

Review

by Prof. D. sc. Dr. Paraskeva Michailova, Institute of Biodiversity and Ecosystem Research
by Bulgarian Academy of Sciences

of the materials submitted for participation in a competition for the academic position of "associate professor" at Plovdiv University "Paisiy Hilendarski" in the field of higher education. 4. Natural sciences, mathematics and informatics, professional direction 4.3. Biological Sciences (Zoology).

In the competition for "associate professor", announced in the StateNews, State Gazette, no. 92 of . November 18, 2022 and on the website of Plovdiv University "Paisiy Hilendarski" for the needs of the Department of ZOOLOGY to the Faculty of Biology of Plovdiv University "P. Hilendarski, there is only one candidate ch. assistant Dr. Petar Stoykov Boyadzhiev, Department of Zoology, Faculty of Biology, PU "P. Hilendarski”

1. General presentation of the received materials

By order No. PD - 21-334 of 15.02.2023. of the Rector of the University of Plovdiv (PU) "P. Hilendarski" I have been appointed as a member of the scientific jury of a competition for the academic position of „associate professor “at the PU in the field of higher education. 4. Natural sciences, mathematics and informatics, professional direction, 4.3 Biological Sciences (Zoology) announced for the needs of the Department of ZOOLOGY, at the Faculty of Biology at PU "P. Hilendarski".

To participate in the announced competition, only one candidate submitted documents Dr. Petar Stoykov Boyadzhiev, ch. assistant, Department of Zoology, Faculty of Biology, PU "P. Hilendarski”

The presented by ch. assistant Dr. Petar Stoykov Boyadzhiev, a set of materials is in accordance with the Regulations for the Development of the Academic Staff of the PU, and includes the following documents: 1. Application form to the Rector for admission to participate in the competition; 2. Autobiography in European format; 3. Diploma for higher education with acquired educational-qualifying degree "master" - original with attachment. 4. Diploma for educational and scientific degree "PhD" - original; 5. List of scientific papers: 5.1. List of scientific papers for "associate professor"; 5.2. List of scientific papers for "PhD"; 6. Scientific papers (copies of publications); 6.1. List of citations; 7. Certificate of compliance with the minimum national requirements; 7.1. Certificate of compliance with additional faculty requirements; 8. Annotations of the materials under point 65 from the

Regulations for the Development of the Academic Staff at Plovdiv University (RDASPU) with extended habilitation certificate (in Bulgarian); 8.1. Annotations of the materials under point 65 from RDASPU with extended habilitation certificate (In English); 9. Self-assessment of contributions; 10. Declaration of originality and authenticity of the attached documents; 11. Certificate of work experience; 12. Documents for teaching work: 12.1. Reference - teaching work; 12.2. Reference - textbooks; 12.3. Certificate - "Lyuben Karavelov" branch - Kardzhali; 12.4. Certificate - Branch - Smolyan; 13. Documents for research work: 13.1. Certificates for participation in a project at the "Scientific Research" fund and the "Institute of Biodiversity and Ecosystem Research" (BAS); 13.2. Certificates for participation in a project at the "Scientific Research" fund and "Forest Institute" (BAS); 14. Documents according to the additional requirements of the Faculty of Biology (PU): 14.1. Reference for defended graduates; 14.2. Reference for scientific projects; 14.3. Reference for the administrative activity; 15. Other documents: 15.1. Diploma for acquired specialization "Protection of Nature", at "Free Faculty" (PU); 15.2. Order No. 686/12.12.2018 for participation in the preparation of a candidate student campaign at the Faculty of Biology at „P. Hilendarski“ University of Applied Sciences. 16. Set of paper documents from 1 to item 17 – 3 pieces; 17. Set of documents from 1, 2, 5.1., 5.2, 7, 7.1., 8, 8.1., 9 (including those from items 4, 12.1, 12.2, 12.3., 12.4., 13.1., 13.2, 14.1, 14.2., and 14.3) on electronic files - 8 pieces.

