

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 senior assistant Dr. Pavlin Emilov Vassilev from the Agricultural University - Plovdiv, Department of Entomology

Reviewer: Prof. Dr. Vili Borisova Harizanova, Agricultural University-Plovdiv; field of higher education 6.0. Agrarian Sciences and Veterinary Medicine, professional field 6.2. Plant Protection, scientific specialty Plant Protection (Entomology),

appointed as chairperson of the scientific jury by order No. RD No. 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:

Senior Assistant Professor Pavlin Emilov Vassilev was born on April 1, 1989 in the city of Burgas. From 2007 to 2011 he was a student at the Agricultural University-Plovdiv, specializing in Plant Protection, where he obtained a Bachelor's degree, after which in 2012 he graduated as a Master's degree in Plant Protection. During the period 2013-2016 he was a full-time doctoral student in the Department of Entomology of the University of Plovdiv, where he defended his dissertation on the topic: "Aphids (Hemiptera: Aphididae) on stone fruit species - distribution, harmful activity and control" and acquired the ONS "doctor".

His work experience began in 2016 as an agronomist (sales representative) at Agronom I Holding EOOD, where he worked until 2018 and was responsible for communication with current and potential clients, trade and sale of seeds, fertilizers and plant protection products. From January 2019 to December 2019, he was an assistant professor in the Department of Entomology, and from December 2019 to the present, he holds the academic position of chief assistant professor in the same department. His work is related to teaching at the Bachelor's and Master's level of the General Entomology, Crop Pests, Plant Quarantine, Forecasting and Signaling, and Biological Plant Protection. His scientific activity is also entirely focused on plant protection.

2. General description of the submitted materials:

In the competition for "associate professor" Senior Assistant Professor Dr. Pavlin Vassilev participated with a total output of 25 works, grouped as follows:

- *Scientific publications in the nomenclature specialty – 26, of which:*
 - *Publications related to the doctoral dissertation – 3 publications and an abstract of the dissertation, which are not subject to review;*
 - *Published book based on a defended dissertation for the award of the ONS "doctor" - 1.*
 - *Publications with impact factor – 2 issues (in Q4 with a total SJR – 0.34);*
 - *Publications in peer-reviewed and refereed scientific journals – 18 issues;*
 - *Publications in conference proceedings – 2 issues;*
 - *Popular science articles – 2 issues.*

Twenty two papers are subject to analysis for the preparation of the Review. The

personal participation of Senior Asst. Prof. Dr. Pavlin Vassilev in the mentioned 22 papers is illustrated by the fact that 3 are independent, in 8 he is the first, in 8 he is the second, and in the remaining 3 he is the third and subsequent author.

Table 1. Fulfillment of the minimum national requirements under Art. 26, para. 2, 3 and 5 of the Law on the Promotion of Higher Education and Research 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 the award of the ESD "Doctor"	50	50
B	4. Habilitation thesis or equivalent scientific publications (no less than 10), published in scientific journals, refereed and indexed in world-renowned databases of scientific information	100	159,5
Г	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 journals, referenced and indexed in world-renowned databases of scientific information	200	150
	8. Articles and reports published in non-refereed journals with scientific review		19,1
Д	13. Citations or reviews in scientific publications, referenced and indexed in world-renowned databases of scientific information or in monographs and collective volumes	50	210
	15. Citations in non-refereed journals		20
	Total:	400	638,60

The data presented in Table 1 shows that the scientific production of Senior Assistant Professor Dr. Pavlin Vassilev meets and even exceeds the minimum national requirements under Art. 26, para. 2, 3 and 5 of the Law on Academic Affairs of the Republic of Bulgaria for holding the academic position of "associate professor" with a total number of points of 638.60 out of the 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 main areas of research work of Senior Assistant Professor Dr. Pavlin Vassilev are entirely in the field of plant protection and can be summarized as follows:

- Studies on the species composition, population density and distribution of aphids (Hemiptera: Aphididae) in various orchard and field agrocenoses in Bulgaria;
- Study of species diversity of predatory and parasitoid species in different agrocenoses and their role in regulating the number of harmful insect and mite species.

- Study of the biological efficacy of new plant protection products and the effect of immunostimulants and foliar fertilizers on various pests;
- Forecasting models, monitoring and control of fruit worms by fruit species, including through the use of pheromone traps and dispensers;

Assessment of the sensitivity of different varieties of fruit crops to attack by various enemies and the influence of agro-ecological conditions on beneficial entomofauna.

The listed areas of the candidate's research work are largely determined by the deepening of research on the topic of his dissertation, his specialization under Prof. Olivera Petrovic-Obradovic from the University of Belgrade, a prominent specialist in aphids, as well as his active participation in 3 scientific projects:

- Project to the National Science Foundation 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)

- International projects: under the Horizon 2020 program "EcoStack: Stacking of ecosystem services: mechanisms and interactions for optimal crop protection, pollination enhancement, and productivity", 2018-2023; 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.

