



REVIEW

Regarding: Contest for "Reader" in the science major "Ecology and protection of ecosystems", announced in SG no. 102 of 23.12.2022 with candidates:

- **Chief Asst. PhD Plamen Ivanov Zorovski**
- **Chief Asst. PhD Maria Krasimirova Chunchukova**

from the Department of "Agroecology and Environmental Protection" at the Faculty of Plant Protection and Agroecology at the Agricultural University.

Reviewer: Prof. PhD Ekaterina Dimitrova Pavlova, University of Forestry (retired), higher education field 4. Natural sciences, mathematics and informatics, professional field 4.4. Earth Sciences, science major "Ecology and Ecosystem Protection", appointed as a member of the scientific jury by Order No. RD-16-245/ 22.02.2023 of the Rector of the Agricultural University - Plovdiv.

Chief Asst. PhD Plamen Ivanov Zorovski

1. General data on the candidate's career and them atic development:

Chief Asst. PhD Plamen Zorovski was born on March 22, 1981. In 1995-1999 he graduated from the Veterinary Medical College - Lovech. From 2000 - 2004, he studied at the AU for EQD "Bachelor", with a speciality in "General Agronomy (Agronomy-arable farming), 2004 - 2005 for EQD "Master", with a speciality "Plant production". In 2013, he defended his doctoral thesis on the topic "Research on the biological and economic qualities of oat varieties concerning their use as a healthy food for humans" at the Agricultural University - Plovdiv.

Professional development of Chief Asst. PhD Plamen Zorovski began in 2011 when he became an assistant at the Department of "Agroecology and Protection of Agroecosystems and the Population". From 2013 until now, he has been a chief assistant in the Department of "Agroecology and Protection of the Environment".

Chief. Asst. PhD Plamen Zorovski is a Regional Scientific and Technical Union - Plovdiv member and secretary of the Ecology Club at RSTU.

The candidate's work experience as a teacher at AU is 12 years and two months.

2. General description of the presented materials:

In the contest for an "Associate Professor" Chief Asst. PhD Plamen Zorovski participated with a total of 42 papers, grouped as follows:

Scientific publications on the nomenclature speciality - 42 pcs. of which:

- ✓ Publications related to the doctoral thesis - 7 pcs. not subject to review;
- ✓ Publications in journals referenced and indexed in world-renowned databases with scientific information - 10 pcs. (**instead of a monograph**);
- ✓ Publications with impact factor – 3 pcs.;
- ✓ Publications in peer-reviewed and refereed scientific journals - 8 pcs.;

- ✓ Scientific publications in non-refereed journals with scientific peer-review or edited collective volumes - 13 pcs.;
- ✓ A published book based on a defended dissertation thesis for awarding the educational and scientific degree "Doctor" - 1 pcs.;
- ✓ Teaching aid - 1 pcs. (I accept that the published book "Technology for sugar corn production" by a team in which P. Zorovski participates, published by the Academic Publishing House of the Agrarian University, Plovdiv, 2014, can be used as a study aid by students.

The candidate's involvement in the submitted 35 papers for review is illustrated by the fact that 2 of them are independent; in 8, he is a first author; in 9 – he is a second author; and in the remaining 16 - the third or following author. From the submitted individual reference on compliance with the minimum national requirements, it can be seen that according to some of the indicators, the candidate has a higher number of points than the specified minimum number for occupying the academic position of "Associate Professor".

Chief Asst. PhD Plamen Zorovski also presented a list of "Reports at World and European Congresses and International Symposia", which includes posters: co-authored 2 in Hungary (2011), 3 in Romania (2013, 2021), 3 in Turkey (2014), 4 in Bosnia and Herzegovina (2015), 2 in Serbia (2017).

3. Main research fields in the candidate's work. Demonstrated skills or aptitude for conducting scientific research (project management, attracting external funding, etc.):

The publications and research topics on which Chief Asst. PhD Plamen Zorovski works during the 2008 - 2022 period can be summarised in several scientific fields: studying ecological problems of agrocenoses concerning organic farming, agroecological protection, the general functioning of agroecosystems and the quality of agricultural production.

