

STATEMENT

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REGARDING: competition procedure for the academic position "Associate professor" in professional field 4.3. Biological Sciences, specialty "Genetics", announced by the Institute of Plant Physiology and Genetics - BAS in the State Gazette No. 24/21.03.2025 at the Laboratory "Regulators of Plant Growth and Development" at the Institute of Plant Physiology and Genetics – BAS.

The only candidate who submitted documents to participate in the announced competition was Assistant Professor Krasimira Nedyalkova Tasheva, PhD, Institute of Plant Physiology and Genetics – BAS (IPPG – BAS).

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

The candidate for the academic position of "Associate Professor" Krasimira Nedyalkova Tasheva acquired in 2000 educational and qualification degree "Master" in the specialty "Molecular Biology" with specialization in Genetics at the Faculty of Biology of Sofia University "St. Kliment Ohridski". In 2011 after successfully defending a dissertation on the topic: "*In vitro* cultures of *Rhodiola rosea* L. - study of the possibilities for propagation and preservation of the species and for production of biologically active substances." under the supervision of Assoc. Prof. Georgina Kosturkova, Dr. Krasimira Tasheva acquired the educational and scientific degree "Doctor" in the scientific specialty "Genetics". In the same year she was appointed as a chief assistant at the Institute of Plant Physiology and Genetics - BAS and holds this position to date. At an earlier stage in 2001, the candidate began her scientific career as a biologist-specialist at the Institute of Genetics - BAS, where she successively holds the position of Assistant Professor III st. (2008-2010) and Assistant Professor II (2010-2011).

Dr. Tasheva's scientific interests are a natural continuation of the topic of her dissertation work and are aimed at the creation and development of innovative *in vitro* models based on biotechnological, genetic and bioinformatics modern methods in valuable plant species and their use in theoretical and applied research to increase their productivity, to stimulate the biosynthesis of secondary metabolites with antioxidant and protective properties and their action in socially significant diseases, for the preservation of the gene pool and for the sustainable conservation of endangered species. The candidate's scientific publications in peer-reviewed journals are 42, of which 23 are indexed in Scopus and/or WoS. 2 book chapters and review articles are cited. The total impact factor (IF) is 60,357. The number of citations of scientific publications is 374.

In her career development, Asst. Prof. Tasheva has participated in 18 national, international or bilateral scientific or educational projects, being the head of two of them. She has completed 2 short-term specializations in scientific institutes and universities in Norway and Italy. The candidate has attended 25 short-term courses in various fields. She is a member of the Bulgarian Society of Plant Biology, Section "Physiology and Biochemistry of Plants" and of the Federation of European Societies of Plant Biology (FESPB).

2. Evaluation of the submitted reference for the minimum and specific requirements of the competition

The documents submitted by the candidate for the competition comply with the requirements of the Law on the Promotion of Research and Development of the Republic of Bulgaria and the Regulations on the terms and procedures for acquiring scientific degrees and occupying academic positions at the IPPG of the Bulgarian Academy of Sciences.

In connection with the competition requirements, the candidate has submitted documents in accordance with the regulations of the IPPG, Bulgarian Academy of Sciences, including: CV; Copy of diploma for the educational and scientific degree of Doctor and a copy of the abstract; Certificate of fulfillment of the minimum requirements; Author's certificate of contributions; Full list of scientific publications; List of scientific publications for participation in the competition; List of citations for participation in the competition; Abstracts of publications in original form; Participation in scientific conferences and congresses; List of reviews; List of graduate student supervision; List of participation in other activities such as administrative, public lectures and training of postgraduates.

According to the references submitted by the candidate for fulfilling the minimum national requirements of the Law on the Republic of Bulgaria on the State of the Republic of Bulgaria and the specific conditions of the Regulations of the IPPG-BAS for holding the academic position of "Associate Professor", it is evident that Assist. Prof. K. Tasheva collects the required minimum points in all groups of indicators.

In group of **indicators A**, she meets the requirement for the minimum number of 50 points on the basis of the fact that she defended a dissertation for the award of the educational and scientific degree "Doctor of Philosophy" on the topic "*In vitro* propagation, storage and study of the possibilities for increasing the synthesis of biologically active substances in *Rhodiola rosea* L." Indicator **B-2** - not required.

In group of **indicators C**, she collects 100 points (out of the minimum required 100 points) from 4 publications equivalent to a habilitation thesis, all in quartile Q1. Their total JCR IF according to the year of publication: 14.1.

