

REVIEW



regarding the competition for "professor" in the field of higher education 4. Natural sciences, mathematics and informatics, professional direction 4.3. Biological sciences, scientific specialty "Genetics", announced in SG no. 36 of 23.04.2024 with candidate associate professor Dr. Bojin Maksimov Bojinov from the Agricultural University - Plovdiv, Faculty of Agronomy, by Prof. DSc Ivan Iliev Atanassov, appointed according to Order No. RD-16-808/18.06.2024 of the Rector of the Agricultural University – Plovdiv, as a member of the scientific jury

Reviewer: Prof. DSc Ivan Iliev Atanassov, AgroBioInstitute, Agricultural Academy, higher education area 4. Natural sciences, mathematics and informatics, professional direction 4.3. Biological sciences, scientific specialty "Genetics", appointed as a member of the scientific jury by order No. RD-16-808/18.06.2024 of the Rector of the Agricultural University.

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

Assoc. Dr. Bojin Bojinov was born in 1965. In 1990, he received the educational degree "Engineer-agronomist" from VSI "V. Kolarov", Plovdiv, now Agrarian University - Plovdiv /AU-Plovdiv/, after which he continued his academic career at the Institute of Cotton and Durum Wheat /now the Institute of Field Crops/ Chirpan as a research assistant III - I st. Since 1995, he has been a member of the academic staff of the Agricultural University - Plovdiv, successively as an assistant and ch. assistant. In 2005, he was elected as an associate professor in the scientific specialty "Genetics" at AU-Plovdiv, where he continues his academic career until now. In 2000, he defended his dissertation and obtained the scientific and educational degree "doctor". During the period 2008-2016, associate professor Dr. Bojin Bojinov was the Dean of the Faculty of Agronomy, AU-Plovdiv. During the period 2016 - 2020, he was the head of the 'Genetics and Selection' department at the same faculty, and from 2024 he was the head of the 'Plant Physiology, Biochemistry and Genetics' department. He knows foreign languages, incl. excellent command of English and Russian and a good level of French. Actively participates in the management, organization and implementation of educational and teaching activities at AU-Plovdiv, accreditation of bachelor's, master's and doctoral programs and implementation of research projects. Associate professor Dr. Bojinov actively participates in the activities of the Scientific Research Fund, where he is a three-term member of the Temporary and two-term member of the Permanent Scientific Expert Committees, as well as currently a member of the Executive Board of the Scientific Research Fund with the portfolio "Agricultural Sciences". He participated in the creation and is a member of the management of the non-profit NGO "Institute for Agricultural Strategies and Innovations". He is a member of several international scientific consortia and organizations, including: FAO Inter-regional cooperative research network on cotton;

ICGI (International Cotton Genome Initiative); EFB (European Federation of Biotechnology); PRRI (Public Research and Regulation Initiative). Participates in the authors' collectives of a total of four cotton varieties and one lavender variety. Assoc. prof. Dr. Bojinov is the author and co-author of a total of two textbooks, two exercise manuals and one collection of tests. The results of his research activities so far have been published in a total of fifty scientific publications, of which a total of thirty-eight in refereed editions, and twelve of them in journals with IF. In his career development to date, Assoc. Dr. Bojinov has demonstrated excellent organizational and teaching abilities, including: lecture courses and exercises for OKS Bachelor and OKS Master students of AU-Plovdiv with a total employment of more than 2000 hours during the period 2018-2023, supervision of the theses of two defended and five current students, as well as three successfully defended doctoral students at AU-Plovdiv.

2. General description of the presented materials.

The documents of Assoc. Prof. Dr. Bojin Bojinov for participation in the competition for a professorship are submitted according to the requirements of the RSARB and the Agrarian University - Plovdiv.

❖ *Scientific publications of assoc. prof. Dr. Bojin Bojinov in the nomenclature specialty - a total of 52 issues, of which:*

- *Publications related to the doctoral dissertation - 3 issues, which are not subject to consideration;*

- *Publications related to the competition for associate professor - 35 issues, which are not subject to consideration;*

In the competition for "professor" assoc. prof. Dr. Bojin Bojinov participated with a total production of 18 papers, all of which were taken into account when preparing the review. Referenced works include:

❖ *Scientific publications – 13 issues, of which:*

- *Monograph (habilitation thesis) – 1 issue*

- *Publications in peer-reviewed and refereed scientific journals – 12 issues, with all publications in scientific journals with impact rank (SJR) and/or impact factor (IF)*

The indicated scientific publications can be grouped as follows: quartile Q1 – 3 issues; quartile Q3 – 8 pieces; and quartile Q4 – 1 item;

The personal participation of Assoc. Dr. Bozhin Bozhinov in the 13 mentioned papers is illustrated by the fact that 2 are independent, in 2 he is the first, in 2 he is a corresponding author.