Chief Asst. PhD Plamen Zorovski has been working on the following:

- 1 international project - 2021-2024 – The research is focused on the possibilities of growing *Camelina sativa*, associated with improving soil conditions and biological diversity. Scientists from Italy, Poland and Turkey participate in the team.
- 5 national science projects at the Bulgarian national science fund at the Ministry of Education and Science -2007-2013; 2009-2011; 2010-2013; 2017-2018; 2018 and 2022.
- 4 internal projects at AU-Plovdiv - 2010-2012; 2014; 2014-2017; 2017-2013 and a project 05-1. He is an operational manager in one of the projects.
- 2 infrastructural projects - in 2017 - a participant, and in 2021- a manager.
- 3 implementational projects – managing one of them.

The total number of projects on which he worked from 2007 - 2022 is 12, of which he is the manager of 2 and the operational manager of 1.

4. Assessment of the candidate's pedagogical training and activity. Its role in the training of young scientific personnel

The candidate's pedagogical training was supplemented with the long-term specialisation to acquire the "Teacher " professional qualification (2003-2004). In 2014, he studied in the Netherlands under the Erasmus + program. For the last five academic years, he performed 2463.75 hours, 1829 hours of exercises and 437 extracurricular activities. As a chief assistant, he gives lectures to students from the speciality "Ecology and Protection of the Environment" in 2 disciplines and two master's programs "Ecology of Settlement Systems" and "Agrarian Economics" in 1 discipline. He leads exercises in three specialities - " Ecology and protection of the environment " in 7 disciplines, "Plant protection" – in 4 disciplines, and "Agronomy- arable farming" – in 1 discipline. In the master's programs, " Ecology and Protection of the Environment" and "Plant Protection", he conducts exercises in 1 discipline in each program. He has developed a new curriculum for the "Environment and Tourism" course for the Master's degree. He supervised 8 graduates.

From January 2022 to the present, he participated as a speaker for groups of farmers and employees in the field of agriculture. He participated as a mentor of a team of students in a competition on the topic "Nitrates in food - a problem for people's health" and an expert evaluator of tests under the Ministry of Education and Culture project - "Support for success". Field scientific experiments performed at the AU Organic Farming Demonstration Farm, he illustrates the hands-on training of students in applied ecological approaches, methods and tools in this field (26).

5. Significance of the obtained results, proven by citations, publications in prestigious journals, awards, membership in international and national scientific bodies, etc.:

The scientific community evaluated the results of the scientific research in which the candidate participated with 20 citations. Citation 15 is in a dissertation and is not subject to review. The total number of cited publications is 11. The citations in scientific publications, referenced and indexed in world-renowned databases, prevail. Authors of the publications that cite the works of Chief Asst. Zorovski are from Bulgaria - 10 occasions and ten from Croatia, Brazil, Ukraine, Hungary, Poland, Iran, Latvia, Lithuania and Pakistan.

6. Significance of contributions to science and practice. Motivated answer to the question of what extent the candidate has a clearly defined research profile:

For 2008 - 2022, the author's reference list presents four scientific fields of work in which he formulated 26 scientific and applied contributions. In general, I accept the contributions' reference list and note the following, in my opinion, for more significance:

Related to organic farming

1. The established parameters of the growth and development of ancient forms of spelled wheat, single-grain and double-grain spelt in the country's organic farming conditions. (17).
2. The determined productivity of grain and straw, the harvest index and the influence of applied products for organic farming (Triven, Amalgerol, Agriorgan pellet, Baikal EM and Litovit) on the ancient kinds of wheat (16).
3. The established influence of the biological fertiliser Amalgerol on germination, development, productivity applied by seed treatment and vegetatively on plants, and some quality indicators of grain in bare-grain oats under organic farming conditions (11).

