

STATEMENT

on a competition for academic position "professor" in 4.3. Biological Sciences (Botanika - systematics of vascular plants), declared in State Gazette №59/26.07.2019.

Candidate: Assoc. Prof. Dolya Kaltcheva Pavlova – Tonkova, Department "Botanika", Faculty of Biology, Sofia University "St. K. Ohridski".

Submitted by Prof. Iva Ivanova Apostolova PhD, Institute of Biodiversity and Ecosystem Research, BAS, member of the scientific jury appointed by order of the Rector of Sofia University № ПД38-542/12.09.2019.

1. General characteristics of the applicant and presented materials

Assoc. Prof. Dolya Pavlova-Tonkova, Ph.D., is the sole candidate in the competition for the occupation of the academic position "Professor", announced by the Sofia University "St. K. Ohridski" for the needs of the Department of Botany. The required documents for this competition have been prepared in accordance with the legal requirements.

Dolya Pavlova has graduated from the Secondary School of Mathematics "G. Milev" in Pleven town. She has completed higher education on pre-school pedagogy, acquired at the Teachers' Institute L. Stanev in the same town. In the period 1980-1984 she graduated from the Faculty of Biology at the Sofia University, obtaining the qualification "Biologist-botanist". Continuing her education in the same department, in 1988 she completed and successfully defended her dissertation on the "Biosystematic study of the genus *Astragalus* in Bulgaria" and obtained the scientific degree "Doctor". From 1989 until today she works at the Department of Botany, Faculty of Biology at Sofia University "St. Kliment Ohridski". She has 34 years of professional experience.

Assoc. Prof. Pavlova has a total scientific output of 125 scientific papers. Out of this number 3 publications are related to her dissertation and 50 publications are related to the competition for the post of associate professor. For participation in the current competition, assoc. prof. Pavlova presented a total of 46 scientific papers, of which 26 scientific articles were referenced and indexed in the WoS and SCOPUS, one is a book chapter and 8 are scholarly textbooks. Assoc. prof. Pavlova is the single, first or last author of 30 of the scientific papers presented for this competition. The scientific papers have been cited 231 times. 75 of them are in referred in SCOPUS and Web of Science journals. Assoc. prof. Pavlova has *h*-index 9.

2. Assessment of the applicant's scientific activity and scientific contributions

The scientific activity of assoc. prof. Pavlova is characterized by consistency and precision in the study of a major research problem related to the influence of serpentines on the developing on them flora and vegetation. I definitely consider as a positive quality of a researcher who succeeds to maintain a deep and narrow specialization of the scientific issues he is dealing with. In this regard, the candidate has managed to preserve and develop over time her interest and professional experience in the nature of the serpentine terrains. This consistency in her research path has provided an opportunity for an in-depth and comprehensive study of floristic diversity related to

the specific environmental conditions provided by the ultramafic rocks. The diverse studies conducted for almost two decades give the impression that the scientific issues in this area are exhaustive, but I am convinced that there are still undiscovered phenomena in the applicant's professional interest, as well as there is a prospect of summarizing the obtained so far results in a complete monographic work.

The contributions from the research activity of assoc. prof. Pavlova are summarized in an 18-page author's reference. This reference begins with an introduction related to the characteristics of ultramafic rocks as a particular natural habitat with a specificity that provides opportunities for versatile scientific research. The introductory part aims to address the question of why the candidate's research interest is focused on these habitats and their flora and vegetation. I accept the report on the scientific work contributions of assoc. prof. Pavlova, but I think that their separation into two groups following the indicators for assessing national criteria under the national Act of Academic Staff Development creates conditions for repetition and difficulties for summarizing of the otherwise undeniable scientific achievements.

Firstly I would like to emphasize that description of new species for the science in our scientific field is not common and for me this is a huge scientific contribution. Assoc. prof. Pavlova described three new plant species (*Aethionema rhodopaeum*, *Onosma pavlovae* and *Silene fetlerii*). As a result of many research years on flora developing on serpentine terrains in Bulgaria, a comprehensive analysis of its diversity in terms of taxonomic structure, life forms and phytogeographic relationships has been provided. Floristic analyzes are accompanied by the provision of new horological information for the study areas. As part of the floristic analyzes important for the conservation of natural resources are the characteristics of conservation important species, endemics, relics and the impact of anthropogenic influence on the vegetation in serpentine habitats. The characteristics of two types of natural habitats, the Serpentine Steppes and the Ultramafic Rocks with Pioneer Grassland Vegetation, contribute to the conservation at national scale and promote these unique natural complexes to the broad public. Due to the limited distribution and specificity of the ultramafic habitats, it is important to identify local indicator species, with significance not only in our country but also outside the country. The establishment of a new association for the science (*Onosma pavlovae-Festucetum dalmaticae*) in the Eastern Rhodopes is a significant contribution to syntaxonomy and is a result naturally associated with the discovery of indicator species in the study areas.

