

REVIEW

regarding the competition for "associate professor" in the scientific specialty Plant Protection (Entomology), announced in the State Gazette No. 65 of 08.08.2025 with **candidate: Chief Assistant Professor Dr. Pavlin Emilov Vassilev** from the Agricultural University - Plovdiv, Department of Entomology

Reviewer: Prof. Dr. Mariyana Yordanova Ivanova from the University of Agribusiness and Rural Development (UARD) - Plovdiv /retired/, field of higher education 6. Agrarian Sciences and Veterinary Medicine, professional field 6.2. Plant Protection, scientific specialty Plant Protection (Entomology), appointed as a member of the scientific jury according to order No. RD 16-991 of 07.10.2025 of the Rector of the Agricultural University - Plovdiv

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

Chief Assistant Professor Pavlin Emilov Vassilev was born on 01.04.1989 in the city of Burgas. In the period 2007 – 2011 he studied at the Agricultural University – Plovdiv and obtained the "Bachelor" qualification in Plant Protection. In 2012 he obtained the "Master" qualification in Plant Protection at the same university. In the period 2013 – 2016 he was a full-time doctoral student in the Department of Entomology of the Agricultural University. In 2016 he defended his dissertation on the topic: "Aphids (Hemiptera: Aphididae) on stone fruit species – distribution, harmful activity and control" and obtained the "Doctor" qualification in Plant Protection (Entomology) /Diploma No. DR 85 of 03.10.2016/.

The work experience of the Chief Assist. Prof. Dr. Pavlin Vassilev started in 2016 at I Holding as an agronomist (sales representative) for Southern Bulgaria, where until December 2018 he carried out commercial and consulting activities, communication with current and future/potential clients, trade and sale of seeds, fertilizers and plant protection products. Since January 2019 he has been an assistant at the Department of Entomology of the Agricultural University - Plovdiv, where in December 2019 he holds the academic position of Chief Assistant Professor, Doctor, which he holds to this day, his work being related to scientific research, teaching students in the Plant Protection specialty in the Bachelor's and Master's degree programs, as well as participation in national and international projects.

The candidate's entire career development to date has been related to plant protection.

2. General description of the materials presented

In the competition for "associate professor" Chief Assistant Professor Dr. Pavlin Vassilev participated with a total scientific output of 25 publications, distributed in the following groups:

- *Scientific publications in the nomenclature specialty - 26 pieces. Of these:*
 - *Publications related to the doctoral dissertation - 3 publications and an abstract of a dissertation, which are not subject to review;*
 - *Published book based on a defended dissertation work for awarding the ONS "Doctor" - 1*

- Publications with an impact factor - 2 (in Q4, with a total SJR - 0.34)
- Publications in peer-reviewed and refereed scientific journals - 18
- Publications in non-refereed journals with scientific review - 2
- Popular science articles – 2.

The personal participation of the senior Assist. Prof. Dr. Pavlin Vassilev is illustrated by the fact that he is an independent author in 3 of the scientific papers, lead author – in 8, second author – in 8, third and subsequent author – in 3 scientific publications. Of the 22 scientific papers submitted for review, 15 are in English, 5 – in Bulgarian and 2 are published bilingually (in Bulgarian and English).

23 papers are subject to analysis for the preparation of the review.

Table 1. Fulfillment of the minimum national requirements under Art. 26, para. 2, 3 and 5 of the Law on the Development of Academic Staff in the Republic of Bulgaria for holding the academic position of "associate professor" (number of points by indicators)

Group	Indicator	Required points (number)	Points (number)
A	Dissertation for awarding the ESD "doctor"	50	50
B	4. Habilitation thesis or equivalent scientific publications (not less than 10), published in scientific publications, referenced and indexed in world-renowned databases with scientific information	100	159.5
G	6. Published book based on a defended dissertation for the award of the educational and scientific degree „Doctor"	40	40
	7. Articles and reports published in scientific publications, referenced and indexed in world-renowned databases with scientific information	200	150
	8. Articles and reports published in non-refereed journals with scientific review		19.1
D	13. Citations or reviews in scientific publications, referenced and indexed in world-renowned databases with scientific information or in monographs and collective volumes	50	210
	15. Citations in non-refereed journals		20
Total:		400	638.60

From the data presented in Table 1 it is evident that the scientific production of Chief Assistant Professor Dr. Pavlin Vassilev fully meets and significantly exceeds the minimum national requirements under Art. 26, para. 2, 3 and 5 of the Law on Academic Staff Development of the Republic of Bulgaria for holding the academic position of "associate professor" with a total number of points from the reported indicators - 638.60 with a required 400.