The candidate Dr. Petar Stoykov Boyadzhiev, ch assistant, has submitted a total of 31 scientific works: 23 scientific papers in connection with the competition for an associate professor and 7 papers in connection with obtaining the scientific-educational degree "PhD". He is also the author of a chapter of a monograph. He is the co-author of 3 textbooks for students. Only 23 scientific papers, which are outside the dissertation, are accepted for review and are taken into account in the final evaluation. Three textbooks for students and 2 research projects, (despite the fact that participation in 12 projects is indicated in the CV) are also considered. Seven scientific papers on the dissertation and a chapter of a monographic development, which are related to the development of the dissertation work, are not reviewed. The distribution of scientific papers by relevant headings, in the country and abroad, is as follows 11 in foreign journals: Zootaxa, Biologia, Revue Suisse de Zoologie, Spixiana, etc. and 12 in the Bulgarian journal Acta Zool. Bulgarica, all papers in English. Documents in the form of official notes - certificates: for work experience, for teaching employment in two branches of the PU - in the town of Kardzhali and the town of Smolyan are also presented. Certificates of participation in two projects financed by the National Foundation of Scientific Research were also presented. A diploma in Nature protection work was also presented. Dr.

Boyadzhiev also participated in a commission for the preparation of a biology competition for students from grades 10-12, "Exploration in Biology". The presented by ch. assistant Dr. Petar Boyadzhiev set of materials is in accordance with the Regulations for the Development of the Academic Staff of Plovdiv University.

2. Brief biographical data of the applicant

Dr. P. Boyadzhiev was born in 1968. In 1991 graduated from secondary special education in the city of Plovdiv. In 1992-1993 was a teacher at "Bratan Shukerov" primary school, Manastir village, Plovdiv region. In 1995 he was also a part-time lecturer in the field of Invertebrate Zoology. Since 1995 until now, he works at Plovdiv University "P. Hilendarski", Department of Zoology at the Faculty of Biology, where his career progressed from assistant, senior assistant and chief assistant in Invertebrate Zoology; he also conducts laboratory and field exercises in Invertebrate Zoology. In 2005, he successfully defended a thesis with a scientific specialty "Entomology"/01.06.148/, entitled "Eulophid fauna (Hymenoptera, Chalcidoidea, Eulophidae) of the Rhodopes". He is good in English and excellent in Russian.

3. General characteristics of the applicant's activity

Educational and pedagogical activity

Dr. P. Boyadzhiev has 27 years active teaching in the Faculty of Biology of the PU, being the ch. assistant in the faculty for 20 years and 6 months. He gave lectures and laboratory exercises in the disciplines "Invertebrate Zoology", "Ethology", "Zoological objects in pharmaceutical biotechnology", "Biological basis of behavior", "Methods for collecting and processing of zoological materials", "Protozoan parasites of Man and Animals", "Medical Entomology and Acarology" and "Animal Diversity", for which he has developed lectures and presentations gave to students as electronic files for self-study. He is the co-author of three textbooks in the field of Zoology. He teaches students from the "Bachelors" program, and in the last 5 years his teaching activity is expressed as follows: In 2017-2018, he gave lectures on Invertebrate zoology, medical zoology, Animal diversity in 6 disciplines, leading field exercises and exercises in medical zoology for a total of 419 hours. In 2018-2019 there are a total of 486 hours in 6 disciplines: Zoology, Medical zoology, field exercises, Invertebrate zoology, Animal diversity, Entomology. In 2019-2020, he gives lectures and exercises in 5 disciplines, a total of 361 hours. In 2020-2021, he lectures and conducts exercises in 6 different disciplines for a total of 565 hours. In 2021-2022 there are lectures and exercises of 521 hours in 6 disciplines. In the last 5 years, he has also taught Masters, program "Biodiversity, ecology and conservation" of 2 different freely elective

programs of the section "Zoological materials". He led lectures and exercises of masters of the "Parasitology" program in 4 disciplines of the "Entomology" and "Acarology" sections. The presented data indicate the high workload of the candidate in the educational and pedagogical activities of the faculty. In addition to teaching in the Faculty of Biology of the PU, the candidate gave lectures and exercises in the branches of the PU - Kardzhali and Smolyan under the "Bachelor" program in the disciplines "Ethology" /30 hours lectures and 15 hours of exercises/ and "Biological control" with a schedule of 30/15 lectures/ exercises. Dr. P. Boyadzhiev is not only a very good teacher, but also under his leadership young specialists - graduates have successfully defended their diploma theses. Under his leadership and together with other colleagues, 11 students have successfully defended their diplomas. Five of them have developed theses in the field of Zoology.