In indicator **group D**, Asst. Prof. Tasheva collects 237 points from publications out of the required 220 points and with a total JCR IF according to the year of publication of 25,118. The distribution of publications by quartiles is as follows: Q1 – 5 publications; Q2 – 1 publications; Q3 – 3 publications Q4 – 1 publication. She has presented one chapter of a book. The publications in an edition with SJR, indexed in Scopus and WoS are 2, and those in which Dr. K. Tasheva is the first or corresponding author are 7. The number of points from publications in which she is the first or corresponding author is a total of 120, with a minimum requirement of 110 points, according to Appendix 1 of the Regulations of the IFRG-BAS on the specific conditions for holding academic positions, which shows that she has achieved the necessary professional development for scientific work in her chosen research field.

According to Appendix 3 (indicators 10 to 12) from group D (i.e. number of citations in scientific publications, monographs, collective volumes and patents, referenced and indexed in Web of Science and Scopus), the candidate presents in a separate list citations in publications indexed in Web of Science or Scopus since 2003 (excluding auto-citations and semi-auto-citations) - 189 pcs. The points for this indicator are 378 out of 100 required. The list is an excerpt from the SONIX Database for reporting scientific and expert activity at the Bulgarian Academy of Sciences.

According to Appendix 1 of the Regulations of the IFRG-BAS on the specific conditions for holding academic positions, candidates for the academic position of "associate professor" should collect a minimum of 70 points from participation and/or leadership of a scientific or educational project. According to the group of indicators E, in the report Dr. Tasheva indicates 120 points from participation in 8 projects. For participation in a national scientific or educational project (Indicator E-14.), she receives 30 points, and for participation in an international project (E-15) - 20 points. The candidate was assessed with 40 points for leadership of a scientific or educational project, and for attracting funds 30 points, which shows that she has achieved the necessary professional development for leadership and in-depth research work. And according to this indicator, the candidate's assets cover and significantly exceed the requirements.

The analysis of the scientometric data shows that the points with which Dr. Tasheva presented herself in the competition meet and significantly exceed the requirements for occupying the academic position of "Associate Professor" at the Institute of Plant Physiology and Genetics-BAS. **With a required minimum of 540 points for "Associate Professor", Dr. Krasimira Tasheva presented herself in the competition with 887 points.**

3. Analysis of the main directions in the candidate's scientific research work

The main contributions of Dr. Tasheva's scientific activity are summarized in 10 pages, providing systematized information about the experimental work performed, as she clearly defines her active participation in all publications submitted for the competition. Asst. Prof. Tasheva has no publications in which she is the sole author. All of them are collective with the participation of colleagues, both from the IPPG, and established scientists from other scientific units in Bulgaria and abroad. This is understandable, since her research is part of scientific projects and developments carried out by the teams in them. According to the presented reference, the publications with which Dr. Tasheva appears in the competition conditionally cover two interrelated and complementary directions, on the basis of which the obtained results and contributions are systematized.

The first scientific direction is indicated as fundamental and applied science, affecting the application of biotechnological approaches for the development of *in vitro* cultures of valuable medicinal plants for modulating the biosynthesis of secondary metabolites and for the protection of endangered species, through the application of biotechnological, biochemical, genetic and bioinformatics research (publications B4-01, B4-02, G7-06, G7-08, G7-09, G7-10, G7-11, G7-12, G8-01). From this direction stems the direction and research included in the Second Scientific Direction, namely the study of the effectiveness of extracts from medicinal plants as potential therapeutic agents in socially significant diseases (Alzheimer's disease and oncological diseases), covering biochemical, genetic and physiological studies (publications B4-01, B4-02, B4-03, B4-04, G7-01, G7-02, G7-03, G7-04, G7-05, G7-07).

I fully agree with the candidate's report on scientific contributions, and I accept it. The main contributions resulting from the research noted in the first direction are related to the development of effective protocols for micropropagation of *Sideritis scardica*, *Clinopodium vulgare*, *Rhodiola rosea*. The phytochemical composition and antioxidant activity of extracts from individual anatomical parts of *in vitro* cultivated and wild plants have been compared. Biotechnology methods have been successfully combined with bioinformatics analysis of data from biological experiments to determine the conditions for more effective accumulation of biomass and production of secondary metabolites in callus cultures. The contributions included in the second direction are divided into two sub-directions. The first sub-direction includes articles reflecting the potential of extracts from medicinal plants for use in the therapy of oncological diseases. *In vitro* micropropagated and cultivated medicinal plants *Clinopodium vulgare* (cat's foot), *Sideritis scardica* (mursal tea) and *Salvia aethiopis* (Mediterranean sage) and the extracts obtained from them were studied in a number of human tumor cell lines - HeLa (cervical carcinoma), HT-29 (colorectal adenocarcinoma) and MCF-7 (breast carcinoma), Hep-G2 (hepatocellular carcinoma) and in a non-tumorigenic (normal) cell line of mouse fibroblasts BALB/3T3. It was found that the extracts cause a concentration- and time-dependent reduction in cell viability and proliferation of tumor cells. The second sub-area describes the contributions obtained from the study of the neuroprotective effect of extracts from medicinal plants in Alzheimer's disease. The neuroprotective effect of the *in vitro* propagated and cultivated plants *Marrubium vulgare* (honeydew), *Clinopodium vulgare* (cat's foot) and *Sideritis scardica* (mursal tea), known for their rich phenolic composition and diverse pharmacological effects, has been evaluated in an *in vivo* model of scopolamine (Sco)-induced Alzheimer's-type dementia in rodents (rats and mice). The application of extracts from these plants effectively affected the scopolamine-induced memory impairment. A contribution related to the application of plant extracts from *Plantago major* (broad-leaved plantain) and *Calendula officinalis* (marigold), alone and/or in

