

REVIEW

regarding the competition for "associate professor" in the scientific specialty Ecology and Ecosystem Protection (field of higher education: 4. Natural Sciences, Mathematics and Informatics, professional field 4.4. Earth Sciences), announced in the State Gazette No. 94 of 05.11.2024 with candidate Maria Krasimirova Chunchukova from Violina Angelova Rizova, professor, doctor, appointed according to Order No. RD 16-12/07.01.2025 of the Rector of the Agricultural University - Plovdiv as Chairman of the Scientific Jury

Reviewer: Prof. Dr. Eng. Chemist Violina Angelova Rizova, Agricultural University - Plovdiv, the field of higher education: 4. Natural Sciences, Mathematics and Informatics, professional field 4.4 "Earth Sciences," scientific specialty "Ecology and Ecosystem Protection" appointed as Chairman of the Scientific Jury by Order No. RD- 16-12/07.01.2025 of the Rector of the Agricultural University.

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

Chief Assistant Professor Dr. Maria Chunchukova was born on 11.11.1981. In 2006, Chief Assistant Professor Chunchukova obtained a "Bachelor's" degree in Ecology and environmental protection at the Agricultural University - Plovdiv, and in 2007, she graduated with a Master's in "Landscaping - Exterior and Interior Design" at the same university. In 2017, she defended her dissertation "Parasites and parasite communities of fishes from River Danube – ecology biodiversity and bioindication." She obtained the "Doctor" degree at the Agricultural University - Plovdiv. During her work, she successively held the following positions: technical assistant at "Felikon 97" AD (2008 - 2011), technical assistant at "Intertorgo" EOOD (2013), an Assistant Professor at the Agricultural University (2013 -2017), junior and senior expert at the Agricultural University (2017 - 2018), Chief Assistant Professor - Agricultural University-Plovdiv (June 2018 - until now).

Dr. Chunchukova is fluent in English and Russian and has good computer literacy.

2. General description of the presented materials.

In the competition for "**Associate professor**," Chief Assistant Professor Dr. Maria Krasimirova Chunchukova participated with a total output of 27 works, grouped as follows:

- v Scientific publications in the nomenclature specialty - 27, of which:
- Publications related to the doctoral dissertation - 3, which are not subject to

consideration;

- Publications with impact factor - 2
- Publications in peer-reviewed and refereed scientific journals - 22;
- Publications in conference proceedings - 0;

The personal participation of senior assistant professor Dr. Maria Krasimirova Chunchukova in the mentioned 24 works is illustrated by the fact that 1 of them is independent, 11 - is the first, 11 - is the second, and the remaining 1 - is the third and subsequent author.

- Textbooks – none
- Study guides – none

Twenty-four publications are subject to analysis to prepare the review.

Dr. Maria Chunchukova participated in 1 report (oral) reported at the Anniversary Scientific Conference, 2016 (70 years of the Agricultural University –Plovdiv, 2016). She presented 17 poster reports from international conferences held in Bucharest, which were published and included in the list of publications.

The submitted individual report for compliance with the national minimum requirements shows that, according to some indicators, the candidate meets and even exceeds the national minimum requirements necessary to hold the academic position of "Associate Professor."

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

The main direction of the research work is to study aquatic ecosystems in selected sections of the Danube River, Osam River, Maritsa River, Luda Yana River, Stryama River, Topolnitsa River; Maritsa River, Srebarna Lake, Batak Reservoir and Panicheri Reservoir. The objects of study are fish species and their parasites, concentration, circulation, and bioaccumulation of heavy metals and metalloids in waters, sediments, liver, muscles, and skin. The species diversity of the parasitic communities of the studied

fish species has been analyzed.

Two of the scientific publications of Dr. Chunchukova are in journals with an impact factor - publication B6 (Helminthologia, Q2₂₀₁₈, IF₂₀₁₈ = 0.798, SJR₂₀₁₈ = 0.398) and publication B8 (Bulgarian Journal of Veterinary Medicine, Q3₂₀₁₉, IF₂₀₁₉=0.47 SJR₂₀₁₉ 0.16).

