

STATEMENT

on the competition for occupation of the academic position "Professor" in the professional field 4.3. Biological Sciences, announced in State Gazette No59/ 26. 07. 2019, for needs of the Department of Botany, Biological Faculty, University of Sofia "St. Kliment Ohridski"

by Assoc. Prof. Juliana Ruseva Atanassova, PhD, Department of Botany, Biological Faculty, University of Sofia "St. Kliment Ohridski, Member of the Scientific Jury with Order № RD 542/12.09.2019 г.

For participation in the announced competition for the academic position "Professor" in the professional field 4.3. Biological Sciences (Botany – systematics of higher plants) for the needs of the Department of Botany, Biological Faculty, University of Sofia "St. Kliment Ohridski" has submitted documents only one candidate - Assoc. Prof. Dolja Kalcheva Pavlova-Tonkova, PhD. The documents submitted by Assoc. Prof. Pavlova-Tonkova for participation in the competition are in accordance with the requirements of the Law for the development of the academic staff in the Republic of Bulgaria and the procedure for acquiring scientific degrees and occupying academic positions at Sofia University "St. Kliment Ohridski".

Short biography of the applicant

In 1984 Dolja Pavlova-Tonkova completed her high education – Biology in the Biological Faculty, University of Sofia "St., Kliment Ohridski". In 1986 she defended her doctoral dissertation for the academic and educational degree of "doctor" (PhD) in 4.3. Biological Sciences. She has held the positions of Senior Assistant (1989) and Chief Assistant (1997) at the Department of Botany. Since 2002 Dolja Pavlova-Tonkova has been an Associate Professor at the Department of Botany, Biological Faculty.

Research activities of the applicant

Assoc. Prof. Dolja Pavlova-Tonkova has a total of 114 scientific publications, 31 of which are in peer-reviewed and indexed journals with impact factor (IF), 17 are in journals with SJR. Textbooks and teaching aids are 11. The total IF is 29.668 and the h-index is 8.

In the current competition for the academic position of "Professor", the applicant participates in a total of 47 scientific publications, 20 of which are in peer-reviewed journals with IF and 4 with SJR. She is a single author in 14 and a leading author in 11 of the scientific publications. A reference list with a total of 231 citations of the publications submitted in the competition is also presented, 75 of them in Scopus and Web of Science.

The applicant has great experience in various scientific projects. As can be seen from the documents submitted she was the head of 4 national projects funded by the Science Fund of the Ministry of Education and Science of Bulgaria and was head also of 4 internal institutional projects of Sofia University "St. Kliment Ohridski". She has participated in one international project and was a member in 6 national and 8 internal institutional projects.

Applicant's scientific contributions

The applicant has clearly defined scientific profile. Her research is focused on the study of scientific problems in the fields of the higher flora of the serpentinite terrains mostly in the Rhodope Mountains (Eastern and Middle). The introductory part of the habilitation report notes of the chemical and physical characteristics of the rocks and soils formed above

them: low levels of essential macronutrients and toxic concentrations of elements such as magnesium, nickel, cobalt and chromium. As a result, a specific flora is formed, consisting of species resistant to some extent to the high content of metals. Other plants, when adapting to serpentinites through their evolutionary development, have developed the ability to accumulate high concentrations of toxic elements.

The scientific achievements can be divided into two main areas:

1. The first is related to the study of the flora of serpentinite terrains in the Rhodopes and clarification of its taxonomic structure. More important could be the following achievements:

- The composition of the serpentine flora of the Western Rhodopes Mts was identified - 440 species, subspecies and varieties of 229 genera belonging to 59 families. The highest number of species is established for the following families: Poaceae, Asteraceae, Fabaceae, Lamiaceae, Caryophyllaceae, Brassicaceae. Floristic studies are also important for clarifying the phytogeographical features of the serpentinite flora in the Rhodopes.

- Three new for science species of higher plants - *Aethionema rhodopaeum* D. Pavlova, *Onosma pavlovae* (D. Pavlova) Tan & Petrova and *Silene fetlerii* D. Pavlova have been identified and described.