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

The research presented in the scientific publications of Chief Assistant Professor Dr. Pavlin Vassilev in this competition for associate professor are in the following areas:

- ✓ Determination of the species composition, population density and distribution of aphids (Hemiptera: Aphididae) and aphidophages in different agroecosystems in Bulgaria;
- ✓ Study of the efficacy of new plant protection products (including immunostimulants and foliar fertilizers under laboratory and field conditions) against different species of aphids (Hemiptera: Aphididae) and other enemies;
- ✓ Monitoring of enemies of apple (*Malus domestica*, Borkh.) in the region of the city of Plovdiv and monitoring and control of fruit worms on stone fruit species by using pheromone traps and dispensers;
- ✓ Identification of the entomofauna and the influence of different types of mulch on potatoes (*Solanum tuberosum*, L.) in the region of the city of Plovdiv.

The successful research work of the candidate has been facilitated by his active participation in project teams, as follows:

1/ Projects and contracts with external funding for the AU (Project No. KP-06-IP-CHINA/2: "Sustainable management of pests and diseases in apple orchards in Bulgaria and China based on precise ecological control methods", 2020-2023);

2/ Participation in international projects ("EcoStack: Stacking of ecosystem services: mechanisms and interactions for optimal crop protection, pollination enhancement, and productivity", 2018-2023 and a project under the CORE Organic program - "Developing intercropping systems with camelina to increase the yield and quality parameters of local underutilized crops", 2021 - 2023).

4. Assessment of the candidate's pedagogical training and activities. His role in the training of young scientists.

As of 10.09.2025, Chief Assist. Prof. Dr. Pavlin Vassilev has 6 years, 8 months and 4 days of teaching experience. His teaching experience was at the Department of Entomology of the Agricultural University - Plovdiv. From 07.01.2019 he was appointed as an assistant, and from 20.12.2019 to the present he is a chief assistant. According to the submitted certificate of direct engagement in lectures, exercises and extracurricular employment, the candidate has a total of 3147.8 hours of instruction for the period from 2020 to 2025. Chief Assist. Prof. Dr. P. Vassilev conducts exercises for students:

- In the Bachelor's Degree Program in the disciplines: General Entomology, Plant Quarantine, Forecast and Signaling and Biological Plant Protection.
- In the Master's Degree Program - General Entomology, Crop Pests, Forecasting and Signaling, Plant Quarantine and Biological Plant Protection. The listed disciplines are part of the current curricula for training students in the specialties at the Faculty of Plant Protection and Agroecology and correspond entirely to the scientific profile and expertise of the candidate.

In the period 2022 – 2025, the candidate has conducted teaching mobility at universities in Belgrade - Serbia, Tekirdag - Turkey and Almeria - Spain.

The teaching experience of Chief Assistant Professor Dr. P. Vassilev is also complemented by the scientific supervision of graduates. According to the attached report, to date, 7 in the Bachelor's and 12 in the Master's degree programs have successfully defended graduates under his scientific supervision.

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

The total number of citations of the scientific works of Chief Assist. Prof. Dr. P. Vassilev presented in the reference is 18, with most citations being noted in international publications by foreign authors. This proves the recognition of the candidate and his scientific works in scientific circles. So far, the publication of Chief Asst. Prof. Dr. P. Vassilev in co-authorship, from 2020, which was published in the Journal of BioScience and Biotechnoogy – 8 citations, has had the widest response.

6. Significance of contributions to science and practice. Motivated answer to the question of the extent to which the candidate has a clearly outlined profile of scientific research work

In the presented reference, the contributions are divided into three groups: scientific contributions of an original nature, scientific-applied contributions and contributions of a confirmatory nature. The contributions from the scientific work of Chief Assist. Prof. Dr. Pavlin Vassilev are significant and contribute to the development of knowledge in the field of agrarian science. I accept the author's reference for the contributions and have indicated below the more important ones, which I believe most clearly highlight the scientific achievements of the candidate.