Dr. Maria Chunchukova has participated in:

- 2 intra-university scientific projects (2014-2016 and 2016-2018, as an operational manager and participant;
- two student internships (2012-2014 and 2016-2017), in 2 of which she is an academic mentor;
- 2 projects "Young Scientists and Postdoctoral Fellows (2020 and 2021) as a postdoctoral fellow;

The total number of projects she worked on for 2011–2021 is 6, 2 of which she is an operational manager.

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

Dr. Maria Chunchukova is a Chief Assistant Professor in the Department of Chemistry, Phytopharmacy and Ecology and Environmental Protection at the Faculty of Plant Protection and Agroecology of the Agricultural University - Plovdiv with 11 years of work experience. The submitted reference for the candidate's academic employment shows that for the last 5 years (2019-2024), there has been employment of 3412.5 hours. Dr. Maria Chunchukova has conducted lectures, seminars, exercises, and practices in the disciplines "Invasion Ecology," "Ecological Parasitology," "Ecology," "Biocenology and Global Ecology," "Biological Diversity and Bioresources," "Ecological Monitoring," "Biomonitoring and Bioindication," "Ecology and Environmental Protection," "Fundamentals of Ecology," with students of the Bachelor's Degree Program in the specialties "Ecology and Environmental Protection," "Agronomy-Field Crops," "Agronomy-Tropical and Agriculture," "Plant Protection" and "Agricultural Engineering," and the disciplines "Green System," "Biodiversity, Ecology and Conservation of Freshwater Ecosystems," "Biodiversity and Ecological Risk," "Aquatic Ecosystems and Sustainable Nature Management," "Protected Species in Tourist Areas", "Ex-situ Conservation and Tourism" with students of the Master's Degree Program from the

University of Moscow. "Ecology of settlement systems," MC "Biodiversity Conservation," and MC "Sustainable nature use and ecological tourism." Lectures on the disciplines "Invasion ecology," "Biodiversity, ecology and conservation of freshwater ecosystems," "Biodiversity and ecological risk," "Aquatic ecosystems and sustainable nature use," and "Protected species in tourist areas" are delivered according to curricula developed by the candidate.

Teaching activities are supplemented by the supervision of 17 (8 in the Bachelor's and 9 in the Master's degree) successfully defended graduates. The predominant topics of the diploma thesis are the subject of research into aquatic ecosystems and the ecological features of the communities in them.

She was also an academic mentor for students under the OP "Science and Education for Smart Growth" (2012-2014; 2016-2017).

The academic workload associated with delivering lectures, exercises, extracurricular activities, and research work shows that Chief Assistant Professor Dr. Maria Chunchukova fulfills her duties and, at the same time, takes on the leadership of graduate students (17) who successfully defend their thesis.

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

An assessment of the candidate's recognition in scientific circles is the citations indicated in the competition documents. According to the reference submitted by the candidate, 16 citations were noted. Citations in scientific publications, referenced and indexed in world-renowned databases, predominate, with 7 scientific articles cited in journals with IF.

According to the minimum national requirements for holding the position of associate professor at the University of Plovdiv, the presented citations are entirely sufficient and prove the sound level of reflection of the scientific production of Chief Assistant Professor Dr. Maria Chunchukova in the research work of Bulgarian and foreign authors.

6. Significance of contributions to science and practice. A motivated answer to the question to what extent the candidate has a clearly defined profile of research work;

I accept the author's reference for the scientific and scientific-applied contributions proposed by the candidate.