Related to the use of phyto-poisons in agro-ecological protection:

4. The analysed dynamics of soil parameters while conducting field trials for the evaluation of combined herbicide agents for weed control in corn, winter rape and common wheat (1);
5. The confirmed efficacy of mixtures of soil and foliar herbicides in corn, wheat and rape, as well as their selectivity in the three crops (5,6)
6. The determined doses of the soil herbicides Gardoprim Plus Gold, Mistral flex and Stomp now, which do not have a phytotoxic effect on the 6 studied hybrids of sweet corn - GSS F1, Vega F1, Erica F1, Honey Bentam F1, Denitza F1, Challenger F1 (8);
7. The established phytotoxicity in Erica F1 sweet corn hybrid after application of the foliar herbicides for fodder corn Mistral 6 Ekstra OD and Laudis OD with a mark of dead plants 9 (8);
8. The established influence of the ecological products Humustim and Immunocytofit to overcome the herbicide stress after treatment with the foliar herbicides Derby super and Granstar in oat crops up to the 20th day after application Granstar and up to the 40th day after application of Derby super (3).

Related to Agroecology

9. The established correlation between growth and development in spring oat varieties and main agrometeorological parameters (7, 14, 29, 31).
10. The established increased microbial activity in the soil after treatment of sorghum (*Tr. monococcum* L.) with the Baikal EM product in a biological crop (21).
11. The established positive effect of increasing biological diversity in agroecosystems is by creating flowering grass strips of different plant species between agricultural areas (18) and increasing the biological diversity of insect pollinators. Their species composition was also determined (20, 2). A grass mixture "AU mixture" of different flowering species was created, suitable for the conditions of Bulgaria, to maintain the biodiversity of pollinators in the agroecosystems (2, 18, 20);
12. The established allelopathic potential of *Cuscuta* (*Cuscuta epithymum* L.) in alfalfa and Starseed varieties (19).

Quality of the agricultural production

13. The established influence of the ecological products Humustim and Immunocytophyt on the content of essential amino acids, protein, starch and fat in the grain of winter and spring oat varieties (12, 13);
14. The relationship between yield and grain quality of Bulgarian and new-to-the-country oat genotypes for the agro-ecological conditions of Southern Bulgaria was determined (4, 15).
15. The proven positive influence of using the green plant mass of sweet corn as fodder for increasing the milk productivity of Bulgarian Rhodope cattle, a traditional breed for the country (30).

I appreciate the publications in which the technical and economic efficiency of applying organic fertilisers under organic farming conditions (9, 10) and after the application of new herbicide combinations against weeds in wheat crops has been determined. (34).

7. Critical notes and recommendations:

Critical notes

Scientific from applied and original from confirmatory contributions are not differentiated.

Recommendations

To expand its scientific research activity, agroecosystems in territories with a protected regime can also be an object of scientific research. For example, Natura 2000 protected areas. In some areas, a significant territory is occupied by agroecosystems and habitats included in the Biodiversity Act. When such environments are subject to investment projects, an impact assessment and proposals for measures to reduce or prevent negative consequences are required.

8. Personal impressions and an opinion of the reviewer:

I don't know Chief Asst. PhD Pavel Zorovski in personal. My impressions of him are based on the materials he submitted in connection with the contest, based on which I am reviewing. The teaching and research work of the candidate is following his studies in the EQD "Bachelor", EQD "Master", and ESD "Doctor".

He has a long-term specialisation to acquire the professional qualification "Teacher", he has undergone project training in Bulgaria and the Netherlands. Manages eight graduates.

From the submitted individual reference list on compliance with the minimum national requirements, it can be seen that according to some of the indicators, the candidate has a higher number of points than the specified minimum number for occupying the academic position of "Associate Professor".

The predominance of collective publications indicates that the candidate can work successfully in large collectives and is a desirable co-author.

Chief Asst. PhD Maria Krasimirova Chunchukova

1. General data on the candidate's career and thematic development:

Chief Asst. PhD Maria Chunchukova was born on 11.11.1981. From 2000-2006, she studied at AU for EQD "Bachelor", with a speciality in "Ecology and Environmental Protection", 2006-2007 for EQD "Master", with a speciality in "Landscaping - Exterior and Interior Design". In 2017, she defended his doctoral thesis on "Parasites and parasite communities of fish from the Danube River - ecology, biodiversity and bioindication" at AU-Plovdiv. Since 2013 she has been an assistant at AU and chief assistant from June 2018 until now.

