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| Получено на 05.10.2026 |            |

## REVIEW

regarding the competition for the academic position of "Associate Professor" in Higher Education Area 4. Natural Sciences, Mathematics and Informatics, Professional Field: 4.4. Earth Sciences, Scientific Speciality: Ecology and Ecosystem Protection, announced in State Gazette No. 48 of 26.05.2026, with candidate Chief Assistant Professor Dimitrinka Binova Kuzmanova, PhD, Agricultural University – Plovdiv

**Reviewer:** Prof. Stefan Ivanov Shilev, PhD, Agricultural University – Plovdiv; Higher Education Area 4. Natural Sciences, Mathematics and Informatics, Professional Field: 4.4. Earth Sciences, Scientific Speciality: Ecology and Ecosystem Protection, appointed under Order No. RD 16-770/22.06.2026 of the Rector of the Agricultural University – Plovdiv as a member of the scientific jury.

### 1. General information on the career and thematic development of the candidate

Chief Assistant Professor Dimitrinka Kuzmanova, PhD, was born on 26.12.1968 in the village of Rogosh, Plovdiv region. She completed her secondary education at Peyo K. Yavorov High School in Plovdiv in 1988 and, in the same year, was admitted to the Higher Institute of Agriculture "Vasil Kolarov" in Plovdiv (currently the Agricultural University). She graduated as an "Engineer – Agronomist in Field Crop Production" in 1993 after five years of study.

The candidate obtained the educational and scientific degree "Doctor" in the scientific speciality "Sheep and Goat Breeding", Professional Field 6.3. "Animal Husbandry", in 2006.

Chief Assistant Professor D. Kuzmanova has held the administrative position of "expert" in Academic Staff Development from 01.01.2010 to the present, and until 2015 she also served as an expert at the Research Centre of the Agricultural University. The main responsibilities in the performance of these positions are related to the organisation and administrative servicing of the procedures for holding academic positions and obtaining scientific degrees in accordance with the current regulatory framework and the internal rules of the AU, work with the information registers of the National Centre for Information and Documentation, including the publication and updating of information on competition procedures, etc. In addition, she participates in the organisation and implementation of the RC's research activities at the AU.

Dr Kuzmanova was appointed to the position of "Chief Assistant Professor" in the scientific speciality "Ecology and Ecosystem Protection", Professional Field 4.4. "Earth Sciences", on 24.08.2015, and has held this position to date. In this sense, her teaching experience is over 11 years.

The candidate has a good command of English (B2) and Russian and possesses

a range of skills and competencies, including social, technical, computer, organisational, and teamwork skills.

The foregoing presents the candidate as a lecturer with considerable preparation and knowledge in the field of the regulatory framework and administration in higher education, the development of academic staff, and the evaluation and control of project activity at the university.

## **2. General description of the submitted materials**

In the competition for the academic position of "**Associate Professor**", Chief Assistant Professor Dimitrinka Kuzmanova, PhD, participates with a total output of 34 works, grouped as follows:

### *2.1. Research publications in the nomenclature speciality – 32 items, of which:*

- *Publications related to the doctoral dissertation – 4 items, which are not subject to consideration;*

- *Publications with an impact factor or impact rank – 21 items, of which 20 are in Q4, and 1 is in Q3. The total impact factor of the journals in which the works were published is 2.9.*

- *Publications in editions referenced in Web of Science and Scopus – 5 items.*

- *Publications in other peer-reviewed editions – 2 items.*

The personal contribution of Dr Kuzmanova to the indicated 28 works is illustrated by the fact that she is the first author of 5, the second author of 3, and the third or subsequent author of the remaining 20. In my assessment, publications G.10 and G.18 do not fall within Professional Field 4.4 or the scientific speciality of the present competition.

