



REVIEW

regarding the competition procedure for the occupation of the academic position "PROFESSOR" in the Field of higher education 6. Agricultural sciences and veterinary medicine, Professional direction 6.1. Crop Production , Scientific specialty "Ornamental plants", announced in SG no. 62/21.07.2023 with candidate Associate Professor Dr. Valeria Stefanova Ivanova, PhD, from the Agricultural University-Plovdiv, Faculty of Viticulture and Horticulture, Department of Horticulture.

Reviewer: Associate Professor Dr. Nadezhda Gencheva Zapryanova, IDLR - Sofia, Agricultural Academy, by field of higher education: 6. Agricultural sciences and veterinary medicine; professional direction 6.1. Crop Production, the scientific specialty "Ornamental plants", appointed as a member of the scientific jury by order No. RD-16-901/2023 of the Rector of the Agricultural University.

Only one candidate participated in the competition for the academic position "Professor" in the scientific specialty "Ornamental plants " for the needs of AU-Plovdiv - Associate Professor Dr Valeriia Ivanova.

The provided materials and documents for the evaluation of the candidate's scientific activity and achievements in connection with the announced competition have been prepared in accordance with the Law on the Development of the Academic Staff in the Republic of Bulgaria and the Regulations for its Application at the Agricultural University - Plovdiv.

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

Associate Professor Valeria Ivanova was born in 1963 in the village of Alekovo, Veliko Tarnovo region. In 1986, he graduated from VSI "Vasil Kolarov" now Agricultural University-Plovdiv.

Assoc. Prof. Ivanova's education and training is systematic, and purposeful and consistent, mastering fundamental and specialized disciplines in the field of agronomy, general agriculture, horticulture and in particular floriculture. She graduated as an engineer - agronomist in viticulture and horticulture with a narrow specialization in Floriculture.

Immediately after graduating in 1986, Associate Professor V. Ivanova began her professional career as an agronomist - programmer in the Scientific Production Laboratory of Tissue Cultures (SPLTC)) at the Institute of Floriculture (IF) - Sofia now the Institute of Ornamental and Medicinal Plants (IOMR) in the village of Negovan.

Her scientific research work started in 1989 as a research assistant in the Institute of Floriculture - Sofia, Negovan village. The object of her research is bulbous flowers from the family *Tulipa*, *Lilium*, *Hyacinthus*, *Narcissus*, *Hippeastrum*. Develops protocols for in vitro propagation of bulb crops.

In 1991 she moved to the city of Plovdiv and started working at the Agricultural University as an assistant in the Department of Horticulture with Viticulture. Thus, along with scientific research, her teaching career also started. She was successively elected as a Senior Assistant (1993-1996), Chief Assistant (1996-2007) and Associate Professor from 2007 to the present.

Hers professional activities are related to giving lectures, exercises, and practical seminars with students from bachelor's, master's and ERASUM courses in various specialties of AU — Plovdiv; Lectures abroad; Guidance of graduates and PhD students, as well as with guidance and participation in scientific national and international projects.

The educational and scientific PhD degree was acquired in 2003 as a PhD student in a free form of study at AU on the topic: "Optimization of formatting and nitrogen fertilization in the cultivation of chrysanthemum /*Chrysanthemum indicum L.*/ for cut flowers in polyethylene greenhouses".

She acquired the academic position of Associate Professor in 2008 at AU, Plovdiv.

Associate Professor Ivanova's total work experience is 37 years without interruption, and those that combine her teaching and research activities are over 32 years, which corresponds to the accumulated rich experience and continuous development both in the scientific field and as a teacher.

2. General description of the presented materials.

The scientific production that Assoc. Dr. Valeria Ivanova applied for in the current competition for "Professor" is impressive. She participated with a total output of 122 scientific papers, grouped as follows:

Monograph - 1.

Chapter of a collective monograph - 1.

Scientific publications in the nomenclature specialty - 119, of which:

- Publications related to the doctoral dissertation – 3, which are not subject to consideration.
- Publications related to the competition for associate professor - 38, which are not subject to consideration.
- Publications after the competition for associate professor – 78 (65% of the total number of scientific works)

In the mentioned scientific papers, Prof. V. Ivanova independently participated in 6 (7.7%) of them, in 30 (38.5%) he was first, in 22 (28.2%) he was second, and in the rest 20 items (25.6%) are third and subsequent authors. This proves the candidate's excellent ability to work in a team. In the competition for "Professor" Associate Professor Ivanova participated with a total number of 35 scientific papers in the nomenclature specialty, of which 33 publications, 1 monograph, 1 chapter of a collective monograph, grouped as follows: Of the mentioned 35 scientific papers, Assoc. prof. Ivanova participated independently in 4 publications (11.4%), first author - 15 publications (42.9 %), second - 9 publications (25.7 %), third and next author in 7 publications (20.0 %), which proves her ability to work in a team. Out of 35 works, 24 publications (68.6 %) were printed in English and 11 publications (31.4 %) - in Bulgarian.