The candidate's research mainly focuses on studies of aquatic ecosystems (rivers, dams and lakes). The main thematic fields in which she works are related to studying the content of heavy metals and metalloids in waters, sediments and organs of fish species and their parasites. The biodiversity of parasite communities in aquatic ecosystems has been studied.

The candidate's work experience as a teacher at AU is 8 years and eight months.

2. General description of the presented materials

In the contest for "Associate Professor", Chief Asst. PhD Maria Chunchukova participated with a total of 32 papers, grouped as follows:

- ✓ Publications related to the doctoral thesis – 2 pcs. not subject to review;
- ✓ Publications in journals referenced and indexed in world-renowned databases with scientific information - 10 pcs. (**instead of a monograph**);
- ✓ Publications with impact factor – 2 pcs.;
- ✓ Publications in referenced and indexed in world-renowned scientific database - 22 pcs.

The candidate's involvement in the submitted publications is illustrated by the fact that 3 of them are independent; in 11, she is a first author, and in 8 – she is a second author.

From the submitted individual reference on compliance with the minimum national requirements, it can be seen that according to some of the indicators, the candidate has a higher number of points than the specified minimum number for occupying the academic position of "Associate Professor". Chief Asst. Maria Chunchukova also presented a list of "Reports at World and European Congresses and International Symposia", which includes 17 co-authored from international conferences in Bucarest.

3. Main research fields in the candidate's work.

Demonstrated skills or aptitude for conducting scientific research (project management, attracting external funding, etc.):

The publications and scientific research topics on which Chief Asst. Maria Chunchukova worked for the period 2016-2022, showing that they are related to studies of aquatic ecosystems in selected sections of rivers. The study's subjects are fish species and associated parasites, concentration, circulation and bioaccumulation of heavy metals and metalloids in water, sediments, liver, muscle tissue and skin. It analysed the species diversity of the parasitic organisms of the studied fish species.

Chief Asst. PhD Maria Chunchukova has been working in:

- ✓ 1 international project (2011-2014) in Slovakia;
- ✓ 2 internal projects at AU-Plovdiv (2014-2016) and (2016-2018) as an operational manager;
- ✓ 2 student practices (2012-2014 and 2016-2017), 2 as an academic mentor;
- ✓ 2 projects, "Young scientist and postdoc" (2020 and 2021) as a postdoc;
- ✓ 1 contract with National Park Pirin (2019-2021) as an expert in researching the composition and age structure of the fish fauna. Risk assessment for ichthyofauna and fish complexes as a result of eutrophication.

The total number of projects she worked on for 2011 - 2021 is 8, with 1 being the operational manager.

4. Assessment of the candidate's pedagogical training and activity. Its role in the

training of young scientific personnel

From the academic year 2018-2019 to 2022-2023, Chief Asst. Maria Chunchukova has conducted 3494.9 hours of lectures, 1829 hours of exercises and 386.4 hours of extracurricular activities. In EQD "Bachelor" – regular education and external degree, she conducts classes in 6 specialities and teaches 13 disciplines. Chief Asst. Maria Chunchukova teaches 7 disciplines in EQD "Master" - in 3 specialities. She has developed curriculums for 7 academic disciplines in 4 master's courses. For the period 2018 - 2022, she supervised 15 graduate students. The predominant topics of the diploma theses are the water ecosystems and ecological features of the communities in them.

5. Significance of the obtained results, proven by citations, publications in prestigious journals, awards, membership in international and national scientific bodies, etc.:

The candidate's reference list indicates citations in dissertations, which fall out of the total number. The total number of cited scientific publications is 14, and 46 are citations. 29 of them are by Bulgarian authors.

Citations in scientific publications, referenced and indexed in world-renowned databases prevail – 7 scientific articles are cited in journals with IF. Citations by Bulgarian scientists are 61.7% of the total number, from Romania - 19.1%, from Russia - 8.5%. The rest are from the Czech Republic, Ukraine, Turkey, Croatia and Uzbekistan.

6. Significance of contributions to science and practice. Motivated answer to the question of to what extent the candidate has a clearly defined research profile:

The author's reference list presents 16 scientific topics on which she worked for the 2016 – 2022 period. The scientific contributions are 132 formulated from each of the 32 publications presented for the contest.