Dr Kuzmanova has published a book based on a dissertation successfully defended for the educational and scientific degree "Doctor", entitled "Study, Analysis and Assessment of Existing Sheep Breeding Production Systems in the Plain Part of the Plovdiv Region". Since it falls neither within the professional field nor the scientific speciality, it will not be taken into account in assessing the minimum requirements or in preparing the present review.

The candidate does not present participation in the preparation of textbooks or teaching aids.

*For the preparation of the present review, **28 publications** were analysed.*

## **Compliance with the minimum national requirements for holding the academic position of "Associate Professor"**

The information presented, verified in the world databases, shows that Chief Assistant Professor Kuzmanova, PhD, meets, and in some cases exceeds, all minimum scientometric requirements of the Law on the Development of Academic Staff in the Republic of Bulgaria, the Regulations for the Implementation of the Law on the Development of Academic Staff in the Republic of Bulgaria and the Regulations for the Implementation of the Law on the Development of Academic Staff at the Agricultural University – Plovdiv for holding the position of "Associate Professor" in Professional Field 4.4. Earth Sciences, scientific speciality: *Ecology and Ecosystem Protection*. The

candidate's total is 437 against a minimum requirement of 400 points.

Table 1. Summary statement of the fulfilment of the minimum national requirements by groups of indicators (Regulations for the Implementation of the Law on the Development of Academic Staff in the Republic of Bulgaria and the Regulations for the Implementation of the Law on the Development of Academic Staff at the Agricultural University) and the result achieved by the candidate Chief Assistant Professor D. Kuzmanova, PhD, in Professional Field 4.4. Earth Sciences.

| Group of parameters | Parameter description                                                                                                                                                 | Minimum points required for appointment to the "associate professor" degree | Assist. Prof. Kuzmanova, PhD, applicant result |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|------------------------------------------------|
| A                   | 1. Dissertation for the award of the educational and scientific degree "Doctor"                                                                                       | 50                                                                          | 50                                             |
| C                   | 4. Habilitation work – scientific publications in editions that are referenced and indexed in world-renowned databases of scientific information                      | 100                                                                         | 104                                            |
| D                   | 7. Scientific publications in editions that are referenced and indexed in world-renowned databases of scientific information                                          | 200                                                                         | 203                                            |
| E                   | 11. Citations or reviews in scientific editions referenced and indexed in world-renowned databases of scientific information, or in monographs and collective volumes | 50                                                                          | 80                                             |
|                     | <b>Total points number</b>                                                                                                                                            | <b>400</b>                                                                  | <b>437</b>                                     |

### 2.1. Exploitation of the achieved research results.

In addition to the minimum national requirements set out above, and as part of the exploitation of the results obtained from the research, it should be noted that throughout her career the candidate has regularly presented her results at scientific forums – conferences, symposia and congresses. This is illustrated by the 21 papers presented as posters at international scientific events and 1 paper delivered as an oral presentation at an international scientific forum.

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

The candidate's research activity is entirely concentrated within the professional field of the announced competition (4.4). *Earth Sciences*, and within the scientific speciality of *Ecology and Ecosystem Protection*. It can be summarised as *elucidating the role of parasitic organisms in freshwater ecosystems and assessing their use as*

*indicators of the ecological status and conservation of water resources.* Ecological parasitology is an interdisciplinary science that studies the complex relationships among parasites, their hosts, and the environment, encompassing knowledge of the life cycles and population dynamics of parasites, their evolutionary co-adaptation with hosts, and their roles in food chain structure. In addition, the science examines how climate change, abiotic factors and pollution influence the distribution of parasites, using these organisms as bioindicators for ecosystem health and for predicting parasitic diseases (zoonoses). In this connection, the main specific directions of Dr Kuzmanova's scientific activity can be summarised as follows: 1. Biodiversity, structure and ecological organisation of parasites and parasite communities; 2. Application of parasites and parasite communities in the ecological assessment and monitoring of freshwater ecosystems; 3. Ecological processes of circulation and bioaccumulation of heavy metals and metalloids in freshwater ecosystems and their application as bioindicators; 4. Parasitological research as a basis for the conservation and management of freshwater ecosystems.

