

STATEMENT

on the materials for participation in a competition for occupation of academic position "Professor", in the field of higher education 6. Agricultural sciences and veterinary medicine, professional direction 6.1. "Crop science", scientific specialty "Soil Science", in the discipline "Soil Science" for the needs of the Faculty of Forestry, announced by University of Forestry in State Gazette No. 60/16.07.2024, procedure code FOR-P-0624-144

Candidate for participation in the competition: Assoc. Prof. Dr. Biser Emilov Hristov

Prepared the statement: Prof. Dr. Maria Grozeva Sokolovska, professional direction 6.1. "Crop science", scientific specialty "Soil Science", from the Forest Research Institute - Bulgarian Academy of Sciences

1. Brief biographical data about the candidate

Assoc. Prof. Dr. Biser Emilov Hristov was born on January 22, 1977 in Sofia. In 2000, he graduated from the University of Forestry and received a Master's Diploma in Ecology, Protection and Restoration of the Environment with the professional qualification of "Engineer" from the Faculty of Ecology, Landscape Architecture and Agronomy. Since 2006, he has been a full-time doctoral student at ISSAPP "N. Poushkarov", Sofia in scientific specialty 04.01.02 "Soil science". In November 2009, he successfully defended his dissertation on the topic "Pedometric nature and taxonomic affiliation of the primitive soils formed on soft rocks from the Black Earth zone of Northern Bulgaria" and received the Diploma of the educational and scientific degree "Doctor" (diploma #33802 dated 25.01.2010). After a successful presentation at a competition in 2010, he was appointed an Assistant, and since 2011 he has been a Chief assistant at the ISSAPP "N. Poushkarov". Since 2018, he holds the academic position of "Associate Professor" in professional direction 6.1 Crop science, scientific specialty "Soil Science" at the same institute. In 2020, after a competition at University of Forestry, he was appointed to the academic position of "associate professor" at the Department of Soil Science of the Faculty of Forestry, and currently the Department of Forestry.

Assoc. Prof. Biser Hristov is the editor-in-chief of the "Bulgarian Journal of Soil Science" magazine and a member of the editorial board of the "Balkan Ecology" magazine. He is the chairman of the Bulgarian Society of Soil Science and the trade union organization at the University of Forestry, as well as a member of the Bulgarian Humic Substances Society (BHSS). In the period 2020-2024, he participated in scientific juries for competitions for filling academic positions or defending dissertations at Forest Research Institute - Bulgarian Academy of Sciences, University of Forestry, ISSAPP "N. Poushkarov". He participated in faculty councils at University of Forestry, in the scientific council at the Agricultural academy, in organizational and scientific committees of national and international scientific forums. His professional activities also include participation in working groups at the Ministry of Agriculture and Food, consulting bureau at ISSAPP "N. Poushkarov", Focus Group on Soil salinization, etc.

2. Conformity of the candidate's submitted documents and materials with those required according to the Regulations for Development of Academic Staff at the University of Forestry (RDASUF)

The materials submitted by the candidate are in accordance with the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria (LDASRB) (Art. 19) and those specified in Art. 60, para. 4, para. 5 and paragraph 7 of the Regulations for Development of Academic Staff at the University of Forestry (RDASUF). When preparing

this opinion, 32 scientific publications on the nomenclature specialty, divided into group B (indicator B4) and group G (indicators G6, G7, G8) are subject to analysis. Publications are classified as: - Published book based on a protected dissertation work for the award of the educational and scientific degree "Doctor" – 1; - Publications in scientific publications, referenced and indexed in world-famous databases with scientific information (Web of Science and Scopus) – 23; - Publications in non-refereed peer-reviewed journals or in edited collective volumes – 8. All published articles are well-designed, include adequate literature support, and contain a thorough analytical section and conclusions.

According to the self-assessment report submitted by the candidate for compliance with the minimum national requirements (MNR) for the academic position "professor", Assoc. Prof. Dr. Hristov meets these requirements in the professional direction, and in some cases exceeds them. The sum of the candidate's points by groups of indicators (A, B, G, D and E) is 1481.1 with a required minimum of 550 points, i.e. about three times more than the required points, especially in group of indicators "D" - citations. The candidate has submitted copies of the publications indicated in the list for participation in the competition and of all the documents required under this procedure.

3. Evaluation of the candidate's educational and teaching activities

In the period 2020-2024, the teaching activity of Assoc. Prof. B. Hristov is related to conducting classes, including lectures, exercises and learning practices in the following academic disciplines: "Soil Science" with students from the specialty "Agronomy" and "Plant Protection", the educational and qualification degree "Bachelor", full-time and part-time studies; "Soil science, soil pollution and impact on ecosystems" with students in "Ecology and environmental protection", the educational and qualification degree "Bachelor", full-time studies; "Erosion and protection of soils" with students from the specialty "Agronomy", the educational and qualification degree "Bachelor", full-time and part-time studies; "Abiotic monitoring" in "Ecology and environmental protection", the educational and qualification degree "Master", full-time studies. He has been involved in the development or updating of curricula in three disciplines: Soil Science, Erosion and protection of soils, and Soil science, soil pollution and impact on ecosystems. The candidate has a published university textbook on the discipline " Erosion and protection of soils " (2022), intended for students majoring in "Agronomy" at the University of Forestry.

