term research in analysing the impact of climate change on ecosystem biodiversity is highlighted.

Outside the competition, an additional list of 12 scientific publications by Dr Tyufekchieva, co-authored with other researchers, is submitted. She has participated in an impressive number of research projects (over 44) on a variety of topics funded by the National Scientific Fund of Bulgaria, the Ministry of Education and Science, the Ministry of Environment and Water, etc., as well as in 30 scientific forums.

In conclusion: The review of the submitted documents and the scientific production of Dr. Violeta Tyufekchieva shows that she she is a researcher with a clear scientific profile and competence in the field of hydrobiology. Her scientific contributions correspond entirely to the requirements of Act for the Development of the Academic Staff in the Republic of Bulgaria and the Regulations of BAS and IBER for the implementation of this Act for the academic position "Associate Professor". On the basis of the above, as well as on my personal impressions, I strongly recommend the members of the Scientific Jury to support the election of **Chief Assistant Dr. Violeta Georgieva Tyufekchieva** for the academic position of "**Associate Professor**" in the professional field 4.3. "Biological Sciences", scientific specialty "**Hydrobiology**".

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Sofia /Assoc. Prof. Dr. Teodora Toshova/