- New chorological information for the serpentine areas in the Rhodopes Mts. has been presented and the number of newly established taxa was 34 for the Eastern Rhodopes and 1 for the Middle Rhodopes.

- For the first time, local indicator species have been identified as a source of information on evolutionary processes and the specificity of serpentinite terrains. *Asplenium cuneifolium* Viv., *Cheilanthes marantae* (L.) Domin, *Convolvulus boissieri* Stend. subsp. *parnassicus* (Boiss. & Orph.) Kuzm., *Thymus bracteosus* Vis. ex Benth. are indicative of such terrains in Bulgaria.

- For the first time an anthropogenic influence on the natural serpentine flora and distribution of ruderal species has been analyzed.

2. The second area is biologo-ecological. More important could be the following achievements:

- The karyotypes of serpentinite plants in the Rhodopes have been studied and analyzed. New chromosomal numbers for local endemic plants - *Aethionema rhodopaeum* D. Pavlova ($2n=24$) and *Silene fetlerii* D. Pavlova ($2n=24$) have been identified. For the first time in Bulgaria the chromosomal numbers are given for the following species: *Thlaspi ochroleucum*, *Arenaria procera* ssp. *procera*, *Silene fabarioides*, and *Silene spergulifolia*.

- Ni-hyperaccumulator plants have been established for the first time in the Bulgarian serpentinite flora - *Alyssum murale* Waldst. & Kit., *A. murale* subsp. *pichleri* (Velen.) Stoj. & Stef.; *Thlaspi praecox* Wulfen in Jacq., *Th. apterum* Velen., *Th. ochroleucum* Boiss. & Heldr. Populations of medicinal plants growing on serpentinite for content of metals (Ca, Mg, Fe, Ni, Mn, Cr, Co, Cd, Cu, Zn, Pb), as well as their ability to accumulate these metals.

Teaching activity of the candidate

The teaching and pedagogical activities of the candidate include lectures and exercises in the Bachelor's and Master's degree on Botany III, Systematics on Higher Plants, Taxonomy and Evolution of Higher Plants, Higher flora of Bulgaria. For the last 5 years the average value of lecturing and total employment of the candidate is 279 hours and 413.6 hours respectively, which shows an implementation of the required teaching hours in Sofia University "St. Kliment Ohridski". Under her leadership, 11 diploma thesis were successfully completed. She was also one of the supervisors of post-graduate student that has successfully completed PhD thesis in 2018. In addition, Assoc. Prof Pavlova-Tonkova participates in the training of students in the ERASMUS + program and is a part-time lecturer at the Medical University of Pleven.

Assessment of the applicant's scientific and teaching activity

The analysis of the documents submitted by the applicant for the competition for occupation of the academic position "Professor" in Department of Botany, Biological Faculty, Sofia University "St. Kliment Ohridski" prove that Assoc. Prof Pavlova-Tonkova is an established and respected university lecturer and distinguished scientist with international prestige in the field of systematics of higher plants. My personal impressions of the applicant's scientific and teaching activity completely coincide with the analysis of the materials presented. The applicant has submitted a significant number of publications of fundamental and applied importance. The high number of citations of a candidate's publications in reputable journals shows the importance of the candidate's research. Assoc. Prof Pavlova-Tonkova is very active in the development of scientific projects. The report on scientific contributions of Assoc. Prof Pavlova-Tonkova correctly summarizes her scientific research and reflects the results achieved. I have no critical remarks on the scientific works of the candidate.

The submitted information on the fulfillment of the minimum national requirements shows that the number of points formed in each indicator significantly exceeds the minimum national criteria for acquiring the academic position "Professor".

Conclusion

All the above mentioned about the candidate's scientific and teaching work enables me to give a positive assessment and to recommend Assoc. Prof. Dolja Pavlova-Tonkova to be appointed as "Professor" in the Department of Botany at the Faculty of Biology, Sofia University "St. Kliment Ohridski".

6.11.2019
Sofia

Member of the Scientific Jury:
(Assoc. Prof. Juliana Atanassova)