

REVIEW

Of the scientific activity of the candidate **Ch. assistant professor Dimitar Vasilev Dimitrov, PhD**, for the academic position of "associate professor" in the field of higher education 6. Agricultural sciences and veterinary medicine, professional direction 6.2 Plant breeding (Plant breeding), announced by Shumen University "Bishop Konstantin Preslavski" in the Official Gazette, no. 42 of 15.05.2023

Member of the Scientific Jury: Prof. Veselin Alexandrov Arnaudov, PhD from Shumen University "Bishop Konstantin Preslavski", habilitated in the scientific specialty "Plant protection" (entomology and phytopathology), appointed as a member of the Scientific Jury, by order No. RD-16 - 097/ 07.08.2023. of the Rector of Shumen University "Bishop Konstantin Preslavski"

In the competition announced in SG No. 42 of 15.05.2023 for occupying the academic position "associate professor", after examination of the documents by the Commission for the verification of documents (appointed by order RD-16-099/08.08.2023 of the Rector of the Shumen University) , one candidate was allowed to participate - **Ch. Assistant Professor Dimitar Vassilev Dimitrov, PhD** from Shumen University "Bishop Konstantin Preslavski"

Brief introduction of the candidate

Ch. Assistant Professor Dimitar Vasilev Dimitrov, PhD, was born on January 25, 1974 in the town of Shumen. In 2000, He graduated from the Higher Agricultural Institute - Plovdiv, majoring in "Agroengineering - Plant Protection", where he obtained a Master's degree in "Agroengineering - Plant Protection". In 2003, after winning a competition, he was appointed to the Agricultural Experiment Station - Khan Krum (DP Khan Krum) at the SSA, where he continues to work to this day. In 2010 he defended a dissertation on the topic: "Study of parental forms of oriental tobacco of origin Northern Bulgaria" and acquired the ESD "Doctor". From 2006 to 2010 the candidate successively held the academic positions of assistant and chief. assistant. Starting from 2018, he has been working as a teacher at Shumen University "Bishop Konstantin Preslavski", in the Faculty of Natural Sciences, department "Plant Protection, Botany and Zoology", where he continues to work until now.

He is fluent in English and Russian, written and spoken, and has good computer literacy.

I. Comparison of the minimum national requirements with the results of the scientific activity of the candidate for the acquisition of the academic position "associate professor":

Based on the regulated minimum national requirements, which must be met by the candidates for the academic position of "associate professor" and the analysis of the scientific production, as well as the performed scientific research activity from Ch. assistant professor Dimitar Vasilev Dimitrov, PhD, it has been made clear that the candidate meets all the minimum requirements for the relevant group of indicators.

Group of metrics	Indicator	Number of points according to the national minimum requirements	Number of points of the candidate
A	Indicator 1		
B	Indicator 2	50	50
C	Indicators 3 or 4	-	-
D	Sum of indicators from 5 to 12	100	254
E	Sum of the indicators from 13 to 15	200	230.3
F	Sum of the indicators from 16 to the end	50	95
	TOTAL POINTS	400	629.2

According to the requirements in the Regulations for the development of academic staff at the Shumen University "Bishop Konstantin Preslavski", with mandatory indicators for the academic position "associate professor" which must equate to at least **400** points, Ch. Assistant Professor Dimitar Vasilev Dimitrov presents information on a total of **629.3** points, which significantly exceeds the minimum national requirements for holding the academic position "associate professor" in the field of higher education "Agrarian Sciences and Veterinary Medicine" and is a good certificate for his research and educational activity.

II. Scientometric indicators of the presented scientific production

In the competition for "associate professor", Dr. Dimitrov participated with a total output of 34 scientific papers, which are divided as follows:

- Scientific publications in papers referenced and indexed in the world-famous databases with scientific information - indicator **B4** - 11 items (32.4%), 2 of which with SJR
- Scientific publications in scientific papers, referenced in world databases with scientific information - **G7** – 6 items (17.6%);
- Scientific publications in non-refereed journals with scientific review or published in editorial collective works - **D8** - 17 items (50%);

Two publications in indicator **B4** are not printed, but with official notes from the editors, it is certified that they have been accepted for printing.