In addition to the floristic studies it should be highlighted the results of karyological research of the candidate. She has identified for the first time the chromosome numbers of the following Bulgarian specimen: *Thlaspi apterum*, *Arenaria procera* subsp. *procera*; *Silene fabarioides* and *Thlaspi ochroleucum*. A new chromosome number for *Astragalus monspessulanus* subsp. *Illyricus* has been identified.

A significant part of the scientific contributions of assoc. prof. Pavlova is related to the study of biological features and mechanisms for adaptation to the increased concentration of metals in ultramafic habitats. The obtained results are not only scientifically fundamental in nature, but also of great practical importance, since some of the species that have been analyzed are medicinal plants. The complete significance of serpentine habitats for the plants is explored in the scientific studies of Pavlova by: (a) data on morphological variability (*Teucrium polium*, *T. chamaedrys*); (b) the accumulation of metals from ultramafic rocks in the plant tissues (*Thlaspi*, *Alyssum*, *Hypericum*); (c) monitoring the effect of toxic elements on certain plant structures and processes related to reproduction and cell division. The location of nickel in the stamens and pollen in Ni -

accumulating plants has been clarified. Statement is that obligate and facultative serpentine plants have increased their resistance to nickel.

The candidate's scientific research contributes to the evaluation of the possibilities for practical use of the plant species both in agriculture and in the economy by applying phytoremediation and agromaining.

3. Characteristics of educational activity

As part of her work experience at the Faculty of Biology, the activities of assoc. prof. Pavlova are related to lecturing, conducting exercises and participating in training field practices, both with students from the Bachelor's educational qualification degree and with those from the educational qualification Master's degree". Her teaching load is an average of 297 classroom hours and a total of 413.6 hours which is in excess of what is stipulated in the Rules of the Sofia University "St. K. Ohridski" as workload for the teachers. Assoc. Prof. Pavlova is a co-author of two textbooks on systematics of higher plants and author of curricula in the discipline of Pharmaceutical Botany at the Medical University in Pleven town. She has participated in the training of students under the ERASMUS + program at the Faculty of Biology (Sofia University) and at the Agrarian University of Tirana, Albania.

Assoc. prof. Pavlova has trained dozens of students. She has been the scientific adviser of 11 successfully defended graduates. One PhD student of the Institute of Forestry at BAS has successfully defended his dissertation under her scientific consultancy, together with Assoc. Prof. Dr. Alexander Delkov. It should be noted that in the supplied by the candidate reference for the fulfillment of minimum national requirements, the points for scientific guidance of doctoral students should be divided by the number of scientific advisers, which was not done in the documents submitted.

4. Other activities

Prof. Pavlova has managed 4 national scientific projects funded by the Ministry of Education and Science and 4 projects under interinstitutional contracts with the Science Research Fund at Sofia University "St. K. Ohridski". She was a consultant on a project at the Research Fund at the Ministry of Education and Science. She has participated in 1 international, 6 national and 7 internal institutional projects as a contractor.

Assoc. prof. Pavlova is editorial board member of three scientific journals - Sofia University Annual Book, Book 2 Botany, Agricultural Science (ISSN: 2291-448X) and Ot, sistematik botanik dergisi = The herb, journal of systematic botany.

5. Conclusion

The submitted scientific papers and other documents for participation in this competition by the candidate Dolya Pavlova testify her well-defined scientific profile as a researcher with a consistent research and career development and experienced university lecturer. The comparison with the minimum national requirements under Art. 2b of ZRASRB for the scientific field 4.

Natural sciences, mathematics and informatics, Professional field 4.3. Biological sciences, testify that her scores exceed the required points for all groups of indicators.

In accordance with the Implementation Rules of the Law for the Development of the Academic Staff in the Republic of Bulgaria, the Rules for the Terms and Conditions for Acquisition of Academic Degrees and Occupation of Academic Positions in Sofia University and the recommendations of the Faculty of Biology as well as in accordance of above mentioned opinions, I confidently think that assoc. prof. Dolya Pavlova - Tonkova possess the qualities eligible for academic position "professor" in the field 4.3. Biological Sciences (Botany). As a member of the scientific jury, I assess positively and recommend awarding to the candidate the academic position "professor".

5/11/2019

Signature

(Prof. I. Apostolova, PhD)