For the period January 2019 to September 2025, when the report on academic employment was submitted, Senior Assistant Professor Dr. Pavlin Vassilev has accumulated more than 6 years of teaching experience, with a total of 3147.8 hours of exercises and extracurricular employment with students from the Bachelor's and Master's degree programs in the disciplines General Entomology, Crop pests, Plant quarantine, Forecasting and signaling, and Biological plant protection. He was the supervisor of a total of 19 successfully defended diplomas, 7 of which in the Bachelor's and 12 in the Master's degree. In 2021 and 2022, he is a mentor to students from the Faculty of Plant Protection and Agroecology at the University of Plovdiv, participating in Challenge Labs.

The short-term specializations for exchange of experience under the Erasmus + program at universities in Belgrade, Serbia (26.09.-30.09.2022), in Tekirda, Turkey (5.06.-9.06.2023) and in Almeria, Spain (9.06.-13.06.2025) contribute to the improvement of the candidate's pedagogical activity.

Senior Assistant Professor Dr. Pavlin Vassilev has also received additional professional qualification at the Center for Continuing Education at the Agricultural University-Plovdiv in "Economics and Foreign Trade in Agricultural Products" and has successfully completed the course "Appraiser of Agricultural Land and Improvements Thereon".

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

Results from the work of Senior Assistant Professor Dr. Pavlin Vassilev have been cited in 18 publications, most of which by foreign authors. Of these, 14 are in journals

indexed in Scopus and Web of Science and 4 - in non-peer-reviewed journals.

A kind of recognition of the scientific authority of Senior Assistant Professor Dr. Pavlin Vassilev is his involvement as a member of an interdepartmental working group at the Bulgarian Food Safety Agency to develop a "Guide for the implementation of measures to control black goldfish (*Capnodis tenebrionis*) on the territory of the Republic of Bulgaria" (Order RD11-3143/11.12.2024).

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

The contributions in the works of Senior Assistant Professor Dr. Pavlin Vassilev are undoubtedly important for plant protection science and practice and are indicative of his clearly outlined scientific research profile. In the detailed report submitted by the candidate, the contributions are grouped as "Scientific contributions of an original nature", "Scientific and applied contributions" and "Contributions of a confirmatory nature". I accept all of the indicated contributions, which can be briefly summarized as follows:

SCIENTIFIC CONTRIBUTIONS

- Based on a large-scale study throughout the country, the species composition of aphids (Hemiptera: Aphididae) and their population density on various stone fruit species have been established. In peach, *M. persicae* and *M. varians* are of greatest importance as pests, with the former being more widespread in Southern Bulgaria, while the attack by the latter is almost uniform throughout the country. The species *B. schwartzi* is distributed throughout Bulgaria, with higher densities in the southern part of the country, in areas where peaches are grown. *H. amygdali* is also found mainly in the southern part of the country and can be a dangerous pest in orchards (G1). Nine species have been identified on plums and lingonberries, of which *H. pruni* and *B. helichrysi* are dominant on plums, and *P. humuli* and *B. helichrysi* on lingonberries (G9).
- It has been established that 4 species of aphids damage apple trees in the Plovdiv region: *A. pomi*, *A. spiraecola*, *D. plantaginea* and *D. devector*, of which *D. plantaginea* and *A. spiraecola* are of greater economic importance (B7).
- For the first time in Bulgaria, colonies of rice root aphid *Rhopalosiphum rufiabdominale* Sasaki (G6) have been identified on wheat roots.
- The varietal sensitivity of 8 apple varieties has been established, of which Gala Resistance is the most sensitive to the aphids *D. plantaginea* and *A. spiraecola*, and the most resistant is Super Chief (B7).
- In the Plovdiv region, 18 species of aphids – predators and parasitoids from 4 orders and 6 families – have been identified in colonies of 10 species of aphids in peach and apricot orchards, which have been proven to reduce the density of aphids at the beginning and end of the growing season, but are unable to maintain

their density low during periods of mass reproduction (G3).

- In 2019, for the first time in our country, the occurrence of the American species of predatory bug *Perillus bioculatus* (Fabricius, 1775), which is a specialized predator of eggs, larvae and adults of the Colorado potato beetle *Leptinotarsa decemlineata* Say (G11) in potato agroecosystems, was reported.

