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**OPINION**

By Assoc. Prof. Dr. Mariana Stancheva Panayotova-Pencheva – Institute of Experimental Morphology, Pathology and Anthropology with a Museum at the Bulgarian Academy of Sciences, appointed as a member of the Scientific Jury by Order No. 80/26.09.2025 of the Director of IBEI - BAS

On a dissertation for the award of the educational and scientific degree "Doctor" in the scientific specialty "Parasitology and Helminthology", field of higher education "Natural Sciences, Mathematics and Informatics", professional direction 4.3. Biological Sciences

**Author of the dissertation:** Nina Vencheva Vancheva

**Topic of the dissertation:** “Taxonomic revision of the genus *Gyrodactylus* (Monopisthocotyla: Gyrodactylidae) in freshwater fishes in Bulgaria”

**Scientific Supervisor:** Prof. Dr. Boyko B. Georgiev (IBEI – BAS)

**Scientific Consultant:** Senior Asst. Prof. Dr. Anelia Bobeva (IBEI – BAS)

Modern scientific research indicates that about 10–20% of all existing species of organisms on Earth are parasites. This fact, along with the constant variability and evolution of species, implies extremely high biodiversity, the study of which requires both consistency and periodic revision of accumulated knowledge. On the other hand, taxonomic studies are fundamentally important for understanding parasitic diversity. In this regard, I believe the topic of the dissertation submitted for my review is both timely and relevant.

Nina Vancheva's dissertation presents a taxonomic revision of monogeneans in the Gyrodactylidae family found in freshwater fishes in our country. The dissertation is 89 pages long and is structured as follows: introduction, literature review, goal and objectives, publications, conclusion, declaration of originality, conclusions, contributions, references, and acknowledgments.

The introduction effectively highlights the topic of the dissertation. It provides several reasons justifying the need for this study: the significant species diversity of gyrodactylids, their

high host specificity and rapid evolution, new insights into the group's taxonomy resulting from the introduction of molecular biological research, the potential for lasting negative consequences from the spread of alien species on local fauna, and, importantly, the negative ecological and economic impacts these parasites have on fish populations and the fishing industry.

The literature review covers all studies on the topic in our country, dating back to the late 1950s. Data from each study are presented in a summary, and reference is made to article 1, which includes a table summarizing the parasitic species, their hosts, and their distribution in Bulgaria. This table visually presents the extracted findings from studies on the topic to date. The literature review concludes with a summary that highlights the need to develop such a dissertation.

The purpose of the research is clearly defined, with three specific tasks established for its implementation. Three articles, which are part of the dissertation, replace the traditional sections of materials and methods, results, and discussion. They have been published in prestigious scientific journals – *Parasitologia*, *Parasitology Research*, and *Acta Parasitologica* – which indicates that their content has been thoroughly reviewed and highly valued. The data in the publications show that extensive work has been conducted, with over 300 specimens of the genus *Gyrodactylus* analyzed. These specimens come from both the Helminthological Collection of IBEL-BAS, collected by previous authors, and newly collected materials from freshwater fish obtained by the doctoral student. The collection dates back to 1962, while the newly collected materials are from recent years. This wide time span makes Nina Vancheva's research thorough and reliable. In her dissertation, the doctoral student used both classical morphological and modern molecular biological methods to identify monogeneans. The results, presented as drawings, tables with morphometric data, and information on GenBank deposits, demonstrate that she has mastered these methodologies.

In the "Conclusion" section of the dissertation, Nina Vancheva conducts a morphological and taxonomic analysis of the results and summarizes the data, enabling the subsequent use of this information in the "Conclusions" and "Contributions" sections. I admire the formulation of the conclusions and contributions – seven and eight in number, respectively – which are concise and accurately reflect the essence of the dissertation.

The dissertation abstract is 24 pages long, corresponds to the content of the dissertation, and reflects the most important highlights of the work. The doctoral student has presented the results of the dissertation research at two scientific forums, in Bulgaria and North Macedonia. The

relevance of the research is demonstrated by eight citations related to one of the publications that are part of the dissertation.

### **Conclusion**

In conclusion, Nina Vancheva's dissertation work is relevant and timely. It has been developed precisely, taking into account a rich set of literary data and materials. The tasks and goal have been fulfilled, achieving an update of the niche regarding the taxonomy of monogeneans of freshwater fish in our country. This, along with the documents accompanying the dissertation, shows that the goals of the doctoral studies have been fully met, which gives me reason to vote in favor of awarding Nina Vencheva Vancheva the educational and scientific degree "Doctor" in the scientific specialty "Parasitology and Helminthology," field of higher education "Natural Sciences, Mathematics and Informatics," professional direction 4.3. Biological Sciences.

05.12.25

Sofia

Prepared the opinion:

/Assoc. Prof. Dr. Mariana Panayotova-Pencheva/