

OPINION



in a competition for the academic position of "Associate Professor" in the field of higher education 4. *Natural sciences, mathematics and informatics*; professional direction 4.4. *Earth Sciences*; scientific specialty *Ecology and ecosystem protection*, announced in State Gazette No. 102 of 23.12.2022.

Candidates: **Chief Assistant Professor Dr. Maria Chunchukova** and **Chief Assistant Professor Dr. Plamen Zorovski**, both from the Department of Agroecology and Environmental Protection at the Agricultural University - Plovdiv (AUP)

Member of the scientific jury: Prof. Dr. Andon Vasilev Andonov from AUP, appointed according to the Order of the Rector of AUP No. RD-16-245 of 22.02.2023.

1. Brief presentation of the candidates

Chief Assist. Prof. Maria Chunchukova, PhD, was born on November, 1981. She received her higher education at AUP, graduating in 2006 with a bachelor's degree in "Ecology and Environmental Protection" and in 2007 with a master's degree in "Landscape design - Exterior and Interior". In 2017, she defended PhD thesis at AUP and received a doctoral degree in the scientific specialty "Ecology and Ecosystem Protection". Since 2013, she has been working at AUP as an assistant (2013-2017), expert (2017-2018) and chief assistant (2018 – current) in the Department of Agroecology and Environmental Protection. In the period 2020-2021, she combines the academic position with the position of a postdoctoral fellow in the same department with the support of the National Programme "Young Scientists and Postdoctoral Fellows". Chief Assist. Prof. Chunchukova has good commands in English and Russian, good computer skills and various other competencies.

Chief Assist. Prof. Plamen Zorovski, PhD, was born on March 22, 1981. He completed his higher education at AUP with a bachelor's degree in "General Agronomy" (2004), a master's degree in "Plant Production" (2005) and a doctoral degree in the scientific specialty "Plant Growing" (2013). He also received a pedagogical qualification at the Center for Additional Education of the AUP (2003-2004). He worked as an agricultural technician (2003-2004), an agronomist (2006) and an expert at the Scientific Center of AUP (2009-2011). Since 2011, he has worked in the Department of Agroecology and Environmental Protection of AUP, holding the academic positions of Assist. Professor (2011-2013) and Chief Assistant Professor (2013 – current). Chief Assist. Prof. Zorovski has good command in English and Russian, good computer skills and various additional qualifications, including a specialization under the Erasmus+ Program in the Netherlands (2014), a course for trainers in innovative educational technologies at the Ministry of Education and Culture (2022), etc. He is a member of the Regional Scientific and Technical Union - Plovdiv.

2. Teaching activity

Dr. Chunchukova has 8 years and 7 months of teaching experience, of which over 4 years as a Chief Assistant Professor. She conducts lectures, seminars, exercises and practices with students in the "Bachelor's" and "Master's" levels (full-time and part-time) from various

specialties in the AUP (6 in the level "Bachelor" and 3 in the level "Master"). In the last 5 years Chief Assist. Prof. Chunchukova gives lectures on the disciplines *Invasion Ecology* and *Biodiversity and Bioresources* to Bachelor students and the disciplines *Biodiversity, Ecology and Conservation of Freshwater Ecosystems*, *Water Ecosystems and Sustainable Nature Management*, *Biodiversity and Environmental Risk*, etc. to Master students. Lectures on the specified disciplines are given according to curricula developed by the candidate. The annual horarium hours of Chief Assist. Prof. Chunchukova in lectures and exercises in recent years exceeds almost twice the norm of 360 hours. She supervised a significant number of graduates who successfully defended their diplomas, of which 6 in the "Bachelor" level and 9 in the "Master" level. She was also an academic mentor for students under the Programme "Science and Education for Intelligent Growth" (2012-2014; 2016-2017).

Dr. Zorovski has 12 years and 2 months of teaching experience, of which over 9 years as a Chief Assistant Professor. He conducts exercises in 4 disciplines with Bachelor students from different specialties, and in the last 2 years he also gives lectures on the disciplines *Ecological farming*, *Pollution, water protection and impact on ecosystems* and *Healthy and safe working conditions* to Master students. Chief Assist. Prof. Zorovski is co-author of the curriculum in the discipline of *Health and safety conditions of work* and author of the program in the discipline of *Environment and Tourism*. He supervised 6 graduates who successfully defended their diplomas, of which 3 in "Bachelor" and 3 in "Master" levels. According to the provided reference, the volume of his teaching work during the last 5 years is higher than the specified norm.