❖ *Textbooks – 2 items.*

❖ *Study guides – 3 items, including 2 items. exercise manuals and 1 pc. collection of tests.*

❖ *Varieties (authorship and co-authorship): 4 cotton varieties and 1 lavender variety.*

The summation of the indicated data and the reference made for the fulfillment of the minimum national requirements /points by groups of indicators/ show that assoc. prof.

Dr. Bojin Bojinov fulfills (697.52 points with a minimum requirement of 600 points) and exceeds the requirements of ZRASRB, PPZRASRB and the Regulations of the Agrarian University for its application for occupying the academic position "professor" in the field of higher education 4. Natural sciences, mathematics and informatics, professional direction 4.3. Biological Sciences, scientific specialty "Genetics". It should be noted that the overall performance of the indicators included in the minimum national requirements will be of a higher value if it includes all the results of assoc. prof. Bojinov regarding the citations of his scientific publications.

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

• Main directions in the research work:

- application of different types of molecular markers to characterize and assess genetic diversity in different types of populations and collections of genetic resources of plants and animals, including: genetic resources in tomato, cotton and paulownia, segregating and mutant populations of tomato and cotton, and populations from indigenous goat breeds.

- construction of genetic maps and their application to analyze genome structure and selection in cotton.

- development and implementation of an integrated approach including the use of phenotypic characteristics, biochemical and genetic markers for the creation of new tomato genotypes with increased antioxidant content.

- application of in-depth analysis of large data sets from Internet accessible sources related to applications of genetic engineering and subsequent comparative analysis on the possibilities of application of non-GE methods to meet the challenges of increasing biotic and abiotic stress impacts in the EU.

- studies of the genetic diversity of microorganisms and enemies, including: multilocus sequence typing of pathogenic strains of *E. coli* and analysis of toxins produced by them, as well as identification of potato cyst nematodes.

• Demonstrated research management skills (project management and attracted external funding):

The above clearly demonstrates the skills and capacity of assoc. prof. Dr. Bojinov for structuring, successful application for external funding and subsequent implementation and reporting of research projects, which, taking into account the current trends in the development of scientific research, is a mandatory and very important requirement for successful activity and development to scientists and university teachers holding the academic position of "professor".

• Scientific and applied activity

An important result of the previous scientific and applied activity of assoc. prof. Bojinov is the creation (authorship and co-authorship) of a total of 4 varieties of cotton and 1 variety of lavender.

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

• Pedagogical activity of the candidate

Most of the previous academic career of assoc. prof. Dr. Bojinov is directly related to pedagogical and training activities at the Agrarian University - Plovdiv and training of young personnel. Activities in this area include:

- a large volume of teaching activity, which for the period 2018-2023 includes a total employment of 2130.7 hours at AU-Plovdiv, including 1459 hours of lectures and 53 hours of exercises for the university's Bachelor's and Master's programs.

- the preparation and publication of textbooks and manuals on genetics. Assoc. prof. Dr. Bojinov is an independent author of two textbooks on "Genetics" and "General Genetics", as well as participated in the author's collective for the publication of two manuals for exercises in genetics and a collection of tests in biology. This is a significant contribution to the teaching and learning of genetics and biology in general at the Agricultural University - Plovdiv, as well as from other universities in the country.

• Training of young scientific personnel

- training of graduates and doctoral students. Assoc. prof. Dr. Bojinov is the supervisor of three successfully defended doctoral students. The topics of their doctoral studies include a range of research in the field of genetics in crops important to the country: selection-genetic analysis of quantitative and qualitative traits in malting barley; quantitative analysis of fiber qualities in a cotton mutant population; and characterization of genes responsible for capsaicin synthesis in pepper. Along with this, assoc. prof. Dr. Bojinov is the supervisor of two students who successfully defended diploma theses, as well as the supervisor of five more students who are currently preparing their diploma theses.