It is necessary to note that Dr. P. Boyadzhiev is also the co-author of three textbooks in the field of Zoology. One of the textbooks is published in PU, Plovdiv and the other two in ed. "Prosveta Plus", Sofia. With his educational and pedagogical activity, the candidate contributes to the development of the zoology specialty in Plovdiv University, as well as to the development of young specialists in this field. He passes his knowledge and skills to the young specialist- zoologists, who will work to study in the field of zoology and get to know the animal biodiversity in our country.

General characteristics of the candidate's scientific activity

Of the 23 papers presented in English. Dr. Boyadzhiev is in first place in 8 scientific papers, in 4 in second place, in 5 in third place, and the rest are in 4th and other places. His developments are referenced and indexed in world-renowned scientific information databases of Web of Science and Scopus, with a total impact factor: 9.073 and a total SJR: 6.679. The scientific articles presented for the competition are co-authored and all in English. The certificate of compliance with the minimum national requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria (LDASRB) and the Rules for its implementation show: **Indicator 1** - successfully defended dissertation for and awarded the degree "PhD" - **50** points; **Indicator 3-4** – 8 scientific articles in publications referenced in Web of Science and Scopus. Two of the papers are in quartile Q2 / $20 \times 2 = 40$ /, 4th in quartile Q3 / $15 \times 4 = 60$ / and 2 in quartile Q4 / $12 \times 2 = 24$ / total **124** points. **Indicator 7** – 15 scientific publications referenced in Web of Science and Scopus with quartile Q3 / $15 \times 10 = 150$ / and with quartile Q4 / $12 \times 5 = 60$ / total **210** points. **Indicator 11** – Citations: $2 \times 40 = 80$ points. As can be seen from the above data, Dr. Boyadzhiev not only meets, but also exceeds

the requirements of the LDASRB, as instead of the required **400** points, he presents evidence for **464** points.

The scientific activity of the candidate is entirely concentrated in the field of the announced competition. He developed a theoretically and practically interesting group of insects from the Hymenoptera order. His studies can be divided into several directions: Taxonomy, Faunistics and Ecology. The scientific contributions in these directions are the result of field research, detailed laboratory analyzes and determination of the collected material, and all papers are jointly with famous specialists in the group. For the realization of these directions of study, the candidate developed the methods of collecting and analyzing the material, presented in j. *Revista Brasileira de Entomologia*. (paper № 4). The advanced methodological developments presented by the candidate allow a detailed analysis of individual morphological signs of the studied insects, especially important for their correct identification. The candidate's original contribution is the establishment of 5 species new to science from Bulgaria and Turkey from the genera *Stepanovia*, *Entedonomphale* of the order Hymenoptera. The descriptions are made in accordance with the International Code of Zoological Nomenclature, and are accompanied by original photographs /papers №. 1, 2, 3, 6, 23/ and in some cases original photographs from a Scanning Electron Microscope are also presented /paper №. 3/. Data on the ratios between individual morphological structures are also presented. The descriptions are together with leading specialists in the group and have been published in renowned taxonomic journals such as *Spixiana*, *Revue Suisse de Zoologie*, *Biologia*, etc. The diagnosis of the species is well presented, indicating the differences with related species. Original keys were also developed, which include the new species described by him. Taxonomic revisions of two species of the Eulophidae family were carried out with the presentation of original photographs and important taxonomic characters, and the paper was published in the specialized taxonomic journal *Zootaxa* /paper № 20/. Males of *Neotrichoporoides bulgaricus* Graham, 1987 (Hymenoptera, Eulophidae) are described and a redescription of the females of the species was made /paper №. 22/. The candidate also has a significant faunal contribution. One new genus of the family Eulophidae, 12 species of the family Eulophidae and 2 species of the family Encyrtidae, new to the fauna of Bulgaria were established, 17 new "host-parasitoid" associations were examined. A new species for the Nearctic, two species of Eulophidae, new to Turkey, have also been found. As a result of in-depth studies of the Eublepharidae family from Bosnia and Herzegovina, a species new to their fauna was established (paper № 7). Faunal studies of the candidate are accompanied by

data on the distribution and ecology of the species (phenology, sex ratio, dominant species, etc.).