34 are subject to be reviewed by scientific works, of which 13 (38.2%) were published in Latin, 18 (47%) in Cyrillic and 3 (8.8%) bilingually in Cyrillic and Latin.

The results of scientific research are mostly published in foreign and Bulgarian scientific journals referenced and indexed in Web of Science and Scopus - 24 papers (76.6%). Much of the research results have been presented in international symposia abroad and national scientific conferences with international participation, which is a recognition of his scientific achievements on an international scale.

Scientific works have been published in publications such as: *Acta Horticulturae*; *Acta Agriculturae Serbica*; *Acta Scientifica Naturalis*, *Scientific Papers, Series A. Agronomy*, *Scientific Papers Series B. Horticulture*, *Journal of Life Sciences*, *Bulgarian Journal of Agricultural Sciences*, *Journal of Mountain Agriculture on the Balkans*, *Agricultural Science and Technology*, *Agricultural Science*, *Bulgarian Tobacco*, *Collections from scientific conferences with international participation*, etc.

The personal participation of Dr. Dimitrov in the specified 34 scientific works is illustrated by the fact that in 8 (23.5%) of them he is an independent author, in 13 (38.3%) the first, in 8 (23.5%) - second and in 5 (14.7%) - third and subsequent author. In total, the independent publications and works in which the candidate is the lead author are 21 (61.8%), which is indicative of the fact that Dr. Dimitrov has a leading role in the conducted scientific experiments.

Scientific publications from Dr. Dimitrov have been cited in 8 scientific articles, 4 of which are referenced in international scientific journals, and 2 are indexed on the Web of Science. All authors positively cite the scientific works of Dr. Dimitrov, which is a recognition of his scientific research work.

The candidate is the co-author of the oriental tobacco variety */N. tabacum L./* Bistra 514, recognized by the State Varietal Commission and approved by order of the Ministry of Agriculture and Forestry IASAS No. RD 12-51/7.07.2009.

III. Main directions in the candidate's research work

The candidate's scientific research activity is entirely related to the announced competition, covering the period after the acquisition of the ESD "Doctor" from 2010 to 2023. and is directed in the following directions:

- development of innovative technology for organic cultivation of oats (*Avena sativa* L.)
- research and comparison of the economic characteristics of Bulgarian and foreign varieties of oriental tobacco and hybrids, obtained through different selection methods, with the aim of improving the quality of tobacco varieties;
- study the effect of the application of different types of irrigation on the yield and quality of cotton.
- assessment of the genetic diversity of old varieties and local forms of peaches with a view to their inclusion in selection programs.
- *Prunus mahaleb* and 'Elberta' seedstocks and vegetative GF-677.
- studying and comparing the growth and reproductive performance of different nectarine cultivars grafted on Elberta seedbed and vegetative GF-677 and of different cherry cultivars grafted at different planting distances.
- establishing the influence of various abiotic factors on the yield and quality of peaches, nectarines, cherries and sour cherries.
- study of the sensitivity of early and late varieties of nectarines to the causative agent of the disease *Stigmia carpophila* under a natural background of infection.
- establishing the phytosanitary status and economic indicators of different varieties of wheat, rapeseed and hybrid corn.

IV. Evaluation of scientific and scientifically-applied contributions

I accept the reference submitted by the candidate for the scientific and scientifically-applied contributions from the research carried out and his scientific output.

Some of the main contributions, in my opinion, can be grouped as follows:

Original scientific contributions

- An innovative technology for the biological cultivation of oats (*Avena sativa* L.) has been developed and described, which allows obtaining a product with a high added value, with less