I accept that the results presented in the Statement of Scientific Contributions refer to the "Enrichment of scientific knowledge" category.

In summary, I indicate the following contributions:

Danube River

1. The content of heavy metals and metalloids (Pb, Ni, Cd and As) was determined in waters, sediments, liver, muscles tissue and skin of dominant fish species and their parasites (1B, 2B, 3B, 5B, 8B, 1Г, 2Г).

2. Species diversity of the parasite communities in different fish species and differences in the ecological parameters of the parasite species were established (2B, 6B, 7B и 11Г).

Maritsa River, Osam River, Luda Yana River, Stryama River, Ogosta River, Chepelarska River, Tamrashka River, Topolnitsa River and Tundzha River

3. It was established species diversity of parasite communities in fish - *Alburnus alburnus* (Linnaeus, 1758) and *Scardinius erythrophthalmus* – Maritsa River (4Г, 5Г and 7Г); *Squalius cephalus* and *Rutilus rutilus* – Osam River (6Г and 12Г); *Barbus petenyi* – Luda Yana River (8Г); *Squalius orpheus* – Stryama River (9Г); *Squalius cephalus* – Ogosta River (13Г); *Alburnus alburnus* (Linnaeus, 1758), *Leuciscus aspius*, *Perca fluviatilis*, *Chondrostoma vardarensis* - Tundzha River (15Г, 17Г, 18Г, 20Г, 21Г and 22Г); *Salmo trutta fario* and *Barbus cyclolepis* –

Tamrashka River (9B and 10B); *Squalius orpheus* – Topolnitsa River (10Γ) and *Barbus cyclolepis* – Chepelarska River (16Γ).

4. Species diversity of parasite communities, differences in species richness, occurrence, the intensity of infection and ecological indicators of parasite species were found (3Γ, 4B, 4Γ, 5Γ, 6Γ, 7Γ, 8Γ, 12Γ, 13Γ, 16Γ, 15Γ, 17Γ, 18Γ, 20Γ, 21Γ and 22Γ).

Srebarna reserve, Batak dam, Panicheri dam, Bezbog lake

5. It established species diversity of the parasite communities of the *Blicca bjoerkna* in the freshwater ecosystem of the Srebarna Biosphere Reserve (4B).

6. Species diversity of perch (*Perca fluviatilis*) parasite communities from the freshwater ecosystem of Batak Reservoir was determined (3Γ).

7. The species diversity of the silver carp (*Carassius gibelio*) parasite communities from the freshwater ecosystem of the Panicherry dam was determined (19Γ).

8. While organising a system for monitoring the eutrophication of an aquatic ecosystem, the possibilities of using parasites and parasite communities as indicators for assessing the ecological state of the anthropogenically loaded freshwater ecosystem were analysed (9B, 10B, 9Γ and 10 Γ).

9. The established ecological characteristics of the populations and communities of *Phoxinus phoxinus* from the Bezbog glacial lake are the first results for risk assessment due to the eutrophication of the freshwater ecosystem (14Γ).

As "new data", I accept these results, which the candidate reports as the first in her research:

10. Established parasites and their host (2B, 6B, 7B, 11Γ, 16Γ, 20Γ).

11. Established parasites' new habitats (8Γ, 10Γ).

12. Five types of helminths were found from one host in Lake Srebarna and for the territory of Bulgaria (4B).

7. Critical notes and recommendations

Critical notes

1. In the reference list of the Contributions Statement, there is no clear distinction between the problem/ contribution/ result. No scientific synthesis of the 132 results is indicated separately for each article. The statement of contributions could summarise the results of the studies and display more clearly the contributions, differentiating scientific from applied and original from confirmatory contributions.
2. In an overwhelming number of articles, the title gives the impression that the results apply to the entire river, even though the sampling site coordinates are indicated in the article.
3. Incorrectly, in the Reference for noticed citations, the authors of two doctoral theses are cited 23 times. The Individual Reference Report (#14) needs to be clarified whether points from the dissertations are also included in the total number.