Scientific Publications are distributed as follows: - Publications in publications referenced and indexed in the world-famous databases SKOPUS and WEB OF SCIENS - total number 15 (45.5 %). Publications with an impact factor – 10 items. The total IF is 8.767. It is distributed in magazines with Q4 - 7 issues and with Q3 - 3 issues. Publications in peer-reviewed and non-refereed scientific journals or published edited collective volumes 18, of which: 5 in journals (Plant Breeding Sciences and Journal of International Scientific Publication: Agriculture&Food), 4 publications in proceedings of scientific conferences, 9 published in edited collective volumes Author of 1 manual for Floriculture exercises at AU, Plovdiv (2022).

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

The main directions in the research work of Associate Professor V. Ivanova are related to problems in reproduction (seed, vegetative and micropropagation) in ornamental plants. Part of her research is also focused on the agrotechnical aspects of growing different crops with decorative qualities (experimenting with different fertilizers, substrates, the influence of stress growing conditions, plant formations, as well as their application in the landscape.

The plant species that are the subject of the experimental work of Assoc. Prof. Ivanova are the flower crops: chrysanthemum (*Chrysanthemum indicum* L), gladiolus (*Gladiolus*), dahlia (*Dahlia variabilis*), carnation (*Dianthus caryophyllus* f. spray, Hort), *Limonium bulgaricum*, *Goniolimon dalmaticum*, *Verbascum thapsus*, *Lupinus polyphyllus* Lindl. and *Lupinus mutabilis* Sweet, the annual flowers *Callistephus*, *Helichrysum*, *Antirrhinum*, *Tagetes*, *Zinnia* and *Verbena* as well as trees: ginkgo (*Ginkgo biloba* L), various types of lindens (*Tilia platyphyllos* Scop., *Tilia cordata* Mill. and *Tilia tomentosa* Moench, *Tilia grandifolia*, *Tilia argentea* and *Tilia parvifolia*, magnolia (*Magnolia grandiflora* L and *Magnolia x soulangiana* Soul.-Bod), Camptotheca - an interesting ornamental tree with a medicinal effect (*Camptotheca acuminata* Decne) and shrubs - *Lonicera* (*Lonicera nitida* Wils) and *aucuba* (*Aucuba japonica* Thub) .

Covering all groups of ornamental plants proves that the candidate has experience and knowledge in all aspects of ornamental horticulture.

The report shows that in the period after receiving the academic position " Associate Professor " acquired in 2008, Assoc. Prof. V. Ivanova participated in a total of 15 projects. Of these, projects with internal financing - 10, national scientific and educational projects - 3. and 2 pcs. international scientific projects with China, funded by the National Scientific Research Institute (2011-2014 and 2016-2019). She is the Manager of 9 of the listed projects.

4. Evaluation of the pedagogical preparation and activity of the candidate. Its role in the training of young scientific personnel

Associate Professor Valeria Ivanova's total teaching experience was acquired at the Agricultural University - Plovdiv and amounts to 32 years and 8 months. Analyzing the materials provided for the academic position "Professor", the essential contribution of Prof. Ivanova in the education of students from various faculties in AU-Plovdiv is established.

For the period from 2018/2019 to 2022/2023, in bachelor's degree and master's Degree, there was a total of 3832 hours of direct classroom employment from lectures, exercises and extra-auditory employment.

Assoc. Prof. V. Ivanova develops 29 study programs in the disciplines: Floriculture, Greenhouse flower production, Flowers for outdoor areas, Arranging bouquets, Decorative dendrology, General dendrology, Special dendrology, Ornamental horticulture, Dendrology and park planning, Territorial and park planning, Landscape design, Propagation of ornamental plants, Ornamental nurseries, Management of ornamental nurseries, Application of ornamental plants.

The study programs are included as compulsory or elective for the specialty Agronomy - Viticulture and organic production, Agriculture, Plant protection, Breeding and seed production, Ornamental horticulture and landscaping, Tropical and subtropical agriculture, Plant biotechnology, Agricultural engineering, Ecology and environmental protection, Ornamental plants and landscape design, Ecology of settlement systems - full-time and part-time form of education for the educational qualification degree Bachelor and Master.