- investment and a significantly lower consumption of energy resources. It has been found that the technology of organic oat cultivation is very suitable for the Scorpion variety. (Pub. D 7.6)
- A comparative evaluation was carried out according to a group of indicators of Bulgarian and foreign varieties of oriental tobacco and hybrids in the F1 generation, obtained by different methods of natural and artificial hybridization. The characteristics of heterosis and the degree of dominance of the morphological characters of F1 hybrids obtained by direct and reciprocal crosses with their original parental forms and the strength of correlation between their individual quantitative indicators were investigated. The actual and hypothetical heterosis of the hybrids Hanski 277 x Prilep 7 and Hanski 277 x Prilep 156/1 were determined. Proven differences between the standard Han Tervel 39 variety and the F1 hybrids were found in a group of investigated traits, proving the valuable qualities of the F1 hybrids. (Publ. D 8.1; D 8.5; D 8.6; D 8.7).
 - The suitability of newly selected cherry rootstocks 20-181 and 20-192 for use as rootstocks for the cherry cultivars Kosara, Thracian khrushtialka and Van was studied and compared with that of the standard seedstock - *Prunus mahaleb*. Both rootstocks were found to have a high interception % (85-89% for hybrid 20-192 and 81-86% for hybrid 20-181) which was close to that of the standard (89-92% for *Prunus mahaleb*) and guarantee obtaining of standard planting material. (Pub. B 4.8)
 - The suitability of a newly created red-leaf peach hybrid No. 9-205, obtained by the method of free pollination of Rutgers Red Leaf trees, as a vegetative support for peaches and nectarines was investigated. It was found that compared to the seedbed "Elberta" and the vegetative GF-677, the new hybrid is characterized by weaker growth, better resistance to diseases, enemies and drought, and easier reproduction under in vitro conditions. (Publications D 8.10, D 8.16)
 - The interception success of 8 flat peach cultivars grafted onto seed rootstock (Elberta) and GF 677 scion rootstock was studied and compared to that of the standard variety - Red Haven, grafted onto the same types of rootstocks. A high interception % was found, ranging between 81.7 and 96.2% in autumn and 78.2 - 94.1% in spring. (Pub. C 4.6)
 - The genetic diversity of old varieties and local forms known under the name "vineyard peach" was studied, which were evaluated by morphological and agrobiological characteristics and samples were selected as potential sources for creating new varieties (Pub. D 7.1)
 - The growth characteristics of introduced nectarine cultivars grafted on seed rootstock (Elberta) and clonal rootstock GF 677 were investigated. It was found that at the beginning of the growing season, the seed rootstock gave stronger growth and stronger stem thickening of the grafted cultivars, but these indicators also depend on the variety. The resulting planting material in both types of rootstock meets the existing quality standard. (Pub. D 8.15)
 - The reaction of early and late varieties of nectarines grafted on two types of rootstocks to the causative agent of the disease *Stigmina carpophila* Ellis was studied. Cultivars grafted on seed rootstock (Elberta) were found to be less sensitive than those grafted on GF 677 rootstock, due to the unequal growth vigor of the two rootstocks. (Pub. C 4.9 and D 7.4)

Scientifically-applied contributions

- The influence of various abiotic factors on the yield and quality of fruits in different fruit species - peaches, nectarines, cherries and sour cherries - has been studied. The sensitivity of different varieties of these fruit species to return spring frosts was studied, which were classified according to the degree of sensitivity. (Pub. C 4.5, D 7.5, D 8.9)
- The growth and reproductive manifestations of 13 nectarine cultivars grafted on seed rootstock (Elberta) and clone rootstock GF 677 in a plantation were investigated. The periods of initial, rapid growth and full fruiting are defined. Publ. (D 8.13; D 8.14; D 7.2, D 7.3)
- The effect of the application of different methods of irrigation and irrigation rates on the yield and quality of cotton was investigated. It has been established that under irrigation the varieties Isabel, Darmi and Helios, form a 30-40% higher yield, compared to non-irrigated conditions. The highest coefficient of absorption of irrigation water was recorded in the variety Isabel. A strong positive correlation was found between the irrigation rate and the additional yield, the height of the stem of the cotton bush in the flowering phase and the biomass in the budding phase and the yield. (Pub. C 4.4, C 4.7 C 4.10)