SCIENTIFIC AND APPLIED CONTRIBUTIONS

Of great practical value are the results regarding the efficacy of new plant protection products against various types of aphids and other pests under laboratory and field conditions:

- The microbial product Naturalis (*Beauveria bassiana*) and the botanicals – Pyrethrum (pyrethrin + sesame oil + soft potassium soap) and Nimazal (azadirachtin), permitted for use in organic farming in Bulgaria, can be successfully used in the control of hop aphid *Phorodon humuli*, black peach aphid *Brachycaudus persicae*, linden aphid *Eucallipterus tiliae*, large walnut aphid *Panaphis juglandis* and Colorado potato beetle *Leptinotarsa decemlineata* (G10, G5, G4, B5 and B4).
- For the control of the powdery plum aphid *Hyalopterus pruni* on plum, microbial insecticides based on *Beauveria bassiana* (Naturalis) and *Paecilomyces fumosoroseus* (Preferal) and botanical insecticides with active ingredients pyrethrum (Pyretrum) and nicotine (Nicotab) are highly effective. The insecticide based on azadirachtin has low efficacy and is not suitable for controlling this aphid (B1). The neonicotinoids imidacloprid, acetamiprid and thiamethoxam have excellent effects (G2).
- Insecticides based on flupyradifurone (Sivanto Prime), sulfoxaflor (Closer), flonicamid (Tepeki) and acetamiprid (Mospilan) are suitable for effective control of *H. pruni* on plum and the green citrus aphid *A. spiraecola* on apple even at their lowest permitted concentration (G7).
- Two chemical insecticides (Closer and Sivanto Prime) and one biological insecticide (Naturalis) show high biological efficacy and are suitable for control of the rose hemispherical scale insect *Rhodococcus perornatus* (Hemiptera: Coccidae) on oilseed rose (G8).
- The immunostimulants Panamin and Panatop can reduce the population density of some aphid species, but are not able to completely prevent the danger of these pests, especially in years suitable for their development (B6), while the product Citromacinc (corrector of Zn and Mn deficiencies) shows excellent biological efficacy against *A. spiraecola* (B8).
- Isomate OFM TT dispensers placed before the flight of the male plum fruitworm *Grapholita funebrana* significantly reduced fruit damage. The percentage of fruit containing plum fruitworm larvae was below the economic damage threshold (EIT). The positive results obtained in this study indicate that disruption of plum fruitworm copulation may be an effective alternative for control of conventional (pesticide) treatments (B2).

- Isomate A/OFM pheromone dispensers, at a rate of 1000 units per hectare, have been shown to provide excellent control of eastern fruitworm *Grapholita molesta*, plum fruitworm *Grapholita funebrana* and peach twig moth *Anarsia lineatella*. At a reduced rate of 300 units per hectare, Isomate A/OFM showed a high degree of control of *Gr. molesta* and *A. lineatella*, but not *Gr. funebrana*. At a rate of 600 units per hectare, the results were better - the damaged fruits by plum fruitworm at harvest did not exceed 14% (B3).
- The predictive model "RIMpro-Cydia 3", • The predictive model "RIMpro-Cydia 3", which signals the most suitable periods for control of the apple fruitworm *Cydia pomonella*, adequately predicts the development and population density of the first generation of the enemy, while for the second generation it shows significant deviations both in predicting population density and in precise development periods (B9).

CONTRIBUTIONS OF AN AFFIRMATIVE NATURE

- It was found that the population density of the species *Leptinotarsa decemlineata* and the aphids *Myzus persicae* and *Aulacorthum solani* was lower in plots with mulch (straw) and green mulch (alfalfa), compared to crops without mulch. The results confirm what has been published by other authors that mulching, with its numerous beneficial effects, ultimately leads to an increase in yield. The variants mulched with alfalfa showed the highest average yield, followed by the variant mulched with straw. The yield from the control (without mulch) was almost twice as low (G12).

7. Critical notes and recommendations

My critical remarks concern the presentation of the contributions in the reference prepared by the candidate, which looks more like a collection of summaries of publications and takes up a full 8 pages. I recommend even more intensive study and practice of English, which will broaden the development prospects of Senior Assistant Professor Dr. Pavlin Vassilev.

8. Personal impressions and opinion of the reviewer

I have known the candidate since 2011 as a student, whom I examined and gave excellent marks in the discipline Biological Plant Protection. By coincidence, I am closely acquainted with his work during his doctoral studies, and then as a lecturer, from assistant professor, through chief assistant professor to the present, which gives me reason to believe that in his person the Department of Entomology has a hardworking and motivated staff who will develop their potential in the future. His work with students is also highly valued, as evidenced by surveys conducted with them and his selection as a scientific supervisor of diploma theses. His professional authority and responsible attitude towards the commitments made him a desirable participant in any project or expert group outside the university.

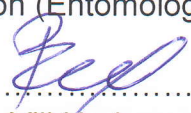
CONCLUSION

Based on the analysis of the candidate's pedagogical, scientific and applied scientific activities, I believe that Senior Assistant Professor Dr. Pavlin Emilov Vassilev

meets the requirements of the Law on the Development of the Academic Staff of Republic of Bulgaria, the Regulation for the application of the Law on the Development of Academic Staff of the Republic of Bulgaria and the Regulations of the Agricultural University – Plovdiv for its implementation. The scientific papers presented with their quality and quantity, his teaching work and his active participation in scientific and other projects give 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 Senior Assistant Professor Dr. Pavlin Emilov Vassilev as "Associate Professor" in the scientific specialty Plant Protection (Entomology).

Date: 10.11.2025
Plovdiv

Reviewer: 
(Prof. Vili Harizanova, PhD)