STANDPOINT

by Prof. Dr. Rossen Todorov Tzonev

from the Department of Ecology and Environmental Protection at the Faculty of Biology, Sofia University “St. Kliment Ohridski” on the materials submitted for participation in a competition for the academic position “Professor” at Sofia University “St. Kliment Ohridski”, Faculty of Biology, Department of Ecology and Environmental Protection, 4.3 Biological sciences (Ecology and protection of the ecosystems – Ecology of microorganisms)

1. General presentation of the received materials

Assoc. Prof. Dr. Anelia Evgenieva Kenarova from the Department of Ecology and Environmental Protection, Faculty of Biology, Sofia University "St. Kliment Ohridski" participates as a candidate in the competition for the academic position "Professor", announced in the State Gazette, issue 87 of 19.10.2021. The presented by Assoc. Prof. A. Kenarova materials include all necessary documents for the competition, according to the requirements of the Rule of the order and conditions for obtaining scientific degrees and occupying academic positions at Sofia University "St. Kl. Ohridski ".

The reference according to the model for fulfillment of the minimal national requirements for the respective scientific field and the additional requirements of Sofia University “St. Kl. Ohridski” is presented in accordance to the requirements - both tabular and as a bibliography and lists, and it demonstrates clearly that the candidate meets and exceeds the minimum requirements. There are five publications included as equivalent to a habilitation work (section B of the table for compliance with the minimal national requirements) in journals with quartiles Q1, Q2 and Q4. Assoc. Prof. A. Kenarova has presented the summaries of these publications in Bulgarian and English, as well the summaries of publications outside the habilitation thesis (sections G7 and G8). They all are referenced and indexed in Scopus and Web of Science and book chapters. According to the requirements, a reference for the contributions to the scientific papers from section B4 and those from section D is also provided.

2. General characteristics of the candidate's activity

2.1. Assessment of the educational and pedagogical activity of the candidate

The teaching activity of Assoc. Prof. A. Kenarova began in year 1998 as a senior assistant in the Department of Ecology and Environmental Protection at the Faculty of Biology, Sofia University. Prior to that, she worked for 4 years in the Department of Biotechnology at the same faculty, as a specialist biologist. Since 2010 she has been an associate professor in the Department of Ecology and Environmental Protection. She has lecture courses and practical lessons in the bachelor's and master's programs of the full-time and part-time students. She is a holder of seven basic courses in the field of ecology and environmental protection. She was the head of 32 graduates and also she has successfully defensed one PhD student and one in the process of education. Associate Professor A. Kenarova is actively involved also in important administrative activities. She is currently the Deputy Dean of the Faculty of Biology, as well she is the second term head of the department. These facts are evidence to her serious engagement and responsibility, both in the education and transfer of expertise and scientific knowledge to young people, and also to her serious administrative work.

2.2. Evaluation of the scientific and scientific-applied activity of the candidate

The presented general list of publications demonstrates the main directions of the candidate's scientific activities, mostly in the field of ecology of microorganisms. The research interests of Assoc. Prof. A. Kenarova are related to studies of soil microbial communities and the influence of radionuclides and heavy metals, such as soil and water pollutants, on their structure and also functional (catabolic activity) profiles. The ability of such communities from the area of mines (including uranium) near Buhovo, Sliven, Senokos, Eleshnitsa and Chelopech settlements to transform the organic substances by analyzing their enzyme activity, as well as to absorb various carbon sources, has been also determined. Another, mainly practically focused, are the researches on the effects of the most commonly used fungicides in the intensive agriculture, such as the commercial preparation Quadris^{R} (containing azoxystrobin as an active ingredient) on the changes that occur in soil bacterial communities. The catabolic activity (EcoPlateTM of Biolog Inc., Hayward CA, USA) of these communities under the influence of increasing concentrations of Quadris^{R} was also studied, as well as their possibility to create resistance to this preparation. Together with these on the soil microbial communities, Assoc. Prof. A. Kenarova also has publications on the type and quality of ecosystem services provided by agro-ecosystems in

Bulgaria or in some model regions (Southwest Planning Region), possibilities for bioremediation of municipal landfills - affected anthropogenically ecosystems, which emitte methane emissions into the atmosphere, as well as some bacterial communities in climatically extreme ecosystems - alpine lakes in Rila Mts. and soils on the island of Livingston in Antarctica. As well especially the latter publication has a fundamental scientific contribution.

2.3. Assessment of the habilitation report

The contributions of the scientific papers (habilitation report) are objectively and comprehensively presented. Five scientific publications (Indicator B4) are included, but are added to them also the results of publications from Indicators G7, which are outside of the habilitation report. The main studies in the habilitation report have an important contribution to the field of the impact of various pollutants on the structure and functions of different soil microbial coenoses. Studies have led to founding of some direct link between the level of soil contamination with heavy metals and radionuclides and the abundance of soil bacterial communities, including using the application of cultivation and metagenomic methods of analysis, as well as the method of epifluorescence microscopy. There has been found a decrease in the participation of *Verrucomicrobia* and *Acidobacteria* and an increase in *Bacteroidetes*. Soil contamination with heavy metals and radionuclides has been studied to affect negatively the activity of soil dehydrogenases and acidic and alkaline phosphatases. It changes the functional profiles of soil/sediment bacterial communities by the stimulation of the utilization of carboxylic and amino acids, but it inhibits that ones of amines at all levels of pollution, and carbohydrates and polymers at medium and high levels of pollution. The scientific contributions of the habilitation report are of great practical importance for the protection and restoration of polluted soils, especially in significantly anthropogenically disturbed terrains and agro-ecosystems.

3. Complex assessment of the candidate

The documents presented in this competition present Assoc. Prof. A. Kenarova categorically as an approved university lecturer and research scientist, but also as an engaged and responsible administrator. Her scientific publications are both with fundamental and practical importance and most of them have been published in indexed and refered in Scopus and the Web of Science journals. Her co-authorship with approved specialists, mainly from Bulgaria, in the field of ecology of soil microorganisms, is a good proof for very successful work in research teams and

the scientific cooperation ability of Associate Professor A. Kenarova. In her research work, Assoc. Prof. A. Kenarova has found the balance between basic and applied research, but the latter ones prevail. As a lecturer in the Department of Ecology and Environmental Protection, she has contributed to the education of students and young scientists. As a long-term colleague of Assoc. Prof. A. Kenarova, I can share my personal impressions and satisfaction to work with her, because she is an extremely collegial, well-meaning and ethical person who can be relied on in any situation.

4. Critical remarks

My only critical remark is that to the five scientific publications (Indicator B4) on the habilitation report, she has added also the results of publications from Indicators G7 and G0, which are outside the habilitation work. I note that it makes some confusion in the differentiating of the contributions according to the different criteria, which of course does not reduce their value in any way.

CONCLUSION

In conclusion, as a member of the scientific jury, determined by the order of the Rector of Sofia University "St. Kliment Ohridski" (№ RD 38-611/15.12.2021), I express my opinion that the candidate Assoc. Prof. Dr. Anelia Evgenieva Kenarova, who participates in a competition for "Professor" in the professional area 4.3. Biological Sciences (Ecology and Conservation of Ecosystems - Ecology of Microorganisms), announced in SG no. 87 of 19.10.2021 meets all mandatory and specific conditions and scientific criteria for the academic position "Professor".

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