Assoc. Prof. Ivanova also developed a curriculum in English for the discipline "Floriculture", intended as an optional for the Plant Protection major. She is the head of the "Ornamental Horticulture and Landscaping" specialty, as well as the doctoral program in "Ornamental Horticulture".

Author of 3 manuals for floristry exercises at AU, Plovdiv (1995, 2001 and 2022).

Supervisor of two successfully defended PhD students, one of whom is under the ERASUM Program.

Member of the Scientific Jury for the defense of PhD Thesis and for the selection of the Chief Assistant and Associate-Professor.

Participation in examination committees for admission and candidate minimum of PhD students in various forms of education.

Supervisor of theses and participation in committees during their defense and in committees during state exams.

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

The total number of citations of Assoc. Prof. Ivanova's scientific publications as of September 2023. are 142 pieces. In connection with the competition, 10 citations (without self-citations) of 4 scientific articles are specified, and the citations are in prestigious journals with an impact factor or impact rank referenced and indexed in the world databases Web of Science and Scopus: *Scientia Horticulturae*, *Cytology and Genetics*, *Ecological Engineering*, *Toxicological & Environmental Chemistry*, *Journal of Biotechnology*, *BioMed Research International*, *Journal of Plant Interactions*, *Molecules*, *Industrial Crops and Products*, *Bulgarian Journal of Agricultural Science*. Citations are specified in 5 journals in quartile Q1, 2 each in quartiles Q2 and Q3 and 1 in quartile Q4. The overall IF is 5.104.

She is a member of the Faculty Council of the Faculty of Viticulture, chairperson of the General Assembly and member of the ERASUM Program committee, and member of the scientific committee of the 1st International Conference "Innovative (Eco) Technology, Entrepreneurship and Regional Development", University in applied sciences, Kaunas, Lithuania, 2015. Member of the Union of Scientists in Bulgaria, Plovdiv since 1997 and is deputy. editor-in-chief of "Scientific works of the Agrarian University" and "Agrarian Sciences" magazine. Associate Professor Valeria Ivanova has specialized in a number of foreign scientific centers and universities: Botanical Garden - Sochi, Russia (1987), Tissue Culture Laboratory - Budapest, Hungary (1989), Training in Molecular Biology Techniques - Czech Republic (1995), Course in Modern Horticulture - Belgium (1996) and International Course on Intensive Vegetable Production under Different Conditions - Israel (1997). Assoc.-Prof. Ivanova's international activities also include lectures on Ornamental Horticulture in Germany, Greece and Lithuania.

The **summary reference** on the for the fulfillment of the minimum national requirements according to the criteria for a "Professor" in of the Low on the Development of the Academic Staff in the Republic of Bulgaria and the Regulations for its implementation at the Agricultural University-Plovdiv in professional area 6. Agricultural sciences and veterinary medicine, Professional direction 6.1. Crop Production shows that the candidate fully covers and exceeds by 161 points the minimum requirements for the academic position "Professor".

SUMMARY REFERENCE

A group of indicators	Criteria	Minimum requirement for the academic position "Professor"	Result of Prof. Dr. Valeriia Stefanova Ivanova
A	1. 1. PhD thesis for awarding the educational and scientific degree "Doctor"	50 points.	50 points.
B	1. 1. Monograph	100 points	100 points
G	7. Scientific publications that are referenced and indexed in world-renowned databases with scientific information; 8. Scientific publications in non-refereed peer-reviewed journals or in edited collective volumes 9. Published chapter of a collective monograph	200 points	265.97 points

D	13. Citations in scientific publications, referenced and indexed in world-renowned databases with scientific information	100 points	150 points
E	17. Guidance of a successfully defended PhD student; 18. Participation in a national scientific or educational project; 19. Participation in an international scientific or educational project; 23. Published university textbook	100 points	145 points
	Total	550 points	710.97 points

6. Significance of contributions for science and practice. A motivated answer to the question to what extent the candidate has a clearly defined profile of research work.