SCIENTIFIC CONTRIBUTIONS OF ORIGINAL NATURE

- **Determination of the species composition, population density and distribution of aphids (Hemiptera: Aphididae) and aphid predators in different agroecosystems in Bulgaria**
 - ✓ A large-scale study was conducted on the species composition of peach (*Prunus persica*) aphids throughout Bulgaria. It was found that this fruit crop is attacked by eight species of aphids from the Aphididae family, with *M. persicae* and *M. varians* being the most important pests due to their wide distribution and high population density. The former is more widespread in southern Bulgaria, while the attack by the latter is almost uniform throughout the country. (G1).
 - ✓ In Bulgaria, nine species of aphids from the family Aphididae have been identified on plums and gooseberries, and it has been proven that the dominant species on plums are *H. pruni* and *B. helichrysi*, with the first species being more widespread and with a significantly higher density. The dominant species on gooseberries are *P. humuli* and *B. helichrysi*. (G9).
 - ✓ For the first time in Bulgaria, colonies of the rice root aphid, *Rhopalosiphum rufiabdominale* Sasaki, have been identified on wheat roots in the area of the city of Pernik, village of Batanovtsi. and the pattern of damage has been described. It is assumed that the species can significantly threaten other crops in the country, therefore a larger study is needed to establish its distribution (G6).
 - ✓ Four species of aphids (Hemiptera: Aphididae) have been identified as pests on nine apple varieties in the Plovdiv region – two species of the genus *Aphis* (*A. pomi* and *A. spiraeicola*) and two species of the genus *Dysaphis* (*D. plantaginea* and *D.*

devecta). The dominant species were found to be the apple-plantain aphid, *D. plantaginea*, and the citrus aphid, *A. spiraecola*. The variety Gala Resistance is the most susceptible to aphids, and the most resistant is the variety Super Chief, followed by Modi, Fujion, Enterprise and Rosella. (B7).

➤ **Identification of the entomofauna of potatoes (*Solanum tuberosum*, L.) in the region of the city of Plovdiv**

- ✓ An unknown species to farmers, a representative of the beneficial entomofauna – *Perillus bioculatus* (Fabricius, 1775), was discovered in potato plantations in the Plovdiv region. The species is a specialized predator of eggs, larvae and adults of the Colorado potato beetle, *Leptinotarsa decemlineata* Say (G11).

SCIENTIFIC AND APPLIED CONTRIBUTIONS

➤ **Studying the efficacy of new plant protection products against various species of aphids (Hemiptera: Aphididae) and other pests under laboratory and field conditions**

Biological insecticides - The efficacy of three biological insecticides was studied under laboratory conditions: the microbial *Naturalis* (*Beauveria bassiana*) and the botanical ones – Pyrethrum (pyrethrin + sesame oil + soft potassium soap) and Nimazal (azadirachtin), permitted for use in organic farming in Bulgaria, against hop aphid, *Phorodon humuli* Schrank, black peach aphid, *Brachycaudus persicae* Passerini, linden aphid, *Eucallipterus tiliae* Linnaeus, large walnut aphid, *Panaphis juglandis* Goeze and Colorado potato beetle, *Leptinotarsa decemlineata* Say (G10, G5, G4, B5 and B4). It was found that:

- ✓ The best results of the tested products against *P. humuli* were shown by the microbial insecticide *Naturalis*. At a concentration of 0.2%, the efficacy reached 46% on the 3rd day, 70.3% on the 5th day and 91.5% on the 7th day after treatment.
- ✓ In *B. persicae*, it was proven that Pyrethrum showed the best result. On the 7th day after treatment, the efficacy was 76.5% at a concentration of 0.025%; 93.2% at a concentration of 0.05% and 100% at a concentration of 0.1%. (G5).
- ✓ Against *E. tiliae*, it was found that Pyrethrum demonstrated the highest biological efficacy. At a concentration of 0.1%, the efficacy reached 80.5% on the first day and 100% on the 3rd day after treatment. (G4).
- ✓ The bioinsecticides Pyrethrum, *Naturalis* and Nimazal were found to be 100% effective against *P. juglandis*, respectively on the 3rd, 5th and 7th day after treatment (B5).
- ✓ Against larvae and adults of *L. decemlineata*, *Naturalis* was shown to be the best of the tested products. At a concentration of 0.2%, the effectiveness reached 100% on the 7th day after treatment, for both larvae and adults.

Chemical insecticides - In connection with the removal of neonicotinoids from the list of permitted PPPs in our country, the efficacy of four chemical insecticides from different chemical classes – flupyradifurone (Sivanto Prime), sulfoxaflor (Closure), flonicamid (Tepeki) and acetamiprid (Mospilan) – was tested under field conditions for the control of the powdery plum aphid *Hyalopterus pruni* on plum and the green citrus

aphid *Aphis spiraecola* on apple. It has been proven that all tested chemical insecticides are suitable for effective control of both aphids, even at their lowest permitted concentration (G7).

