STANDPOINT

regarding the competition for "Associate professor" in the scientific specialty Plant Protection (Entomology), announced in SG No. 97 from 21.11.2023 with candidate Dima Mateeva Markova by Assoc. Prof. PhD Nedyalka Georgieva Palagacheva, Agricultural University designated according to Order № RD 16-47/22.01.2024 of the Rector of the Agricultural University - Plovdiv for a member of the scientific jury

1. Brief introduction of the candidate.

Dima Mateeva Markova was born on 24.04.1982 in the city of Plovdiv. She graduated from the Agricultural University-Plovdiv in 2004 with a bachelor's degree in "Plant Protection". In 2005, she graduated with a master's degree in "Ecology of settlement systems". Since 2006, she has been appointed to the position of research assistant III degree at Maritsa Vegetable Crops Research Institute-Plovdiv, department "Technologies in vegetable crops production", after which she successively passed through the positions - research assistant II degree 2008, 2010 Assistant and 2015 Assistant Professor.

After successfully defending a doctoral dissertation on the topic: "Root-knot nematodes of genus *Meloidogyne* Goeldi on potatoes in Southern Bulgaria" in 2015, she was awarded the educationnal and scientific degree "Doctor" in the Scientific specialty "Plant Protection".

She is fluent in English and Russian, as well as modern information technologies.

She completed a long specialization at Akdeniz University in Antalya, Turkey in 2015.

From 06.04.2021 until now she is the Assistant Professor at the Agricultural University - Plovdiv.

2. General description of the scientific production

In the competition for "Associate Professor" Dima Markova participated with a total scientific output of 83 works, of which 65 scientific, 16 popular science and two technology.

Scientific works are grouped as follows:

- Scientific publications on the nomenclature specialty - 65 issues, of which:

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

- Publications with an impact factor – 12;

- Publications in peer-reviewed and refereed scientific journals – 19;

- Publications in proceedings of conferences and other journals– 30;

- Popular scientific articles - 16;

The personal participation of Dima Markova in the mentioned 61 works is illustrated by the fact that in 6 publications she is the first author, in 31 number she is the second, and in the remaining 24 she is the third and subsequent author.

To prepare the opinion, 61 number are subject to analysis.

The scientific works have been published in specialized scientific publications at our country and abroad: *Bulgarian Journal of Crop Science, Novo znanie, Bulgarian Journal of Crop Science, Bulgarian Journal of Agriculture of Science, Agricultural science and Technology, Journal of Mountain Agriculture on the Balkans, Acta*

Horticulturae, Turkish Journal of Agriculture and Natural Science, Russian Journal of Parasitology, Biotechnology&Biotechnology Equipment, Scientia Horticulturae, etc.

Of the 61 scientific papers presented, 32 are in Bulgarian and 29 in English.

The candidate's scientific publications have received a wide response, both in our and foreign literature. She has 55 citations, of which three are in Bulgarian publications, 49 in Bulgarian journals with IF and in foreign publications, and three in dissertations.

3. Teaching activity

Assistant Professor Markova has a teaching experience of two years, 9 months and 25 days. She had direct academic employment from lectures, exercises and extracurricular employment in the period 2019/2020 to 2022/2023 of 1384.7 hours, which by year are from 108.8 to 496.9 hours, respectively.

The teaching and activity is related to the training of students from a bachelor's degree and a master's degree, regular training and distance training, in the discipline "Non-insect pests" in the specialty "Plant protection" and in the discipline "Diseases and pests in green systems" in the specialty " Ecology and environmental protection" bachelor's degree, regular training and distance training.

Assistant Professor Markova leads exercises in the disciplines: "General Entomology", "Special Entomology", "Diseases and pests in green systems" and "Non-insect pests".

In addition to direct educational and teaching activities - delivering lectures and exercises, she works with graduate students. It has prepared 5 graduates from a master's degree of "Plant Protection".

Assistant Professor Markova has developed study programs and lecture courses with colleagues from the department, which is a significant contribution to the learning process and an integral part of the activity of every university teacher.

4. Scientific research activity

Markova's scientific topics are up-to-date and focused in several main areas:

- ✓ In connection with the resistance selection, the reaction of susceptibility of different varieties, accessions and lines of vegetable crops, potatoes and rice to plant-parasitic nematodes was evaluated;
- ✓ Alternative methods for controlling plant-parasitic nematodes have been studied;
- ✓ The species composition was established and the population dynamics of the harmful and beneficial entomofauna in vegetable crops was followed;
- ✓ The efficacy of new plant protection products against pests in vegetable crops grown outdoors and in cultivation facilities was studied;
- ✓ Integrated and biological plant protection systems have been developed to control the pests of vegetable crops.
- ✓ A technology for growing *Tribulus terrestris* L. as a semi-crop has been developed, at the same time its pests have been established.
- ✓ The influence of water deficit on growth indicators and the degree of attack by pests in pepper mutant lines was studied.