The scientific production presented by Associate Professor V. Ivanova corresponds to the nomenclature specialty 6.1 Crop Production. I fully accept the contributions submitted by the candidate, grouping them into the following groups:

I. ORIGINAL CONTRIBUTIONS

1. For the first time, the possibility of intensive cultivation of the *Chrysanthemum* and increasing the yield from cut flowers was studied, by increasing the number of shoots per unit area and optimizing the nutritional regime. (Monograph, B.1.) 2. The influence of plant load and nitrogen fertilization on some physiological indicators of chrysanthemums was studied. (Monograph, B.1.) 3. The maxima in the content of leaf pigments were found in both varieties. It has been proven that plants fertilized with the highest nitrogen rates have a good effect on the synthesis of leaf pigments, intensity of photosynthesis and activity of peroxidase and nitrate reductase. (Monograph, B.1.) 4. An overview was made on the biotechnological and conventional methods of propagation of *Ginkgo biloba L.*, *Taxus baccata L.* *Magnolia x soulangeana Soul.-Bod.*, *Magnolia grandiflora L.* (Publication B.1.) 5. Sonication for 6 minutes was found to produce the greatest increase in germination in *Lupinus polyphyllus Lindl.* and *Lupinus mutabilis Sweet* (Publication 7.1) 6. The development of an efficient protocol for in vitro micropropagation of *Camptotheca acuminata Decne* (Nyssaceae) was studied. (Publication 7.4). 7. The possibility of using *Verbascum thapsus* Common Mullein as an ornamental plant has been investigated (Publication 7.5) 8. The osmotic stress caused by water deficit was studied in mini carnation (*Dianthus caryophyllus f. spray, Hort.*), cv. "Rusalka". by using different concentrations of polyethylene glycol (PEG - 6000), at different durations of administration in vitro conditions (Publication 7.14). 9. Growing asters (*C. chinensis*), helichrysum (*H. bracteatum*) and echinacea (*E. purpurea*) in containers with reduced to 1 or 2 waterings per week for 3 months has been shown to significantly inhibit growth and to plant death. (Publication 7.10) 10. In vitro propagation of *G. biloba L.* on MS and WPM nutrient media was achieved for the first time, when culture was initiated from 2-bud shoot tips. (Publication 8.18) 11. A study of methods for identifying noise pollution in urban areas was carried out and a trend towards the introduction of ornamental trees and shrubs as green sound barriers was noted (Publication 7.13). 12. The study of the possibilities of using as ornamental plants various species of the genus *Capsicum* - *C. annum L.*, *C. frutescens L.* and *Capsicum baccatum L.* (Publication 8.3).

II. METHODOLOGICAL CONTRIBUTIONS

1. Two methods of disinfection with 5% calcium hypochlorite [Ca(OCl)₂] and 2% silver nitrate (AgNO₃) solution of apical buds and stem cuttings from the top of mature cuttings of the three main linden species *Tilia cordata Mill* were investigated.; *Tilia platyphyllos Scop.* and *Tilia tomentosa Moench* The best disinfection procedure was found to be sequential application of Ca(OCl₂) and AgNO₃ to explants of actively growing shoots, the best results being obtained with *Tilia cordata Mill.* (Publication 7.3) 2. Methods for in vitro micropropagation of *Ginkgo biloba L.*

were developed. Meta-topolin was found to significantly improve lateral bud proliferation in *Ginkgo biloba* L. (Publication 7.8) 3. Five new for our country gladiolus varieties Purple flora, Priscilla, Plum tart, Oscar and Green star were tested. With proven highest decorative value of all studied genotypes, in the conditions of Bulgaria, is the variety Purple flora. (Publication 7.7).

4. The highest percentage of rooting when propagating Aucuba (*Aucuba japonica* Thub.) through mature cuttings was reported when a peat-perlite substrate was applied. (Publication 8.9). 5. It was found that among all the investigated combinations between IBA and GA3 in propagation of *Lonicera nitida* Wils. through mature cuttings, IBA at a concentration of 1000 ppm was the most effective treatment, inducing the highest rooting percentage and achieving the best root system characteristics. (Publication 8.8). 6. An improved procedure was investigated for in vitro shoot culture of *T. baccata* L. Best survival of shoot tips with high frequency of axillary bud induction were shown by WPM medium supplemented with 6,841 zeatin. (Publication 8.17).