The main scientific and scientific-applied contributions in the developments with the participation of Senior Assistant Professor Dr. Chunchukova are in 2 main areas, as follows:

1. Study of the pollution of the waters of the Danube River with some heavy metals and metalloids (Pb, Ni, As, Cd), accumulation in sediments and organs of various fish species and their parasites

Publications in this area are on problems related to the concentration, circulation, and bioaccumulation of heavy metals and metalloids in waters, sediments, tissues, and organs of dominant fish species from the freshwater ecosystem of the Danube River and their parasites. The results of this area have been published in 6 scientific publications (№B1, №G5, №B2, №B3, №B5 and №G14).

The most important scientific and applied scientific contributions in this direction are as follows:

(1) The content of As in *Alburnus alburnus* and *Abramis brama* was determined (Publications No. B1 and No. G5), Pb – in *Abramis brama*, *Barbus barbus* and *Alburnus alburnus* (Publications No. B2 and No. B3), Cd - in *Vimba vimba* and *Alburnus alburnus* (Publication No. B5), Ni – in *Alburnus alburnus* (Publication No. G14) and their parasites.

(2) The possibilities for using parasites and parasite communities as indicators for assessing the ecological state of freshwater ecosystems (Publications No.B1, No.B2, and No.B3) in organizing a system for monitoring the eutrophication of an aquatic ecosystem (Publications No.G3).

2. Biological diversity in selected areas of freshwater ecosystems - fish, parasites, and parasitic communities of different fish species (Danube River, Maritsa River, Osam River, Luda Yana River, Stryama River, Topolnitsa River, Tamrushka River, Tundzha River, Batak Dam, Panicheri Dam)

Publications in this area are on problems related to the ecology, biodiversity and bioindication of parasitic communities of fish from the freshwater ecosystem of the Danube River (Publications No.B2, No.B6, No.B8 and No.G9), Maritsa River (Publications No.G4, No.B9 and No.G1), Osam River (Publications No.B10), Luda Yana River (Publication No.G2), Stryama River (Publication No.G3), Topolnitsa River (Publication No.G8), Tamrushka River (Publications No. B6 and No. B7), Tundzha River (Publications No.G10, No.G11, No.G13), Tundzha River (Publications No.G10, No. G11, No.G13), Batak Dam (Publication No. B7), Panicheri Dam (Publication No.G12).

The results of this direction have been published in 21 scientific publications, of which two are in journals with an impact factor – publication No. B6 (Helminthologia, Q2, $IF_{2018}=0.798$, $SJR_{2018}=0.398$, $Q2_{2018}$ and publication No. B8 (Bulgarian Journal of Veterinary Medicine, Q3₂₀₁₉, $IF_{2019}=0.47$, $SJR_{2019}=0.16$).

The most important scientific and scientific-applied contributions in this direction are as follows:

(1) Species diversity of parasitic communities in different fish species has been

established: *Barbus barbus*, *Alburnus alburnus*, and *Abramis brama* in the Danube River (Publications No.B6, No.B8, No.G5 and No.G9); *Scardinius erythrophthalmus*, *Perca fluviatilis* and *Alburnus alburnus* in Maritsa River (Publications No.B9, No.G1 and No.G4); *Squalius cephalus* in Osm River (Publication No.B10); *Rutilus rutilus* in Luda Yana river (G2); Aegean mullet (*Squalius orpheus*) in the Stryama River (Publication No. G3); *Carassius gibelio* and *Silurus glanis* in the Tundzha River (Publications No.G10, No.G11 and No.G13); *Salmo trutta fario* and *Barbus cyclolepis* in the Tamrushka River (Publications No.G6 and No.G7); *Barbus cyclolepis* and *Squalius orpheus* in the Topolnitsa River (Publication No.G8), *Blicca bjoerkna* in the Srebarna Reserve (Publication No.B4); *Perca fluviatilis* in the Batak Reservoir (Publication No. B7) and *Carassius gibelio* in the Panicheri Reservoir (Publication No.G12).

(2) Species diversity of the parasitic communities, differences in species richness, occurrence, intensity of infection, and ecological indicators of the parasitic species have been established.