In addition to the direct teaching work, Chief. Assist. Prof. Zorovski is involved in many other educational and social activities as (●) lecturer in training courses for farmers (2022), (●) academic mentor in the project "Student practices" (2017-2018), (●) mentor of student team in Ecology and Plant Protection in competitions on the specialty (2021), (●) participant in a working team preparing a self-assessment report for program accreditation of Professional field 4.4. Earth Sciences, (●) member and secretary of the Ecologist's Club at the Regional Scientific and Technical Union - Plovdiv (2019) and others.

From the information presented so far, it is clear that Chief Assist. Prof. Chunchukova and Chief Assist. Prof. Zorovski meet the requirement for a minimum teaching experience of 2 years according to the Law on the Development of the Academic Staff in the Republic of Bulgaria (LDASRB) and the Regulations for its Application in AUP. Candidates teach different disciplines, but all of them are within the scope of the scientific specialty Ecology and Ecosystem Protection. Regardless of the fact that the presented materials do not explicitly state that a minimum of 30 lecture hours are provided for each of candidates, I assume that they are available.

In a comparative aspect, it can be noted that in the last 5 years Chief Assist. Prof. Chunchukova has a greater academic load than Chief Assist. Prof. Zorovski. She has more lecturing experience but less teaching experience than her competitor. On the other hand, Chief Assist. Prof. Zorovski is more active in the implementation of extracurricular forms of education, examples of which are the training of farmers, the preparation of a student teams in the specialty, etc.

3. General description of the scientific production

Candidates participate in the competition with a general scientific production, which is presented according to separate criteria in Table 1. It also indicates the corresponding points that the criteria carry according to the Regulations of LDASRB in AUP.

Table 1. Total scientific production and sum of points of the candidates in the competition

Criteria	Number of publications / Points			
	Dr. Chunchukova		Dr. Zorovski	
1. Publications, connected with PhD thesis (group A)	2	50	7	50
2. Publications with IF or IR	2	50	2	22
3. Other publications in reviewed and referred scientific journals (group B)	8	145	8	109
4. Publications in referred journals in world data bases (group G)	22	440	11	174
5. Publications in non-referred journals with scientific reviewing and collective volumes (group G)			13	71
6. Published book on the basis of defended doctoral dissertation (group G)	-	-	1	30
7. Number of citations (group D)	70	299	14	85
8. Reviews in scientific journals, referred in world databases (group D)	1	5	-	-
9. Participation in international scientific or educational projects (group E)	1	20	1	20
10. Participation in national scientific or educational projects (group E)	-	-	1	10
Total points		1009		571

4. Analysis of scientific activity

Chief Assist. Prof. Chunchukova

There are 32 scientific works of the candidate presented in the competition. All of them fall within the scope of the scientific specialty of the competition - Ecology and ecosystem protection and are subject to analysis.

The scientific research of Ch. Assist. Prof. Chunchukova is in the field of Ecology, Biodiversity, Bioresources and Biomonitoring in various freshwater ecosystems. One part of them is a continuation of the research in her doctoral dissertation and is focused on the concentration, circulation and bioaccumulation of heavy metals and metalloids in sediments, dominant fish species and their parasites in the Danube River. The main part of the research is

related to ecological assessments of the state of various freshwater systems. The ecological state of these ecosystems and the influence of eutrophication and anthropogenic load on them was studied by analysing biological indicators (macrozoobenthos, parasites and parasite communities of different fish species, etc.). Part of the research of Chief Assist. Prof. Chunchukova were financed by competitively won scientific projects - 1 international in the frame of the National Scientific Fund (DNTS/01-04), 2 by the internal university fund (No. 11-2014; No. 11-2016) and others - by companies (No. DP-9/2019).

According to the point system in the Regulations of LDASRB, the scientific works, together with their noted citations, form a total of 1009 points and are distributed as follows: group A – 50; group B – 195, group D – 440, group D – 304 and group E – 20. These results correspond to and exceed the minimum requirements. Two of the scientific works of Chief Assist. Prof. Chunchukova are in journals with an impact rank - article B8 (Helminthologia, Q3) and article B9 (Bulgarian Journal of Veterinary Medicine, Q4), which fulfils the requirement in art. 1a / par. 1 of the Appendix to the Regulations of LDASRB in AUP. The candidate's personal involvement in research is high, as evidenced by the fact that she is first author in 18 publications, second in 13 and independent author in 3 of them.