- management and administrative activities related to training and training of young personnel. During his previous academic career at AU-Plovdiv, assoc. prof. Dr. Bojinov was the dean of the Faculty of Agronomy for two terms from 2008 to 2016, and has extensive experience in the organization of the educational process and administration of pedagogical activities in the faculty and AU-Plovdiv as a whole, preparation and organization of accreditation of the departments and doctoral programs provided by the faculty, admission and administration of the faculty's student body, academic growth of the teaching staff and raising the qualifications of the technical and support staff of the faculty.

The above demonstrates that the previous teaching, training and administrative activities of assoc. prof. Dr. Bojinov include all important parts of successful teaching and learning: lecturing, publication and training activities, as well as administration, accreditation and management of the student learning process and teaching doctoral students. All this shows that assoc. prof. Dr. Bojinov is a well-established and successful teacher and research supervisor with extensive administrative experience in conducting effective and high-quality training of students and doctoral students in the field of the current competition - genetics.

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

• *Citation of the publications of assoc. prof. Dr. Bojinov*

The submitted materials for the competition show 53 citations (without self-citations) of one scientific publication in a prestigious journal (publ. *Genome*, 2003, 46(4), 612-626). The citations provided are sufficient and exceed the required number of points as required by this criterion. On the other hand, the review of links to scientific publication databases provided in the competition documents shows a higher level of citation of the scientific publications of assoc. prof. Dr. Bojinov, respectively 314 citations (without self-citations) of 16 publications of assoc. prof. Dr. Bojinov in the Scopus database (<https://www.scopus.com/authid/detail.uri?authorId=6504149893>) and 249 cited 13 publications in the Web of science database (<https://www.webofscience.com/wos/author/record/H-7820-2016>). The H-index determined based on the citations in both databases is 5. A large part of the citations are in scientific publications in prestigious international journals.

• *Membership and participation in the activities of national and international organizations and scientific bodies.*

Assoc. prof. Dr. Bojinov's activity also includes active participation in the work of the main organization in the country providing national funding for scientific research projects - Scientific Research Fund /FNI/. In his previous activity, assoc. prof. Dr. Bojinov has been a member of the Temporary and 2 terms of the Permanent Scientific Expert Committees of the National Institute of Scientific Research for 3 terms, and is currently a member of the Executive Board of the National Institute of Scientific Research with the department Competences in management and organization of processes for financing and implementation of fundamental scientific research in the scientific field "Agricultural Sciences". The above demonstrates the high commitment and contribution of assoc. prof. Dr. Bojinov to the organization and conduct of scientific research activities in the country and the related holding of contests for funding and subsequent reporting of scientific research projects.

Assoc. prof. Bozhinov is a member and participates in the activities of two international research networks related to his previous research activities in cotton: FAO Inter-regional cooperative research network on cotton and International Cotton Genome Initiative (ICGI). Along with this, assoc. prof. Dr. Bojinov is a member and participates in the activities of two international organizations related to the organization and conduct of scientific research in the EU: the European Federation of Biotechnology (EFB) and the Public Research and Regulation Initiative (PRRI). Besides the positive effect on assoc. prof. Dr. Bojinov's research activity, the indicated participation in international organizations and research networks demonstrates his good reputation in the international scientific community.

Associate professor Dr. Bojinov made a significant contribution to the creation, management and development of the Institute for Agricultural Strategies and Innovations - a non-profit NGO focused on practical applications of innovations in the agro-industry.

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;

I. ORIGINAL CONTRIBUTIONS

- constructed an integrated and saturated genetic map in cotton, combining RFLP, SSR and AFLP loci, which serves the international genetic community as a starting point for molecular genetic research in this crop. The construction of the map also involved a partial revision of the arrangement of the 13 pairs of homeologous A/D chromosomes in the cotton tetraploid genome.

- constructed a genetic map of the Bulgarian cotton lines including molecular markers and linkage groups related to the investigated characteristics of the fiber and between 4 and 15% of the total variation of the traits.