The egg parasitoids of the pine processionary moth in black pine plantations were studied in detail (paper №. 8). The results of the studies of the parasitoid complexes have a significant contribution. As a result of a detailed analysis of the parasitoid complex of butterflies and Diptera insects, 4 species of Hymenoptera, family Eulophidae, 11 species of parasitoid species, were established /papers №.9,10/. Examining the parasite-host relationship, new parasitoids for Bulgaria and a new host for our fauna are reported /papers № 11,12,13,14,15,16/. The parasitoid complex was also studied from Bosnia and Herzegovina /paper №16/. The structure and numerical ratio of parasitoid communities raised by galls were studied, and the relationship between these communities and some environmental factors was discussed and analyzed /paper № 18/. The applicant's faunistic studies, accompanied by results on the distribution of species, some ecological data and results of laboratory analyses, are original, of a fundamental and scientific - applied character, which complement the knowledge on the biology of the species of the studied group of insects.

The candidate's research finds a wide response in the scientific community, with a total of 40 citations found. The citations are in journals with an Impact factor and corresponding quartiles (Q) from 1- to 4 /Zookeys, Biological Control, Journal of Pest Science, Environmental Entomology, etc./.

4. Evaluation of the candidate's personal contribution.

The candidate's presented works are collective, which allows for a comprehensive consideration of a particular zoological problem. Based on the analysis presented in the review, I underline that Dr. P. Boyadzhiev meets the requirements of point 24. of the Law on the Development of Academic Staff in the Republic Bulgaria and the Regulations for its implementation, as well as the Additional requirements of the Faculty of Biology for the development of the Academic Staff at the PU. He is a very active teacher and researcher, with a clearly defined pedagogical profile in the field of Zoology and original scientific research activity in the study of insects - Hymenoptera. His research resonates among the scientific community and his research on Hymenoptera is of great importance for the study of the biodiversity of the group not only in Bulgaria, but also on the Balkan Peninsula.

5. Critical notes and recommendations

In the applicant's CV, there is a discrepancy in the number of scientific articles, the number of projects and citations with this number presented in the applicant's documents. It is significantly larger in the applicant's CV.

No information is provided in which national and international conferences, symposia and congresses the candidate has participated in, although the CV states that he participated in 12 scientific forums.

Some suggestions to the candidate - in the future to apply in his studies molecular genetic methods - mitochondrial and nuclear DNA, which is important not only for taxonomy of the studied group, but also for tracing the phylogenetic relationships between species.

Also of interest is studying the variability of close and distant populations of species from the Hymenoptera order, which will allow to understand and follow their differentiation in their range.

CONCLUSION

The documents and materials presented by ch. assistant Dr. P. Boyadzhiev meets all the requirements of the Law on the Development of the Academic Staff in the Republic Bulgaria (LDASRB), the Regulations for the Implementation of LDASRB and the relevant Regulations of PU "P. Hilendarski". The candidate in the competition has submitted a sufficient number of scientific papers/23/, published after the materials used in the defense of the PhD and the academic position ch. assistant. In the papers of the candidate, there are original scientific and applied contributions that are obtained international recognition as a representative part of them /11 papers/ are published in international journals. His theoretical achievements have practical applicability, and some of them are directly oriented towards teaching activity.

The achievements of ch. assistant Petar Boyadzhiev, PhD, results in academic and research activities fully correspond to the minimum national and additional requirements of the Faculty of Biology, adopted in connection with the Regulations of the PU for the application of LDASRB.

After getting acquainted with the materials and scientific works presented in the competition, analyzing their significance and the scientific, scientific-applied and applied contributions contained in them, I find it reasonable to give my positive assessment and recommend to the Scientific Jury, to prepare a report-proposal to the Faculty Council of the Faculty of Biology for the election of ch. assistant Dr. Petar Boyadzhiev in the academic position of "associate professor" at PU "Paisiy Hilendarski" in: field of higher education Natural sciences, mathematics and informatics, professional direction 4.3. Biological sciences, professional direction ZOOLOGY.

27.03.2023

Reviewer:

Prof. D.Sc. Dr Paraskeva Michailova