As a result of the research activity, a number of scientific and scientific-applied contributions are made, the most important of which are:

- ✓ Rootstocks from the family *Cucurbitaceae* Carotina (*Cucurbita moschata*) and Turban (*Cucurbita moschata*) are resistant to *Meloidogyne* spp., and

Lagenaria siceraria, TG (*Cucumis sativus*) and TD (*Cucumis sativus*) to *Fusarium spp.* and *Pythium spp.*

- ✓ Of the 10 potato varieties tested, varieties Spunta and Innovator are resistant to *Ditylenchus dipsaci* Kuhn., and varieties Sante and Orfei to *Ditylenchus destructor* Thorne.
- ✓ Out of eight weed species in potato fields in Bulgaria, *Solanum nigrum* and *Elytrigia repens* are good hosts of *Pratylenchus neglectus* (Rensch).
- ✓ When tomatoes were intercropped with tagetes (*Tagetes patula* L.), basil (*Ocimum basilicum* L.), lettuce (*Lactuca sativa* L.) and white mustard (*Sinapis alba* L.), it was found that white mustard and tagetes suppressed the development of *Meloidogyne* spp., i.e. possess allelopathic properties.
- ✓ From cover crops hairy vetch (*Vicia villosa* Roth), pea (*Pisum sativum* L.) and white mustard (*Sinapis alba* L.) in tomatoes hairy vetch and white mustard used as green manure suppress the development of *Meloidogyne* spp.
- ✓ Products containing *Bacillus amyloliquefaciens*, *Bacillus thuringiensis* and *Trichoderma viride* successfully reduce the attack of root-knot nematodes and soil pathogens in tomatoes and cucumbers.
- ✓ The products Nemguard and the microbioagent *Trichoderma asperellum* strain T6 show a good effect against root-knot nematodes *(Meloidogyne* spp.) in cucumbers grown in greenhouses.
- ✓ Plant extracts of *Tanacetum vulgare, Allium ursinum, Juglans regia* and *Artermisia absinthium* showed good efficacy against *Pratylenchus penetrans* Cobb., and extract of *Tanacetum vulgare* against *Meloidogyne hapla* Chitwood in strawberries.
- ✓ In the temperature range 22-26°C, the rhizobacterium *Bacillus subtilis* causes the highest mortality of second stage juveniles of *Meloidogyne hapla*, exhibiting an inhibitory effect on the eggs.
- ✓ It was established that the rhizobacterium *Serratia plymuthica* inhibited the hatching of the second stage juveniles of the potato cyst nematode (*Globodera pallida* Stone) upon exposure for six days in a temperature range of 19°C and 24°C.
- ✓ The effectiveness of various insecticides against the main pest of vegetable crops has been studied: tomato leaf miner (*Tuta absoluta* Meyrick), green peach aphid (*Myzus persicae* Sulz.), cotton aphid (*Aphis gossypii* Glover), thrips, greenhouse whitefly (*Trialeurodes vaporariorum* West.), two-spotted spider mite (*Tetranychus urticae* Koch.) and leafmer flies of the genus *Liriomyza.*
- ✓ Biological products, mineral and essential oils have been tested, alone or in combination with insecticides against green peach aphid (*M. persicae*), cotton aphids (*A. gossypii*) and greenhouse whitefly (*T. vaporariorum*). Hemp and yarrow plant oils show good efficacy against the cotton aphid (*A. gossypii*). The product Naturalis is effective against the greenhouse whitefly (*T. vaporariorum*), the cotton aphid (*A. gossypii*), the two-spotted spider mite (*T. urticae*) on tomatoes and cucumbers, and Rapax and Helicovex have an excellent effect on the cotton bool worm (*Helocoverpa armigera* Hübn).

Assistant professor Markova has participated in 27 projects, of which 14 scientific projects funded by the Agricultural Academy, 10 scientific research projects under FNI at the Ministry of Education and 3 international projects.

The scientific projects are related to the pests of vegetable crops growing in field and cultivation facilities, ecological approaches in combating them, selection of high-quality lines and varieties of vegetable crops and potatoes, protection of soil fertility when growing vegetables in greenhouses.

As a specialist built in the field of entomology and nematology, Assistant Professor Markova actively participates in determining the health status of the vegetation in various coenoses, as well as the possibilities for fighting pests through chemical and biological control.

5. Notes and recommendations.

I take the liberty of recommending to Assistant Professor Markova to publish a teaching.

6. Conclusion

Based on the analysis of the pedagogical, scientific and scientific-applied activity of the candidate, I believe that the Assistant Professor Dima Markova meets the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria the Regulation for its implementation and the Regulations of the Agricultural University for its application.

She appears in the competition with scientific output rich in volume and content, which includes scientific publications in peer-reviewed and IF journals, as well as technologies in vegetable crops.

As a result of scientific research, she makes a number of original scientific and scientific-applied contributions valuable to entomological science and plant protection practice.

All this gives me reason to positively evaluate her overall activity.

I take the liberty of proposing to the honorable 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 Dima Mateeva Markova as "Associate Professor" in the scientific specialty Plant Protection (Entomology).

Date: 13.03.2024
Plovdiv

PREPARED THE STANDPOINT:
(Assoc. Ph D Nedyalka Palagacheva)