- jointly, a team of international experts has developed and for the first time used a method for in-depth analysis of large arrays of Internet-based scientific information related to the application of genetic engineering approaches and the comparative results of their application compared to those that do not include such methods. The research is related to meeting the challenges of increasing biotic and abiotic stress impacts in the EU

II. METHODOLOGICAL CONTRIBUTIONS

- application of RFLP, SSR, AFLP, ISSR marker systems and comparative analysis regarding their applicability to characterize genetic diversity in genetic resource collections and different types of populations in plants and animals: genetic resources and intraspecific crosses tomato, paulownia, genetic resources, interspecific crosses and a segregating mutant population of cotton, and small populations of indigenous goat breeds. The results of these analyzes are integrated and presented in a monograph.

- developed and successfully implemented an integrated approach for the creation of new tomato genotypes with increased antioxidant content, based on the complex use of phenotypic, biochemical and genetic markers.

- application of in-depth analysis of large arrays of Internet-based scientific information for comparative analysis of genetic engineering applications.

III. SCIENTIFIC CONTRIBUTIONS

- characterization of genetic diversity in collections of genetic resources and different types of populations in plants and animals, including: genetic resources and intraspecific tomato crosses; genetic resources, interspecific crosses and segregating mutant population in cotton; paulownian genetic resources; and small populations of indigenous goat breeds. Different types of molecular markers have been used in research.

- multilocus sequencing typing of circulating pathogenic strains of E. coli and evaluation of their antimicrobial sensitivity and the type of intimin toxin produced.

IV. APPLIED CONTRIBUTIONS

- a set of results including the identification of loci related to important quality characteristics of the fiber (strength, microner and elasticity) and quantitative traits in

Bulgarian cotton lines. The research used molecular markers, constructed genetic maps and phenotypic characterization, and the obtained results allow direct applicability in national selection programs actively using molecular markers. An important applied result of this group of studies is the creation and registration of a total of four cotton varieties. It should be noted that all four varieties of cotton are widely used in agriculture, and over the years they have occupied between 40% and 90% of the areas of this crop in the country.

- proposed system for selection of ISSR markers for genotyping and identification of tomato and paulownia and goat genotypes.

- proposed system for selection of ISSR markers for genotyping and characterization of intrabreed genetic variations in autochthonous goat breeds with application in conservation of local genetic diversity and development of selection programs.

- ecological epidemiological typing of pathogenic *E. coli* strains affecting biosafety, human and animal health with application of the results for monitoring and controlling their spread.

The results of the previous research, teaching and organizational activities demonstrate that assoc. prof. Dr. Bojin Bojinov has an established profile and significant contributions in scientific and scientific-applied research, teaching and training of personnel and organization and management of research in the field of genetics and selection in plants, including application of modern molecular genetic methods, biochemical and phenotypic characterization.

7. Critical notes and recommendations

I have no critical comments on the candidacy of assoc. prof. Dr. Bojinov. I recommend in his future work, including as the head of the Department of "Plant Physiology, Biochemistry and Genetics" of AU-Plovdiv, assoc. prof. Dr. Bojinov to expand publication activity in journals with an impact factor or rank in order to further expand international recognition and awareness of ongoing research.

8. Personal impressions and opinion of the reviewer

I know assoc. prof. Dr. Bojinov and have direct impressions of his participation in the scientific council of the AgroBioInstitute, SSA, joint participation in the "Foods" NGO, giving lectures and presentations on applications of plant biotechnology and new genomic techniques, etc. My impressions are that Dr. Bojinov is a highly erudite, ambitious and tireless specialist with high potential, knowledge and skills for scientific research. Along with this, he demonstrates high organizational qualities as a manager and administrator, combined with excellent knowledge of the regulatory framework for scientific, teaching and training activities.

CONCLUSION

Based on the analysis of the candidate's pedagogical, scientific, scientific-applied and organizational activities, I believe with conviction that assoc. prof. Dr. Bojin Maksimov Bojinov fully meets and exceeds the requirements of ZRASRB, PPZRASRB

and the Regulations of the Agrarian University for his employment application of the academic position "professor" in the field of higher education 4. Natural sciences, mathematics and informatics, professional direction 4.3. Biological Sciences, scientific specialty "Genetics".

All this gives me reason to evaluate **POSITIVELY** his 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 Agriculture at the Agrarian University - Plovdiv to **elect assoc. prof. Dr. Bojin Maksimov Bojinov as "Professor" in the field of higher education 4. Natural Sciences, Mathematics and informatics, professional direction 4.3. Biological Sciences, scientific specialty "Genetics".**

29.08.2024 г.

Plovdiv

REVIEWER:.....

(prof. DSc Ivan Atanassov)