III. SCIENTIFIC CONTRIBUTIONS

1. The phenological development of seeds, obtained from seeds collected 75 and 90 days after flowering, of the widespread linden species in Bulgaria - *Tilia platyphyllos* Scop., was followed. A regression analysis was made between the duration of the different phenophases and the average daily temperature (Publication 7.11). 2. The vegetative behavior of seeds of three types of lindens was studied - *T. cordata* Mill., *T. platyphyllos* Scop., *T. tomentosa* Moench. in five seed harvesting periods. (release 8.2). 3. The differences between the linden species *Tilia platyphyllos* Scop., *Tilia cordata* Mill. and *Tilia tomentosa* Moench by the duration of several seedling phenological phases, depending on the timing of seed harvesting. (Publication 8.10). 4. The influence of pre-sowing treatment of *G. biloba* seeds with different concentrations of GA3 was studied. A positive correlation was found between the concentration of GA3 and the vegetative growth of the plants (Publication 8.1). 5. A study was carried out to identify damage or lack thereof during wintering in the soil of tubers of *Dahlia variabilis*. (Publication 7.6). 6. The leaves from the *Ginkgo biloba* L. trees from Plovdiv and Hisar have the highest concentration of ginkgolides A, B, C and bilobalide. Of the three ginkgolide types - A, B and C - the highest content in the leaves is ginkgolide A, followed by ginkgolide B and finally the lowest content is ginkgolide C. (Publication 8.13). 7. Tracking the changes in gas exchange and total chlorophyll content in the leaves of seedlings of three linden species - *T. grandifolia*, *T. argentea* and *T. parvifolia* established germination and survival in comparison to the total number of sown seeds, as well as to germinated seeds, the intensity of photosynthesis, transpiration and stomatal conductance and total chlorophyll (SPAD 502) (Publication 8.15)

IV. APPLIED CONTRIBUTIONS

1. The use of Panamin Agro in nursery practice in the production of tagetes planting material should be at a concentration of 1.0%. (Publication 7.9) 2. The 20% concentration of Lumbricol can be recommended for the treatment of annual plants to produce planting material. (Publication 8.16). 3. The growth characteristics of *Ginkgo biloba* L. seeds grown in conventional above-ground containers (KNK) and in containers according to the pot-in-pot (PIP) system were studied. The use of conventional above-ground containers with a size of 1.10 l is recommended. Publication 8.14) 4. It was established that treating *Magnolia grandiflora* L. seeds with Biolan and Agrostimulin does not improve seed germination (Publication 7.12.). 5. It has been proven that the application of the controlled-release granular fertilizer Osmocote in the substrate for further cultivation of in vitro propagated plants of *Magnolia grandiflora* L. and *Magnolia x soulangiana* Soul.-Bod. positively affects the growth and development of plants. (Publication 8.4.). 6. It was established that the treatment with Biolan (0.01%) for 12 hours significantly

stimulated the germination of the seeds in the Balkan endemic species with valuable decorative qualities, included in the Red Book of Bulgaria - *Limonium bulgaricum* and *Goniolimon dalmaticum*, and the effect was genotypically specific (Publication 8.7). 7. It has been reported that the Dendrological Park at the Agricultural University - Plovdiv has fulfilled its original purpose as a place for students from various faculties at the University, studying disciplines related to Decorative Gardening, to obtain new knowledge. (Publication 8.5)

7. Critical notes and recommendations

I have no critical comments or recommendations for the candidate.

8. Personal impressions and opinion of the reviewer

The submitted documentation for the competition proves that Associate Professor Ivanova is a well-established scientist and teacher with high authority, who has achieved high efficiency in his activities. My personal impression of Associate Professor Ivanova is completely positive. She treats her colleagues and students with fairness, ethics and understanding.

CONCLUSION

Based on the analysis of the pedagogical and scientific activity of the candidate, I believe that Assoc.-Prof. Dr. Valeria Stefanova Ivanova fully fit the minimum requirements for a "Professor" in the Faculty of Agricultural Sciences and the Regulations of the Agrarian University for its application in Professional field 6. Agricultural sciences and veterinary medicine, Professional direction 6.1. Crop Production, Scientific specialty " Ornamental plants". Associate Professor Ivanova participated in this competition with scientific papers of sufficient volume and experimental depth. She exceeds the requirements for holding the academic position, has a thorough attitude to her scientific and teaching activities and works excellently in a team. Associate Professor Ivanova is a fully developed and established scientist with international and national authority. She is a highly qualified and sought after teacher, practitioner and expert in the field of ornamental plants.

All this gives me the reason to positively evaluate the overall activity of Assoc. Prof. Valeria Stefanova Ivanova and I recommend the honorable Scientific Jury to vote **POSITIVE**, and the Faculty Council of the Agrarian University, Plovdiv to elect Assoc. Prof. Valeria Stefanova Ivanova for "**PROFESSOR**" in professional field 6.1.Crop Production, scientific specialty "Ornamental plants".

Date: 11/11/2023

REVIEWER.....
/Assoc. Prof. Dr. Nadezhda Gencheva Zapryanova/