Ch. Assist. Prof. Chunchukova has indicated a significant number of scientific problems on which she is working, as well as a very large number of contributions contained in the scientific production presented by her. I believe that the scientific problems (16 according to the author's reference) can be limited to a few, and the specified contributions (coinciding with the conclusions of each publication) - to be reduced, summarized and categorized as original or confirmatory, scientific, scientific-applied, methodical and etc. In my opinion, regardless of the inappropriate way of presentation, the works of Ch. Assist. Prof. Chunchukova contain important original contributions, which are mainly of a scientific-applied nature. Due to the limited volume of the opinion, I will formulate only a few of them in general.

- New data were obtained on the content of heavy metals (Ni, Pb, Cd) and metalloids (As) in the waters of the Danube River, their accumulation in sediments and their bioaccumulation and distribution in the tissues and organs of various types of fish and their parasites.
- For the first time in the country, research was conducted on parasitic species and communities in different types of fish in the Maritsa River, as a result of which their ecological characteristics and biotic indicators were established. For the first time, it has been reported that new hosts of known parasitic species have been established in the Bulgarian section of the river (walleye, roach, perch).
- Complex studies of freshwater systems were carried out (rivers - Maritsa, Luda Yana, Stryama, Topolnitsa, Chepelarska, Tamrashka, Tundzha; lakes - Srebarna, Bezbog; dams - Batak and Panicheri), as a result of which an ecological assessment of their condition was carried out and new data were obtained on: (1) the species diversity of parasite communities in characteristic fish species, new hosts of parasite species, (2) their habitats and a number of others.

Chief Assist. Prof. Zorovski

The scientific research of Ch. Assist. Zorovski are focused on several current problems related to agroecology, organic farming and chemical protection of agricultural crops. In the field of agroecology, the questions which have been studied are the following (●) the productivity and quality of different oat varieties and their dependence on the soil and environmental factors, (●) the role of flowering grass mixtures for preserving and maintaining the pollinators of entomophilous plants, etc. Basic questions in research on organic agriculture are (●) the biological and economic qualities of ancient forms of wheat (single grain – einkorn, two grain – emmer, and spelt wheat) and (●) the effectiveness of the application of various biological fertilizers and biostimulators. The research questions in the field of Plant Protection are aimed at establishing (●) the efficacy of herbicides and herbicide mixtures in different agricultural crops in combination with an assessment of (●) the tolerance of cultivated plants to the applied herbicides, (●) the changes in the soil environment caused by herbicides, as well as with (●) the restorative effects of biostimulators on herbicide-damaged plants.

The main part of the research of Ch. Assist. Prof. Zorovski is funded through competitively won scientific projects or contracts with companies. According to the attached reference, he led 1 scientific (No.10-14) and 1 infrastructure project (No.16-21) and was a member of the collectives of 3 other scientific projects financed by the internal university fund. He also participated in the implementation of a scientific project at the National Scientific Fund (2010-2014), and is currently working on tasks in an international project under the ERA-NET program (2021-2024). Part of the candidate's research related to product testing was financed through implementation contracts with companies (No. 13/2013; No. 4/2017; No. 17/2017).

Scientific publications and citations of the candidate form 571 points and are distributed according to criteria as follows: group A – 50; group B – 131, group D – 275, group D – 85 and group E – 30. The indicated results cover the minimum requirements according to the Regulations of LDASRB. Two of the scientific publications (No. 1 and No. 2) were published in journals with an impact rank and impact factor, in the Journal of Central European Agriculture and the Bulgarian Journal of Agricultural Science, respectively, and comply with Art. 1a / par. 1 of the Appendix to Regulations of LDASRB in AUP. The candidate is the independent author of one of the articles and is the first author in 9. In another 9 publications he is the second author, and in the remaining 15 he is the third and subsequent author.

I accept the author's reference of Chief Assist. Prof. Zorovski for the contributions to the scientific problems being developed, but I believe that, as in the case of the other candidate, they can be formulated in a more general form. The candidate characterized the contributions as "scientific-applied", with which I fully agree. Some of the more important contributions, in my opinion, are the following:

- For the first time in the country, a complex study of the growth and development of ancient forms of wheat: single-grain (*Triticum monococcum* L.), double-grain (*Triticum dicoccum* Sch) and spelt (*Triticum spelta* L.) was conducted in organic farming conditions, as a result on which biological features necessary for the use of

these wheats in appropriate crop rotations in order to obtain healthy crop production have been established.