Recommendations

1. In connection with the studies of aquatic ecosystems, attention should be directed in the future to research in a smaller number of rivers, conducting more extended observations. For the established results, which are stated to be obtained for the "first time" or are "new data", a more significant number of observations by years and seasons are needed because river ecosystems are very dynamic and anthropogenic pressure is very different in individual sections of the river. Validated methodological approaches must be applied regarding sampling location, sampling frequency, observed organisms and indicators, and analysis methods, which should be described in detail in the scientific article.
2. I allow myself to recommend Chief Asst. PhD M. Chunchukova in future research work to direct her scientific interests in scientific research, which complement the knowledge of the terrestrial and agroecosystems.

8. Personal impressions and an opinion of the reviewer:

I don't know Chief Asst. PhD Maria Chunchukova in personal. My impressions of her are based on the materials she submitted concerning the contest. The reference list on compliance with the national minimum requirements shows that according to some indicators, the candidate has a significantly higher number of points than the specified minimum number for occupying the academic position of "Associate Professor".

The academic workload related to lectures, exercises, extracurricular employment and research shows that Chief Asst. PhD Maria Chunchukova fulfils her duties and, at the same time, supervises 15 graduate students who successfully defend their diploma theses. Joint publications show that she could work in a team.

CONCLUSION

The motives with which I propose the selection of an "Associate Professor" are based on analysing the presented materials for the pedagogical, scientific and scientific-applied activities of Chief Asst. PhD Plamen Zorovski and Chief Asst. PhD Maria Chunchukova, taking into account some of the additional indicators specified in Article 27 (4) of the ADASRB:

1. For the last five years, Chief Asst. PhD M. Chunchukova and Chief Asst. PhD Plamen Zorovski both have a significant workload with teaching activities and supervision of graduates.
2. From the submitted reference list on compliance with the minimum national requirements, it can be seen that according to some of the indicators, the candidates have a higher number of points than the specified minimum number for occupying the academic position of "Associate Professor".
3. The main research field of Chief Asst. PhD Chunchukova is aquatic ecosystems in selected rivers' sections, lakes and reservoirs. Study subjects are dominant fish species and their

parasites, the content of heavy metals and metalloids in water, sediments, liver, muscle tissues and skin. Also, was analysed the species diversity of the parasite communities in fish.

4. The scientific research of Chief Asst. PhD Plamen Zorovski are studying ecological problems of agroecosystems concerning organic farming, agroecological protection, the general functioning of agroecosystems and the quality of agricultural production.

A large part of his research has a scientific and applied character.

From the documents of the two candidates, it can be seen that Chief Asst. Plamen Zorovski meets some of the additional indicators specified in Art. 27 (4) of the ADASRB.

- Participated in 3 implementational projects, of which he was the manager in 1, implemented jointly with a collective from the Netherlands.
- Participated in a team of teachers of agricultural producers and employees in agriculture under a project financed by the Program for the Development of Rural Areas, co-financed by the EU.
- Participated as a mentor to a student's team in a competition on "Nitrates in food - a problem for human health."
- Expert evaluator of tests under the Ministry of Education and Science project - "Support for success."
- Member of the Regional Scientific and Technical Union - Plovdiv and secretary of the Ecologist's Club at RSTU.

The comparative assessment between the two candidates shows that, in terms of teaching and research workload, they meet the requirements of ADASRB, Art. 26(1). A large part of the scientific research of Chief Asst. PhD P. Zorovski has a scientific and applied character. Chief Asst. PhD P. Zorovski also matches some of the additional indicators, for which he also submitted supporting documents - certificates, certificates and official notes. In his growth as a teacher and researcher, Chief Asst. PhD P. Zorovski has improved his knowledge and practical skills in Agroecology and environmental protection.

All this gives me the reason, as well as taking into account the overall activity of the two candidates, to propose to the honourable Scientific Jury to vote positively and the Faculty Council of the Faculty of Plant Protection and Agroecology at the Agricultural University - Plovdiv to choose Chief Asst. PhD Plamen Zorovski for an "Associate Professor" in the scientific speciality "Ecology and ecosystem protection".

Date:
Plovdiv

REVIEWER:
(Prof. Dr E. Pavlova)