Chief Assistant Professor Kuzmanova has participated in three projects. The first project has national funding under the National Scientific Programme "Critical and Strategic Raw Materials for the Green Transition and Sustainable Development" (2024–2028). Dr Kuzmanova has also participated in two projects funded by the Centre for Research, Technology Transfer and Technology Incubation in Agriculture at the AU: "Parasites and Parasite Communities of Freshwater Fish from the Danube River, Bulgarian Section, and Their Significance", 2016–2018, and "Risk Assessment of the Use of Fish from Reservoirs of Different Types and Anthropogenic Loads", 2025–2027.

#### **4. Assessment of the candidate's teaching preparation and activity. Her role in the training of young scientific staff.**

Chief Assistant Professor Dimitrinka Kuzmanova, PhD, has over 11 years of service as an assistant professor. Over the past five years, she has delivered the assigned lecture material, totalling 1082 academic hours, equivalent to 541 hours of exercises, or 541 hours of lectures, averaging over 100 lecture hours per academic year. In addition, the exercises delivered total 1492 academic hours, or an average of nearly 300 academic hours per year. The candidate's total direct classroom workload exceeds 500 academic hours annually, significantly above the mandatory minimum for lecturers at the Agricultural University – Plovdiv. Over the past five years, Dr Kuzmanova has delivered the following lecture courses in the Bachelor's degree programme in the speciality "Plant Protection" and the speciality "Ecology and Environmental Protection": 1. Biogeography (compulsory), 2. Protected Areas (elective), 3. European Environmental Standards (elective) and 4. Ornithology (elective). She has also delivered disciplines in various courses of the Master's degree programme, namely: 1. "Forest Ecosystems and Sustainable Nature Management" in the Master's course "Forest Ecosystems and Ecological Tourism", the same professional field and area of higher education (SPF/AHE); 2. "Protected Areas" in the Master's course "Engineering Ecology", a different professional field and area of higher education (DPF/AHE); 3. "Landscape Ecology" in the Master's course "Engineering Ecology", SPF/AHE and DPF/AHE, and in

the Master's course 4. "Forest Ecosystems and Ecological Tourism", SPF/AHE. The fact that she teaches mainly elective disciplines I regard as a very positive aspect of the candidate's teaching activity and as evidence of students' interest.

Chief Assistant Professor Kuzmanova has developed curricula in the following disciplines which she teaches: "Protected Areas", elective, specialty "Ecology and environmental protection", full-time and part-time forms; "European Environmental Standards", elective, specialty "Ecology and environmental protection", full-time and part-time forms; "Protected Areas", elective, specialty "Plant Protection", full-time and part-time forms; "Forest Ecosystems and Sustainable Nature Management", compulsory in the Master's course "Sustainable Nature Management and Ecological Tourism", SPF/AHE and DPF/AHE, full-time form.

Additional support for the candidate, regarding students' interest in her manner of working and her approach to them, is the considerable number of enrolled and graduated diploma students. All of them have successfully defended in Professional Field 4.4 over the past six years. Earth Sciences, with 8 students from the speciality Ecology and environmental protection in the Bachelor's degree programme, and 4 in the Master's degree programme in the Master's course "Sustainable Nature Management and Ecological Tourism" and the Master's course "Ecology of Settlement Systems".

*Based on the discussion of the evidentiary material regarding the candidate's teaching activities and work with students, it may be concluded that she is an accomplished lecturer, active in communication and student work, and has developed curricula in the professional field. As a next step, I would recommend participation in the preparation of a teaching aid.*

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

Chief Assistant Professor Dimitrinka Kuzmanova, PhD, has 21 publications in WoS, an H-index of 6 and 58 independent citations. Twenty of her publications are in Q4, and one is in Q3, with seven of the publications having an impact factor, for a total of 2.9. In addition, the citing publications come from 9 countries other than Bulgaria, and of the citations presented, 6 are in Q1 journals. These scientometric results confirm the topicality of and interest in Dr Kuzmanova's research.