- Biological and economic qualities of new oat varieties and their dependence on agro-ecological conditions were studied. The effects of biostimulants, which are approved for use in organic farming, on oats and ancient wheats have been studied.
- A grass mixture of different flowering species was created and studied in order to maintain the biodiversity of pollinators in agrocenoses.

The analysis of the research activity of Chief Assist. Prof. Chunchukova and Chief Assist. Prof. Zorovski shows that they have a different professional profile in the field of Ecology and ecosystem protection. The first candidate is an established scientist in the ecology of freshwater aquatic ecosystems, and the second one - in agroecology and organic farming.

The two candidates meet the minimum requirements for scientific and research activity according to LDASRB and the Regulations for its Application in AUP. Those presented by Chief Assist. Prof. Chunchukova and Chief Assist. Prof. Zorovski scientific works are comparable in number - 32 and 35, respectively, but different in point evaluation. The total number of points of Dr Chunchukova, according to Table 1, is 1009, while that of Dr Zorovski is 571. The difference favoured of Chief Assist. Prof. Chunchukova is a result of the higher number of articles in refereed journals to group D (22 vs. 11, respectively) and the higher number of citations (70 vs. 14, respectively). Without absolutizing the evaluation of the scientific production according to the point system adopted in LDASRB, I consider that according to this indicator Chief Assist. Prof. Chunchukova has an objective advantage over Chief Assist. Prof. Zorovski.

5. Notes and recommendations

There are the following notes and recommendations for candidates:

1/ Regarding the teaching activity

- The two candidates have not issued teaching manuals (exercise manuals, additional literature, etc.) for the disciplines they teach. Regardless of the fact that, according to the LDASRB, teaching materials are not included as mandatory in the minimum criteria for occupying the academic position "Associate Professor", I consider this fact to be a gap in the activities of the two candidates and I recommend that it be corrected in the future.
- I recommend the candidates to develop in more detail the educational content of the methodical units in the curricula of the disciplines they take. With few exceptions, the main topics in the presented curricula are presented too sparingly and do not give a full picture of the main issues and concepts under consideration.

2/ Regarding the research activity of the candidates

- According to Art. 77, para. 3 of the LDASRB, the publications with which to apply for the academic position "Associate Professor" must not repeat those presented for the occupation of scientific degree "doctor". This requirement was not strictly followed by

Chief Assist. Prof. Chunchukova as the article No. B1 in the presented by her works also appears in the abstract of her dissertation work. I accept that this is a technical error, as the applicant has enough papers in group D cited in world databases and one of them could be transferred to group B to fulfil the minimum requirement of 10 papers.

- The two candidates did not correctly fulfill the requirement to submit a Habilitation extended reference for the articles in group B (indicator B4) according to point 12 of Art. 1a, para. 1 in the Appendix to the LDASRB. Namely, it lacks "an introduction that briefly describes the essence of the scientific problems under investigation and their place among the research of other researchers in the field."

6. Personal impressions of the candidates

My personal impressions of the candidates are not sufficient to form an opinion that would supplement the information obtained from the considered criteria.

CONCLUSION

After thoroughly acquainting myself with the presented materials, I believe that both candidates in the competition Chief Assist. Prof. Dr. Maria Chunchukova and Chief. Asist. Prof. Dr Plamen Zorovski meets the requirements of LDASRB and the Regulations for its application in AUP for holding the academic position of "Associate Professor". Since the announced competition is for one position, it is necessary to rank both applications.

Based on the comparative analysis of indicators related to the educational and research activities of the two candidates, I rank Chief Assist. Prof. Dr. Maria Chunchukova and in second place Chief Asist. Prof. Dr. Plamen Zorovski.

In case of identical ranking of the candidates by the scientific jury, I will support a proposal to the Faculty Senate of the Faculty of Plant Protection and Agroecology for the election of Chief Assist. Prof. Dr Maria Chunchukova in the academic position of "Associate Professor" in a scientific field of higher education 4. Natural sciences, mathematics and informatics, professional direction 4.4. Earth Sciences, Science Speciality *Ecology and ecosystem protection*

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Prepared the opinion:

/Prof. Dr. Andon Vasilev Andonov/