

OPINION

By: Associated Professor Maria Prokopova Geneva, PhD; IPPG-BAS,

Regarding: competition for the academic position "associate professor" at the Institute of Plant Physiology and Genetics (IPPG-BAS), in the professional field 4.3. Biological sciences, scientific specialty "Genetics" published in the State Gazette, 24/17.03.2023

For participation in the announced competition for the academic position "associate professor" in the State Gazette, 24/17.03.2023, for the need of Laboratory "Genome Dynamics and Stability" documents were submitted by only one candidate assistant professor Georgi Nikolaev Bonchev, PhD from the IPPG-BAS. All competition documents and publications are provided accurately and on time. The set of materials is prepared according to the Rules of the Academic Staff Development in the Republic of Bulgaria (RASDRB) and the Regulations on the Conditions for Procedures for Acquisition of Academic Degrees and Occupation of Academic Positions at IPPG-BAS.

Information about the applicant:

Dr Bonchev started working at the IG-BAS in 1999 as a specialist biologist. In 2011 he successfully defended his PhD thesis titled "Molecular genetic characterization of sphaerococcum-type mutant forms in *Triticum aestivum* and *Triticale* using transposons" with scientific supervisor Professor S. Georgiev and Professor L. Stoilov. From 2015 until now he has been an assistant professor at IPPG -BAS.

General characteristics of the presented scientific works/publications

The scientific publications of Assistant Professor G. Bonchev, presented for participation in the promotion procedure are in the field development of methods using DNA markers for genotyping and assessment of natural and mutant genetic diversity in plants and genomic selection in cereals. The data from the applicant's research throughout his scientific career have been published in full text in a total of 23 scientific papers, with JCR IF: 61,222, for which 133 citations have been noticed in specialized international publications referred in Web of Sciences and Scopus. This is a good indicator of the quality of scientific production. For participation in the competition, Dr Bonchev has applied a total of 16 scientific papers, 11 of which he is the first author. In group B - publications that are referenced and indexed in world-recognized databases of scientific information (Web of Science and Scopus), which are equated to a habilitation thesis, 5 scientific papers with a total JCR-IF (Web of Science):10.833 are applied, and in 4 of them he is the first author. Of these, 1 publication has Q1, 3 with Q2 and 1

with Q3 factors. In Group G7 "Scientific publications in publications that are referred to and indexed in world-renowned databases of scientific information (Web of Science and Scopus), other than habilitation thesis, included publications are 8 (7 publications are Q1, 1 with Q2, 1 with Q3 and 2 with Q4 factors with a total JCR-IF (Web of Science): 44.67) and 3 review articles. The scientific production of Ch. Prof. Dr G. Bonchev is of very high quality.

The applicant fulfils the national minimum and specific requirements according to LDASRB – with a minimum threshold of 540 points, Dr Bonchev, PhD has 857 points. They are summarized as follows:

Section A — 50 points, out of the minimum required 50 points;

Section B — 100 points out of the minimum required 100 points;

Section G — 234 points out of the minimum required 220 points;

Section D — 132 points out of the minimum required 100 points.

Section E – 341 points, out of the minimum required 70

The applicant has presented some of his results in a total of 16 international and national scientific forums. He has been the head of the Organizing Committee of the International Conference on DNA Barcoding and Biodiversity.

Participation in research projects: The applicant has been the project leader under the National Program “European Scientific Networking” at the Ministry of Education and Science - BULCode " Fostering plant biodiversity research capacity in Bulgaria through scientific excellence in DNA barcoding and metabarcoding". He has participated in the implementation of 2 NSF-funded scientific projects, one project Funded by the Ministry of Education and Science on the National Program " Protection of the Environment and Reducing the Risk of Adverse Phenomena and Natural Disasters", three projects at the International Atomic Energy Agency and in two projects as a member of the target group under a grant scheme: "Support for the development of doctoral students, postdoctoral, specialists and young scientists" at the Ministry of Education and Science

Scientific contributions: In my opinion, the scientific interests of Dr. G. Bonchev are dedicated to a very up-to-date and significant area. The first direction in which the applicant has worked involves research on the use of DNA markers for genotyping and evaluation of natural and mutant genetic diversity in plants. For this purpose, transposon-based marker methods were used. By FISH analysis has detected varying in the profile of AC-like transposons in the genome at the level of interphase nuclei and metaphase chromosomes, as well as slight changes in the profile of methylation based on the Sadurn blot analysis using Ac-like transposable element from the genome of ethyl methane sulfonate (EMS) induced sphaerococcum mutant forms of common wheat (*Triticum aestivum* L.) and triticale (*X Triticosecale* Witt.). Based on transposon-based marker methods, Retrotransposon

Microsatellite Amplification Polymorphism (REMAP) and Inter-Primary Binding Site (IPBS), the genetic structure of the *Hordeum agriocrithon* species for the first time have been characterized.

Transposon-based markers are used for genotyping, and establishing a connection between the genetic relationships of inbred lines and genomic dynamics in hybrids of corn, Helianthus, Echinacea, Tagetes and Verbesina. An assessment of the influence of the neonicotinoid types pesticide on the sunflower genomic integrity through iPBS markers. The DNA barcode method is optimized and applied for taxonomic identification of Crocus, Galanthus, Thymus, and 26 fungal isolates of the Colletotrichum genus. The most significant achievement in this area is the characterization of a newly discovered local Bulgarian endemic of the genus Sideritis - Sideritis Elica (Rhodope Elica). This scientific area includes publications with the highest impact factor, which shows the high scientific value and the importance of scientific contributions in them.

The second thematic direction in which Dr G. Bonchev has worked has been to identify new loci for resistance to Powdery mildew *Blumeria graminis* in *Triticum turgidum* subsp. dicoccum (paca GZ1).

Dr Georgi Bonchev has been a mentor of two students from Faculty of Biology of Sofia University "St. Kl. Ohridski" and New Bulgarian University under the "Student Practices" project for practical training of students under the Operational Program "Human Resources Development".

Conclusion: The candidate in the competition has presented a sufficient number of documents and scientific materials excluding the materials used in the defense of the ONS "doctor". His scientific works have original scientific and applied contributions, which received international recognition and a representative part of them are published in high-ranking journals. He has a clearly defined academic profile, known in the country and abroad. After getting acquainted with the materials and scientific works presented in the competition, analyzing their significance and the scientific and scientific-applied contributions contained in them, I find it reasonable to give my **positive assessment** and to recommend the Scientific Jury to prepare a report-proposal to the Scientific Council of IPPG-BAS for the election of Assistant Professor Georgi Nikolaev Bonchev, PhD, at the academic position of "associate professor" at IPPG-BAS in professional direction 4.2. Biological sciences, scientific specialty "Genetics".

July 04, 2023 / Sofia

Signature:

(Associate Prof. Maria Geneva, PhD)