(3) Species of parasites and their host have been identified - *Ligula intestinalis*, *Pomphorhynchus laevis* and *Rhabdochona denudata* for the helminth fauna of *Scardinius erythrophthalmus* from the Maritsa River (Publication No. B9), *A. isoporum*, *L. intestinalis* and *P. laevis* - for *A. alburnus* from the Maritsa River (Publication No.G4) and *R. denudata* for *A. brama* from the Danube River (Publication No.G9).

(4) New host species have been identified - *Blicca bjoerkna* is a new host for *Diplostomum paraspathaceum*, *D.pseudospathaceum*, *T. clavata* and *P. homoion* (Publication No.B4), *Barbus barbus* is a new host for *B.rectangulum* (Publication No.B6), *Alburnus alburnus* is a new host for *Nicolla skrjabini*, *Ligula intestinalis*, *Acanthocephalus luci* and *Contracoecum microcephalum* (larva) (Publication No.B8), *Abramis brama* is a new host for *P. incognitus* (Publication No.G9), *Squalius cephalus* is new for *I. pileatus* (Publication No.B10), *Rutilus rutilus* is new for *R. denudata* (Publication No.G2). *Salmo trutta fario* is a new host for *Sch. Petruschewskii* (Publication No.G6), *Carassius gibelio* is a new host for *L. intestinalis* (Publication No.G12).

(5) Establishment of new habitats for the parasites *I. pileatus*, *C. brachycollis* and *R. Denudata* in the Osam River (Publication No. B10), *P. percae* and *A. Lucii* in the Maritsa River (Publication No.G1), *C. brachycollis*, *A. lucii* and *R. Denudata* in the Luda Yana River (Publication No.G2), *N. skryabini*, *Rh. hellichi*, *R. acus*, *S. ephemeridarum* and *Sch. Petruschewskii* in the Tamrisha River (Publication No.G6), *Allocreadium isoporum*, *Caryophyllaeides fennica*, *Pomphorhynchus laevis* and *Rhabdochona gnedini* in the Tamrisha River (Publication No.G7), *P. Laevis* in the Topolnitsa River (Publication No.G8), *L. intestinalis* and *P. Laevis* in Panicheri (Publication No.G12).

7. Critical notes and recommendations

I have no critical comments on the candidate's work.

I recommend that Dr. Chunchukova increase the number of publications in journals with an impact factor and impact rank and publish a textbook or guide.

8. Personal impressions and opinion of the reviewer

I know the Chief Assistant Professor, Dr. Maria Chunchukova. She is distinguished by her determination, professional competence, and responsibility.

From the presented individual report on compliance with the national minimum requirements, it is clear that, on all indicators, the candidate has a significantly higher number of points (585 points) than the specified minimum number for occupying the academic position of "Associate Professor" (400 points).


CONCLUSION

Based on analyzing the candidate's pedagogical, scientific, and applied scientific activities, I believe that **Chief Asst. Prof. Dr. Maria Krasimirova Chunchukova** meets and exceeds the minimum National requirements for all groups of indicators for acquiring the academic position of "**Associate professor**," has teaching experience, scientific production evaluated by foreign and Bulgarian scientists, and, in my opinion, fully meets the requirements of the Law of Development of the Academic Staff in the Republic of Bulgaria, and the Regulations for the Implementation of the Law on the Development of the Academic staff in the Agricultural University.

All this gives me a reason to evaluate the overall activity of Chief Asst. Prof. Dr. Maria Krasimirova Chunchukova **POSITIVELY**.

I propose that the esteemed Scientific Jury also vote positively and that the Faculty Council of the Faculty of Plant Protection and Agroecology at the Agricultural University - Plovdiv elect **Chief Asst. Prof. Dr. Maria Krasimirova Chunchukova** for "**Associate professor**" in professional field 4. Natural Sciences, Mathematics and Informatics, professional field 4.4., scientific specialty Ecology and Ecosystem Protection.

Data: 2.02.2025
Plovdiv

Reviewer:.....
(Prof. Ph.D Eng. Violina Rizova)