combination with *H. aspersa* mucus for wound treatment, which leads to more effective wound healing in an experimental rodent model, is also indicated. The candidate has specifically described her personal participation in the articles.

I believe that the publications submitted for the competition and the resulting contributions represent in-depth research that shapes the specific scientific profile of Dr. Tasheva as a promising researcher in the field of creating and developing innovative *in vitro* models in valuable plant species and their use in theoretical and applied research to increase their productivity and modulate the biosynthesis of secondary metabolites, as well as for the protection of endangered species.

According to the reference she has deposited in the set of documents, the results of her scientific work have been presented in a total of 40 posters and reports at international and national scientific forums.

4. Analysis of the scientific topic and significance for science and society

I believe that the scientific interests of Assist. Prof. K. Tasheva are focused on topical and significant areas for science and society. Given the fact that in modern therapeutic strategies for the prevention and therapy of a number of serious socially significant diseases, multi-target approaches are increasingly being applied, including the use of natural products of natural origin, the candidate's research is important for expanding scientific information on these problems. Scientifically based evidence for the beneficial effects of medicinal plants as safe and non-toxic agents in medical practice is growing at a significant rate. In a longer perspective, such research would be useful in developing strategies for *in vitro* models based on biotechnological, genetic and bioinformatics modern methods in valuable and endangered plant species with the aim of integrating achievements from different scientific fields in order to achieve sustainable management of plant biodiversity and discover bioactive products with potential therapeutic value.

The presented list of 11 reviews of scientific publications proves that she is an internationally recognized scientist in her scientific field and is sought after for expressing an expert opinion on the quality of the research of other colleagues in related scientific fields.

5. Organizational and educational activities

Dr. Tasheva has experience in educational activities, gained by supervising 4 students for the development of student internships and practices and successfully defended a diploma thesis at the Bachelor degree in Molecular Biology - all related to the scientific topic she is developing, according to the submitted reference. Her public participation is related to 4 lectures and presentations to promote the conducted research to a wider audience. She also performs administrative activities, participating in 2 committees - the Academic Ethics Committee at the IPPG and the Accreditation Committee of the Doctoral Program "Genetics", which shows her excellent organizational and administrative qualities.

6. Critical remarks and recommendations

I have no critical remarks towards Dr. Krasimira Tasheva. I would recommend that the candidate continue her cooperation with university organizations in order to develop opportunities for training students through internships and their inclusion in future projects, and also to use her scientific expertise to supervise graduate and doctoral students.

The recommendations made do not belittle the candidate's contributions in the development of the scientific topic, but will be useful in her future work as a habilitated scientist.

7. Conclusion

After the analysis of the scientific activity of Assist. Prof. Krasimira Tasheva, I express my positive opinion that the candidate fully meets the profile of the announced competition. She participates with sufficient volume and quality of scientific publications, and the points she collects from scientific activity significantly exceed the requirements of the Law on Scientific and Technical Publications of the Republic of Bulgaria and the Regulations on the Specific Conditions and Procedure for Occupying the Academic Position of "Associate Professor" at the Institute of Plant Physiology and Genetics-BAS. The candidate has a clearly expressed scientific profile in a scientific field that is relevant to plant physiology and biochemistry and significant for society. In addition to high scientific value, her research has the prospect of being developed in the future after her habilitation. **All this gives me reason to confidently recommend to the esteemed members of the Scientific Jury and the Scientific Council of the Institute of Plant Physiology and Genetics-BAS to award the academic position of "Associate Professor" to Assist. Prof. Dr. Krasimira Tasheva in the field of higher education 4. Natural Sciences, Mathematics and Informatics; professional field 4.3. Biological Sciences, specialty Genetics.**

Sofia, 17 June 2025

The statement was prepared by:
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