



## OPINION

Regarding the competition for the academic position „**Professor**“ in the field of Higher education: 4. *Natural sciences, mathematics and informatics*; Professional direction: 4.4. *Earth sciences*: Scientific speciality: *Ecology and Ecosystem protection*, announced in State Gazette No 62 of 21.07.2023.

Candidate: **Prof. Dr. Stefan Ivanov Shilev** from the Department of Microbiology and Environmental Biotechnologies at the Agricultural University - Plovdiv (AUP)

Member of the scientific jury: Prof. Dr. Andon Vassilev Andonov from AUP, appointed according to Order No. RD-16-898/25.09.2023 of the Rector of AUP

### 1. Brief presentation of the candidate

Stefan Ivanov Shilev graduated from higher education in 1996 at the Higher Agricultural Institute - Plovdiv (now Agricultural University – Plovdiv, AUP) with a master's degree in "Plant Protection". After graduation, he participated in international training courses in the field of environmental protection and carried out several long-term specializations in the country (SU "St. Kliment Ohridski", 1998) and abroad (Spain, X.1999-V.2000; I-VIII.2007; I-VIII, 2008). In the period 2000-2003, he developed and in 2003 defended his doctoral degree in the scientific specialty Microbiology at the University of Cordoba, Spain. Since 1998, he has been a lecturer in the Department of Microbiology and Environmental Biotechnologies of AUP. In 2010, he received his habilitation in the scientific specialty "Ecology and Ecosystem Protection".

Along with his teaching and scientific activities, Assoc.-Prof. Dr. Stefan Shilev also shows significant public activity, an indicator of which is his work as the Chairman of the General Assembly of the AUP (2020-2021), People's Representative in the 47th (2021-2022) and the 48th (2022-2023) National Assembly of the Republic of Bulgaria, Director of the Regional Inspection for the Environment and Water in the city of Plovdiv (2014-2020), etc.

### 2. General description of the scientific output

In the announced competition, Assoc. Prof. Dr. Stefan Shilev participated with 26 scientific works. The subject matter of all presented scientific works fully corresponds to the professional direction of the announced competition. They have not been used in procedures for scientific degrees and academic positions and are therefore subject to peer review. Assoc. Prof. Shilev is the first author in 14 of the papers and single author in 3 of them. Twenty of the scientific works are referenced and indexed in the global databases Web of Science and Scopus. Fourteen of them have an impact factor (IF) or an impact rank (IR), with 6 in Q1 group, 1 in Q2, 5 in Q3 and 2 in Q4. The total IF of the submitted publications is 31,679.

The scientific production of Assoc. Prof. Shilev, with which he participated in the competition, meets and at the same time exceeds the minimum national criteria for occupying the academic position "professor". The papers for group B are 10 and form 144.5 points with a



required minimum of 100. Five of these papers are with IF, which corresponds to the additional requirements in the Regulations for the implementation of the Law on Academic Staff Development in the Republic of Bulgaria (LASDRB) in AUP. The remaining 16 publications refer to group D and constitute 258.1 points out of a minimum requirement of 200.

### **3. Teaching activity of the candidate**

Assoc. Prof. Dr. Stefan Shilev is an established teacher with over 25 years of work experience. He conducts lecture courses and exercises in compulsory and elective subjects with students from various specialties in the AUP according to the curricula, developed and/or updated by him (9 in the Bachelor level, 6 in the Master's level and 2 for the Erasmus Program). His average annual study load for the last 5 years (2018-2023) is over 500 study hours.

More specifically, Assoc. Prof. Shilev gives lectures to the students at the Bachelor's level in the compulsory disciplines of *Microbiology* (specialties "Hydromelioration", "Agronomy - field farming" and "Biological agriculture"), *Waste Management and Utilization of agricultural waste* (specialties "Ecology and Environmental protection" and "Organic Agriculture"). In addition, he conducts lecture courses on the electives *Ecology of Microorganisms* and *Biodegradation and Bioremediation* to students in "Ecology and Environmental protection" and "Plant Protection".

Assoc. Prof. Shilev also participates in the education of students in the Master's level through lectures on the disciplines of *Microbiology* (MC "Plant Protection"), *Waste Management, Municipal Environmental Programs* and *Circular Economy and Resource Utilization* (MC "Ecology of Settlement Systems"), *Microbial communities of the components of the environment* (MC "Conservation of biological diversity") and Processing and recycling of biomass (MC "Bioeconomy"). He also gives lectures on *Environmental microbiology* and *General microbiology* with foreign students under the Erasmus Program.

Assoc. Prof. Shilev is a successful supervisor of diploma theses of students in various levels of study. He supervised 12 graduates who successfully defended their diplomas in the Bachelor's level and 4 in the Master's level. Under his supervision 2 doctoral students defended theses, 1 was assigned with the right to defend and 1 is in the process of training.

He is the co-author of the Guide to Microbiology, which is aligned with the curriculum for conducting exercises in this biological discipline at AUP.