The chemical insecticides Closure and Sivanto Prime were tested against the pink hemispherical scale insect, *Rhodococcus perornatus* (Hemiptera: Coccidae) under field conditions. Closer demonstrated the fastest initial action and at a concentration of 0.04% on the 1st day after treatment its efficacy was 100%. Sivanto Prime, at a concentration of 0.1%, showed 100% efficacy on the 5th day after treatment. (G8).

➤ **Determining the effect of immunostimulants and foliar fertilizers under laboratory and field conditions against aphids (Hemiptera: Aphididae) on fruit crops**

Immunostimulants - The potential effect of Panatechnology products on aphids in apple and peach orchards under field conditions has been determined. Experiments have shown that the immunostimulants Panamin and Panatop can reduce the population density of some aphid species to some extent, but are not able to completely prevent the danger of these pests, especially in years suitable for their development. It has been established that the use of natural immunostimulants with a high silicon content can reduce the use of chemical insecticides or at least the number of treatments (B6).

Foliar fertilizers - The efficacy of the product Citromacinc (corrector of Zn and Mn deficiencies) in concentrations of 0.15% and 0.3% has been studied under laboratory and field conditions against the green citrus aphid, *A. spiraecola* on apple. Citromacinc has been proven to be suitable for effective control of green citrus aphid in apple orchards, even at its lower concentration (B8).

➤ **Monitoring and control of fruit moths on stone fruit species using pheromone traps and dispensers**

The possibilities for reducing the number of chemical insecticide treatments against the plum fruit moth, *Grapholita funebrana* (Tr.) in plum orchards in Bulgaria were studied, using synthetic sex pheromones. The positive results show that the disruption of the copulation of the plum fruit moth can be an effective alternative for the control of conventional (pesticide) treatments (B2).

The possibilities for the use of Isomate A/OFM pheromone dispensers, with normal and reduced rates, were studied for three important enemy species – the eastern fruitworm, *Grapholita molesta* (Busck.), the plum fruit moth, *Grapholita funebrana* (Tr.) and the peach twig borer, *Anarsia lineatella* (Zell.). It was proven that the Isomate A/OFM pheromone dispensers, at a rate of 1000 units per hectare, provide excellent control of all three enemies. (B3).

➤ **Monitoring of apple pests (*Malus domestica*, Borkh.) in the Plovdiv region**

The predictive model "RIMpro-Cydia 3" was studied for the Plovdiv region in order to signal the most appropriate periods for the control of the codling moth, *Cydia pomonella* L. It was found that the model adequately predicts the development and

population density of the first generation of the enemy, while for the second generation it shows significant deviations. It is recommended that farmers use the data from the model only for the prediction of the first generation of the codling moth butterflies. (B9).

7. Critical notes and recommendations

I have no critical comments on the materials submitted for the competition for "associate professor". Regarding the future work of Chief Assistant Professor Dr. Pavlin Vassilev, I would like to make the following recommendations: to direct his efforts to developing textbooks and teaching materials for students; to continue his work on national and international projects; to focus on scientific supervision of PhD students.

8. Personal impressions and opinion of the reviewer

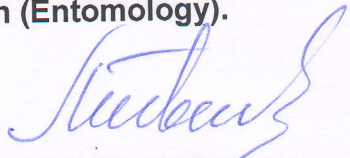
I have known Chief Assistant Prof. Dr. Pavlin Vassilev since 2019 and have been following his development, publications and participation in scientific forums since then. It is impressive that he is an organized and consistent young man in his work, with good educational, methodological and professional training, with long-standing scientific interests in the field of plant protection and with great potential for future development as a scientist and academic lecturer.

CONCLUSION

Based on the analysis of the candidate's scientific, applied scientific and pedagogical activities, I believe that Chief Assistant Prof. Dr. Pavlin Emilov Vassilev fully meets the requirements of the Law on the Development of Academic Staff in the Republic of Bulgaria, the Regulation for the application of the Law on the Development of Academic Staff in the Republic of Bulgaria and the Regulation of the Agricultural University for its implementation. The materials provided prove the presence of scientific potential and teaching experience, as well as convincing coverage of the minimum national requirements under Art. 2b, para. 2 and 3 of Law on the Development of Academic Staff in the Republic of Bulgaria. All this gives me reason to evaluate his overall activity **POSITIVELY**.

I would like to propose to the esteemed Scientific Jury to also vote positively, and the Faculty Council of the Faculty of Plant Protection and Agroecology at the Agricultural University - Plovdiv to **elect Chief Assistant Professor Dr. Pavlin Emilov Vassilev as "associate professor" in the scientific specialty Plant Protection (Entomology)**.

Date: 10.11.2025
Plovdiv

REVIEWER: 
Prof. Mariyana IVANOVA, PhD