#### **6. Significance of the contributions to science and practice. A reasoned answer to the question of the extent to which the candidate has a clearly defined research profile**

Chief Assistant Professor Dimitrinka Kuzmanova, PhD, has a clearly defined profile as a scientist who focuses on elucidating the role of parasitic organisms in freshwater ecosystems and assessing their use as indicators of the ecological status and conservation of water resources. The contributions in her research work are of a scientific and a scientifically applied nature.

### **I. ORIGINAL CONTRIBUTIONS**

1. Knowledge of the taxonomic diversity, structure and ecological organisation of helminth communities in freshwater fish in Bulgaria has been expanded. For the first time, the species composition and structure of helminth communities (component and infracommunities) and the main parasitological indicators have been established for a number of economically and ecologically significant species (*Barbus cyclolepis*, *Squalius orpheus*, *Squalius cephalus*, *Alburnus alburnus*, *Carassius gibelio*, *Perca fluviatilis*, *Vimba melanops*, etc.) from various freshwater ecosystems in the country, and for some of the species these data are published for the first time (C1–C4, C7–C8, D2–D6, D8, D9, D11, D12, D20, D21).

2. The ecological patterns in the formation and functioning of parasite communities depending on the characteristics of freshwater ecosystems have been established. Comparative studies across river basins elucidate how habitat characteristics and anthropogenic impacts influence species diversity, community structure, and parasite loads in host communities. (C1–C4, C7–C8, D2–D6, D8, D9, D12, D20, D21).

3. The application of parasite communities as an integral bioindicator for assessing the ecological status of freshwater ecosystems has been scientifically substantiated. It has been proven that the taxonomic composition, the structure of parasite complexes, and the parasitological indicators reflect the state of the aquatic environment, the trophic relationships, the biodiversity of fish, and the anthropogenic impact, thereby expanding the concept of parasite communities as a biological quality element in ecological assessment and monitoring. (C1–C3, C8, D3–D6, D11, D16, D20, D21).

4. The patterns in the bioaccumulation and trophic transfer of heavy metals and metalloids in the "sediments – fish – parasites" system have been revealed. An integrated analysis of the distribution of Pb, Cd and As among the sediments, the organs and tissues of fish and parasites has been carried out, which expands previous research on the bioaccumulation and migration of toxic elements along the trophic chains in the "sediments – fish – parasites" system in the acanthocephalans *Pomphorhynchus laevis*, *Pomphorhynchus tereticollis* and *Acanthocephalus lucii* (C5, C6, C9, D1, D7).

5. Knowledge of the ecological status and functioning of freshwater ecosystems has been expanded by integrating parasitological, hydrobiological and ecological indicators. The integrated analysis of parasitological, hydrobiological and ecological indicators forms the basis of the developed comprehensive ecosystem approach for assessing freshwater bodies, and the new data on the ecological status of the Borovitsa, Krumovitsa, Cherna and Luda Yana rivers complement the information on the functioning of these ecosystems (D14, D15, D19, D20, D21).

## II. SCIENTIFICALLY APPLIED CONTRIBUTIONS

1. A comprehensive methodological approach for the ecological assessment and monitoring of freshwater ecosystems has been developed. The integration of different assessment methods, including parasitological, hydrobiological, toxicological, ecological, and statistical methods, enhances the completeness of ecological monitoring and

enables a comprehensive assessment of the impact of natural and anthropogenic factors (C1–C9, D1–D9, D14–D17, D19–D21).