In addition to his direct academic workload, Assoc. Prof. Shilev is also involved in various educational activities at AUP as a member of the Faculty Council and the Erasmus Program Commission of the Faculty of Plant Protection and Agroecology (FPPA), head of master's courses (2012-2013) and etc.

### **4. Scientific activity of the candidate**

Assoc. Prof. Dr. Stefan Shilev has a clearly defined scientific profile in the field of environmental biotechnology. One part of his research is focused on the use of beneficial bacteria for phyto/bioremediation of problematic (heavy metal-contaminated and saline) soils.



Another part is aimed at elucidating the role of beneficial bacterial populations in mitigating the effects of abiotic stress on crops with emphasis on water deficit and bacterial regulatory mechanisms. A third part of the conducted research is related to the problem of the utilization of organic waste through composting and vermicomposting.

I consider it necessary to point out that Assoc. Prof. Shilev's research was financed through competitively won projects from university, national and international funds and programs. In the period 2010 – 2023, he led 7 scientific projects and participated in the working teams of 4 other projects. Of these, 4 were financed by international programs (Erasmus+, ERA-NET Cofund, Horizon 2020, Regions of Knowledge of EU), 6 by national sources (National Science Fund, National Center for Agricultural Science, Ministry of Agriculture, Food and Forestry, Ministry of Education and Science) and 1 by the university fund of AUP.

As a result of the research conducted by Assoc. Prof. Shilev, a significant volume of scientific results was obtained. Some of them have a confirmatory nature, but in most cases new data have been obtained, some of which are contributions to science and practice. I fully accept the author's reference for the scientific, scientific-applied and methodical contributions made. Due to the limited volume of the opinion, I will underline only one of the contributions in each individual category.

- (1) As a result of a complex scientific study, models for the utilization of sludge from WWTP (Wastewater Treatment Plant) by composting and vermicomposting were prepared (scientific contribution).
- (2) A technology has been developed (jointly with the Waterworks-Plovdiv) for the recycling of WWTP sludge, which has been implemented in the WWTP-Hisarya, WWTP-Sopot and WWTP-Karlovo. The obtained *in situ* vermicomposts can be used as a quality complex fertilizer to maintain green areas (scientific-applied contribution).
- (3) In research on the compost microbiome, the method of "next generation sequencing" has been introduced, resulting in information on the most important operational taxonomic units (methodological contribution).

Assoc. Prof. Shilev's research has been presented to the scientific community through publications, oral and poster presentations at national (8 and 9, respectively) and international forums (2 and 4, respectively). His scientific publications have found a wide response and have been cited many times in scientific publications included in the world-known databases Web of Science and Scopus. The noted citations (620) of his works form 3100 points (group D of Regulations for the implementation of LASDRB), which many times exceeds the required minimum number of 100 points. I would like to point out that the interest shown in the works of Assoc. Prof. Shilev is sustainable, as a result of which his h-index is high - 12.

Assoc. Prof. Shilev carries out significant editorial and reviewer activities. In the period 2010-2023, he has reviewed 39 scientific publications in open access journals (MDPI). He participated as a guest editor in specialized issues of authoritative scientific journals such as Sustainability (IF=3.889; Q1), Land (IF=3.905, Q2) and Microorganisms (IF=4.5, Q2).

To what has been stated so far, I can add the fact that Assoc. Prof. Shilev takes an active part in the organization of a number of scientific forums in the country and abroad. In recent years, he has participated in the scientific committees of 6 national and 2 international scientific conferences (11<sup>th</sup> International conference on environmental engineering and management "Environmental engineering for clean and healthy planet", September 8 – 10, 2021, MuttENZ, Switzerland и 12<sup>th</sup> International conference on environmental engineering and management "Circular economy and sustainability", September 13-16.09.2023, Iasi, Romania).

#### **5. Notes and recommendations**

I have no comments or recommendations for the candidate.

#### **6. Conclusion**

The documents and materials presented by Assoc. Prof. Dr. Stefan Shilev in the current competition meet all the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria (LASDRB) and the Regulations for its application in AUP for occupying the academic position "professor". The results achieved by him in teaching and research activities correspond to and at the same time exceed the minimum national requirements for occupying the academic position "professor".

He is the author and co-author of a sufficient number of scientific works published in authoritative national and international scientific journals. The candidate's works contain original scientific, scientific-applied and methodical contributions in the field of environmental biotechnology, which have received an international response through a significant number of citations. Assoc. Prof. Shilev is a successful leader of young scientists in the professional field "Earth Sciences".

On the basis of the documents and scientific works presented in the competition as well as my personal impressions of the candidate, I am fully convinced about my positive evaluation his of overall activity. Therefore, I would like to recommend to the Scientific Jury also assess it positively and the Faculty Council of FPPA to elect Assoc. Prof. Dr Stefan Ivanov Shilev for "professor" in professional direction 4. Natural sciences, mathematics and informatics, professional direction 4.4., scientific specialty Ecology and ecosystem protection.

Prepared the opinion:

4.11.2023 г.

  
/Prof. Dr Andon Vassilev/