Contributions of a confirmatory nature

- The growth manifestations of three types of rootstocks for peaches and nectarines in the first year nursery were studied, which were classified according to the indicators of growth strength and the largest number of premature branches formed in the following sequence: the rootstock GF 677, the rootstock No. 9-205 and seed pad (Elberta). Publ. (D 8.10)
- The growth and reproductive manifestations of four cherry varieties Bigaro Bürla, Van, Bing and Germersdorfer were investigated at different planting distances. The parameters (stem thickness, annual growth, growth points and crown volume) were found to be a function of vigor and growth habit of the different cultivars and were not affected by planting distance. As the planting distance increases, trunk thickness and tree yield increase. Publ. (D 7.5; D 8.2; D 8.3, D 8.8, D 8.12)
- The weed status of the agricultural areas, economic qualities and productive possibilities of wheat, rape and hybrid corn varieties and their resistance to abiotic factors and phytopathogens were investigated. (Pub. B 4.1, B 4.2, D 8.17)

V. Experience in research, administration and expertise

Participation in scientific research projects and scientific forums

During the period from 2010 - 2023 Dr. Dimitrov has participated in a total of 10 national scientific and educational projects - 5 university and 5 national scientific projects at the SSA on topics developed in Institute of Fruit Growing - Plovdiv, which is proof that the candidate can work in collaboration with other scientists in joint scientific projects.

Educational activity

The high competence of the candidate, Dr. Dimitrov, is evident from the fact that he also conducts educational activities with students and pupils. He successfully supervised the preparation and defense of five diplomas from the School of Economics. In 2018 he was a participant and member of the jury in a national competition for students "Young Farmer", organized by Professional high schools in

agriculture - Shumen, under the auspices of AU - Plovdiv and MES. In 2022, he was a participant in a round table on the topic: Pedagogical practices and continuing education - current problems and challenges and a master class - Increasing the digital competences of pedagogical specialists /good practices/. In 2023, the candidate participated in the jury of a student competition under project BG05M20P001- 2.016-0022 "Modernization of higher education for sustainable use of natural resources in Bulgaria" financed by the OP "Science and education for intelligent growth" 2014-2020, co-financed by the EU through the European Structural and Investment funds.

In March 2023, he delivered lectures to farmers and guests at training seminars organized by the National Agricultural Advisory Service /NSSZ/ on the topic: "Demonstration of pruning for the formation and fruiting of stone fruit species in the village of Seidol, Razgrad municipality and "Demonstration of spring pruning in stone fruit trees Orchard. Preparation of stone fruit species for entry into vegetation" in the village of Khan Krum, Shumen municipality.

Expert activity

Dr. Dimitrov actively participates in scientifically-applied developments as a member of working groups in the creation of a new variety of oriental tobacco /*N. tabacum* L./ Bistra 514.

The experience in expertise of Dr. Dimitrov is confirmed by his election as a member of the General Assembly of Shumen University in 2020. He is a member of the quality commission at the FPN and the quality manager of the "Plant Protection, Botany and Zoology" department.

Dr. Dimitrov is a member of ISHS (International Society of Horticultural Science).

VI. Personal impressions

I know Ch. Assistant Professor Dimitar Vasilev Dimitrov, PhD, as an ambitious, precise and responsible researcher and a teacher who accepts challenges and confidently defends his views and decisions.

VII. Critical notes, questions and recommendations to the candidate

I have no critical remarks and questions for the candidate, but I want to make the following recommendation: To make efforts in the future to publish more in reputable scientific journals with impact factor and impact rank in order to increase the scientific value and significance.

Conclusion

Based on the analysis of the overall research, applied and teaching activities of ch. Assistant Professor Dimitar Vassilev Dimitrov, I believe that the candidate meets the requirements of the Law of the Development of the Academic Staff in Bulgaria and the Regulations for the terms and conditions for holding academic positions at Shumen University.

This gives me the reason to positively evaluate the overall activity of the candidate and to propose Ch. assistant professor Dimitar Vasilev Dimitrov, PhD, to be appointed to the academic position "associate professor" in the field of higher education 6. Agricultural sciences and veterinary medicine, professional direction 6.2 Plant breeding (Plant breeding)

Date 10.09.2023

Shumen

REVIEW CREATED BY:

(Prof. Dr. V. Arnaudov)