2. The applicability of acanthocephalans as highly sensitive bioindicators of chemical pollution has been proven. It has been established that *Pomphorhynchus laevis*, *Pomphorhynchus tereticollis* and *Acanthocephalus lucii* are reliable bioindicators in the monitoring of heavy metals and metalloids and provide more sensitive data on pollution than the analysis of fish tissues alone (C5, C6, C9, D7).

3. An up-to-date scientific basis for the assessment and conservation of freshwater ecosystems in Bulgaria has been provided. The results give current information on the ecological status, biodiversity and anthropogenic load of the Danube, Maritsa, Cherna, Krumovitsa, Borovitsa, Luda Yana, Topolnitsa and Osam rivers and of Lake Srebarna, and are applicable in programmes for the monitoring, management and conservation of water ecosystems in accordance with the Water Framework Directive (D14–D17; D19–D21, C1–C9).

4. The information on the parasite fauna of freshwater fish species in Bulgaria has been enriched. The results provide a sound scientific basis for future research in the candidate's field of work and could be applied to assessing the biological diversity and ecological status of freshwater ecosystems (C1–C9, D1–D9, D11–D17, D19–D21).

### III. METHODOLOGICAL CONTRIBUTION

The candidate also has a **methodological contribution** to her teaching activity through the preparation of curricula for one compulsory and three elective disciplines for both full-time and part-time students.

#### 7. Critical remarks and recommendations

I have no critical remarks regarding the candidate. I have the following *recommendations*: the candidate should continue her work in the main scientific area of her research, which will allow her to build upon it not only by expanding the scope of the aquatic ecosystems studied, but also by achieving qualitative growth through the expansion and deepening of the indicators and interrelationships investigated. This will support publication in higher-impact journals, thereby increasing the citability of her scientific work and contributing to a better representation of the Agricultural University – Plovdiv as one of the leading scientific organisations in Bulgaria.

Furthermore, I would recommend that the candidate participate in editing teaching material for the disciplines she teaches.

#### 8. Personal impressions and opinion of the reviewer

I have known Chief Assistant Professor Kuzmanova through my work at the Agricultural University – Plovdiv, and both my personal and professional impressions are entirely positive. She is responsive, competent, and meticulous in performing both her teaching duties and the administrative tasks assigned to her. As a reviewer in the present competition for the academic position of "Associate Professor", I became thoroughly acquainted with her scientific activity, which strengthened my conviction in the qualities of her candidacy. The presence of an H-index of 6 in Web of Science is an attestation of the

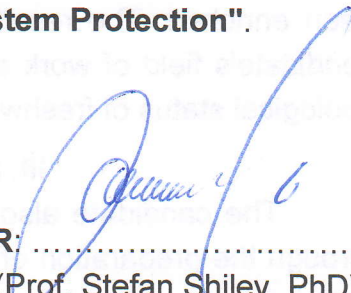
good level of her scientific work, which is further supported by the fact that most of her publications are in sources with an assigned quartile.

### CONCLUSION

On the basis of the analysis carried out of the candidate's teaching, scientific and scientifically applied activity, I consider that Chief Assistant Professor Dimitrinka Kuzmanova, PhD, meets the requirements of the Law on the Development of Academic Staff in the Republic of Bulgaria, the Regulations for its Implementation and the Regulations of the Agricultural University for its application with regard to the criteria relating to Professional Field 4.4. Earth Sciences. The foregoing gives me grounds to assess her overall activity as **POSITIVE**.

I take the liberty of proposing to the esteemed Scientific Jury that it also vote positively, and that the Faculty Council of the Faculty of Plant Protection and Agroecology at the Agricultural University – Plovdiv elect **Chief Assistant Professor Dimitrinka Kuzmanova, PhD** as "**Associate Professor**" in Professional Field 4.4. Earth Sciences, in the scientific speciality "**Ecology and Ecosystem Protection**".

Date: 01.10.2026  
Plovdiv

  
**REVIEWER:** .....  
(Prof. Stefan Shilev, PhD)