

## OPINION

Regarding the competition for the academic position "Associate Professor" in professional field 6.2. "Plant breeding", (Herbology, physiological and phytopathological mechanisms in plant protection)", announced in the State Gazette No. 63 from 01.08.2025.

**Opinion prepared by:** Assoc. Prof. Stanimir Bozhidarov Enchev, PhD, Agricultural Institute – Shumen. Field of higher education: Agricultural Sciences and Veterinary Medicine, professional field 6.1. Plant Breeding, scientific specialty "Selection and seed production of cultivated plants". The opinion was prepared in accordance with Order No. RD-16-238/31.10.2025 of the rector of Shumen University "Bishop Konstantin Preslavski".

### **Description of the scientific work:**

In the competition for the academic position "Associate professor", senior assistant professor Maria Kaschieva, PhD, presents 19 scientific publications and two monographs. Seven of the publications are presented in peer reviewed journals, indexed in the Scopus and Web of Science databases, and the remaining 12 in journals with scientific editing. The presented scientific work by senior assistant professor Maria Kaschieva do not have independent publications, in 4 she is the lead and corresponding author, in 10 she is the second, and in the rest, she is third or subsequent. The majority of the works are printed in English.

The total number of citations is 12, with a significant part of them being in prestigious international publications.

The summary report shows that the candidate meets the minimum requirements for acquiring the academic position of associate professor - 480.40 points: Group A - 50 points with minimum national requirements: 50 points; Group B - 100 points with minimum national requirements: 100 points; Group D - 230.4 points with minimum national requirements: 200 points; Group E - 100 points with minimum national requirements: 50 points;

### **Assessment of pedagogical activity:**

The pedagogical activity of Senior Assistant Professor Maria Kaschieva dates back to 2011 at the Department of Plant Protection at Shumen University "Bishop Konstantin Preslavski" as a lecturer in the Bachelor's and Master's degree programs in the specialties "Plant Protection", "Ecology and Environmental Protection", "Pedagogy of Teaching Biology and Chemistry" and "Pedagogy of Teaching Geography and Biology" in the disciplines "Physiology of Plants", "Structure and Life Process of Plants", "Herbology", "Agrochemistry", "Selection and Seed Production of Cultivated Plants", "Hydroponic Systems", "Phytopharmacy in Organic Agriculture" and "Plant Protection in Urban Conditions". She participates in the development of elective and optional disciplines, is the head of student courses and of successfully defended PhD students.

### **Most important scientific and practical contributions:**

- The first of its kind comprehensive scientific and practical guide for saffron production in Bulgaria has been created, which considers various aspects of saffron production: plant protection, technological, commercial and cultural aspects.
- It has been established that the most widespread on the surface of sorghum seeds and sorghum Sudanese hybrids is the phytopathogenic fungus *Alternaria alternata* (Fr) Keissl., which corresponds to the possibility of proper selection of a suitable agent for seed disinfection before sowing.
- Seven varieties of phytopathogenic fungi have been identified (*Alternaria alternate*, *Alternaria solani*, *Aspergillus ssp.*, *Mucor ssp.*, *Helminthosporium ssp.*, *Fusarium monilifor*, *Peronosclespora sorghum*), belonging to 6 genera, which represent the seed mycoflora of copro seeds. The combination of pathogens in seeds damages the kernels and deteriorates the quality of the seeds, which again corresponds to the possibility of correctly choosing a suitable agent for seed disinfection before sowing.
- An in vitro method for obtaining haploid plants from fodder beet has been implemented in practice. The implementation of an in vitro method for obtaining haploid plants from fodder beet (*Beta vulgaris L. var. crassa*).
- Effective nutrient media for organogenesis from passaged calli of unfertilized seed buds from different genotypes of fodder beet have been developed.
- Silver nitrate added to the culture medium for in vitro rooting of fodder beet increases the rooting rate of plants. Optimization of the culture medium for rooting of fodder beet was achieved by using 1, 2, 3 and 4 mg/l AgNO<sub>3</sub>. The use of higher concentrations of AgNO<sub>3</sub> is necessary only in the presence of more persistent bacterial contamination of the medium.
- Water infusion with oregano reduces the length of the roots of *C. sativus L.* and *T. aestivum L.*, by inhibiting cell division and inducing chromosomal changes in *Alium sera*. These results demonstrate the potential of these infusions as a source of active biological substances that could be used in agriculture, and oregano - as a plant with herbicidal potential.
- *Origanum vulgare ssp. vulgare* and *Adonis vernalis* possess antibacterial properties. Aqueous infusions of *Origanum vulgare ssp. Vulgare* also possess antibacterial activity, and aqueous infusions of *Adonis vernalis* exhibit a stronger inhibitory effect compared to the tested oregano. Aqueous infusions of both plant species have potential for use in the fight against bacterial phytopathogens and in biological plant protection.
- Plant extracts in a 1:1 ratio of poplar (*Populus ssp.*) and thyme (*Thymus ssp.*) inhibit the growth of mycelium and the germination of spores of the phytopathogenic fungus *Alternaria alternata f. ssp. stevae*, in stevia, and the application of these extracts could be found in the organic production of stevia.
- Allelopathic activity of aqueous extracts of wild plants *Origanum vulgare ssp. vulgare* has been established. This characteristic of wild oregano can be further studied as a possibility for use in experimental weed control programs.

- The antibacterial activity of Br-oxph against the phytopathogenic bacterium *amylovora* has been studied for the first time. The compound Brom oxyphosphol (*Broxph*) has bactericidal activity, which allows it to be tested against various phytopathogenic bacteria.
- An inventory of weeds in cultivated areas within the Protected Area BG0000573 "Kaliakra Complex" has been prepared. The list of weeds is not final and shows species heterogeneity in the weed communities. The heterogeneous weed composition is a sign of high ecological value of cultivated areas, since heterogeneous weed communities are less competitive with cultivated plants.

#### CONCLUSIONS:

In my opinion, the candidate fulfills the requirements of the Act on Development of Academic Staff in The Republic of Bulgaria, the Regulations for the implementation of the Act on Development of Academic Staff in The Republic of Bulgaria of Shumen University based on the concluded analyses of her scientific, practical and pedagogy activity. I evaluate the overall research and teaching activities **POSITIVELY**.

I would like to propose to the Honorable Scientific Jury to also vote for Senior Assistant Professor Maria Zhivkova Kaschieva, PhD to acquire the academic position of "Associate Professor" in the professional field 6.2 Plant Protection (Herbology, physiological and phytopathological mechanisms in plant protection).

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Shumen, Bulgaria

Opinion prepared by:

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