Currently, Assoc. Prof. B. Hristov is the scientific supervisor of full-time doctoral student Master of Agronomy, Krastena Ilieva, whose thesis topic is: "Analysis and assessment of soil resources from the Botevgrad valley". In the period 2020-2024, he was the supervisor of 4 graduates from the "Forestry" specialty, full-time and part-time studies, of which two successfully defended their degrees. All this characterizes his commitment to the preparation of students during training, as well as the presence of pedagogical maturity regarding his further successful development.

4. Evaluation of the candidate's scientific, applied scientific and publication activity

4.1. Participation in scientific, scientific-applied and educational projects

According to data from the report-self-assessment of compliance with the Minimum Scientific Requirements for the competition (Appendix 2), Assoc. Prof. Hristov participated in 14 scientific, scientific-applied and educational projects, of which 1 was international, and he was the leader of one. Additionally, in the list of the candidate's overall scientific output, it is noted that in the period 2020-2024, he is the leader of two projects and a participant in one at the Scientific research sector of University of Forestry, as well as a participant in the development of two projects at ISSAPP "N. Poushkarov" and the Agricultural academy. The references and certificates for scientific-applied and expert activity attached in the documents show that the candidate is sought after in practice as an expert-specialist with extremely

extensive experience in the specialty.

4.2. Characteristics of published scientific results

The publication activity of Assoc. Prof. Dr. Biser Hristov is in accordance with the scientific specialty and competitive discipline - Soil Science. The general list of scientific works provided by the applicant contains an Abstract, 6 publications related to receiving the educational and scientific degree "Doctor", 54 publications for acquiring the academic position «Associate Professor» and additional requirements for validation in the register of the National Center for Information and Documentation.

In the competition for professor, Dr. Hristov presented himself with 32 scientific works. Publications in indexed editions are printed in journals referenced by Web of Science c IF - 1, Scopus with SJR - 10 and Web of Science without IF - 12. Twenty-five of the publications (78%) were written in English, and the rest - in Bulgarian. Seven of the publications (22%) are independent, and the rest are collective – 8 with one author, 7 with two co-authors and 10 with three or more co-authors. The candidate is first author in 15 collective publications (47%), second in 8 publications, third and next co-author - in 9 publications.

The candidate has provided additional information for participation with reports in 10 conferences, 7 of which are international, and for the publication of 3 popular scientific articles in the field of soil science. The review of the materials provided to me for evaluation gives me reason to assert that there has been no proven plagiarism of scientific data in the scientific works of Assoc. Prof. Hristov (Article 24, Paragraph 1, Item 5 of the Law on the Development of the Academic Staff in the Republic of Bulgaria (LDASRB).

4.3. Reflection of the candidate's scientific activity in the literature (citability)

The candidate has submitted a list of a total of 46 positive citations in scientific publications, referenced and indexed in world-renowned databases of scientific information or monographs and collective volumes with scientific review for the period 2020-2024. Citations in foreign language publications predominate. From the table of the candidate's scientometric indicators, where detailed information is given by groups of indicators, it is established that the total number of points for group "D" is 690 and repeatedly exceeds the required minimum of 100 points. The specified characteristic confirms the relevance and significance of the research conducted by the candidate, the quality of the results of his research work, as well as that the scientific output of Dr. Hristov is well known by the scientific community at home and abroad.

4.4. Contributions in the candidate's works (scientific, scientific-applied, applied)

The scientific and scientific-applied contributions in the presented scientific publications, beyond those included in the habilitation extended reference, as a result of the research conducted and the results obtained from them, are related to the enrichment of existing scientific knowledge or obtaining confirmatory data in the field of soil science. I accept the contributions in the form in which they are presented by Assoc. Prof. Hristov in the "Reference on Contributions", divided into scientific and scientific-applied ones. A detailed review of the publications is not necessary for the purposes of this opinion, and we will only mention the more significant contributions. **Scientific contributions:** new data were obtained on Vertisols, Luvisols and Fhaeozems with high sorption capacity and high saturation with bases, in relation to their distribution, properties and composition (G7.1; G7.4; G7.7); the diagnostics was updated and a credit assessment of the Regosols was prepared, additionally the new classifiers for the Saturated and Carbonate Regosols were given (G6.1); the possibility of applying microbiological analyzes for Luvisols, an indicator of changes occurring in degradation processes (water erosion, loss of organic matter) and land use (G7.5; G7.4), has been proven; a geostatistical interpolation of soil properties (SOM; total N, P, K; NH₄⁺, NO₃⁻, P₂O₅, K₂O) was made in the Botevgrad

basin using IDW maps, the risk of water erosion was determined (G7.3; G7.8; G7.13); the distribution of mobile forms of the heavy metals Cu, Zn, Cd and Pb in depth and their interrelationships with basic chemical characteristics of contaminated soils were studied (G7.2); the influence of an imported microbiological additive on the microbial abundance of compost mixtures was studied and the specific parameters related to the composting process and the activity of microorganisms were taken into account (G8.7). **Scientific and applied contributions:** nine soil indicators have been determined for defining agricultural areas with natural restrictions, other than mountainous ones, with the aim of harmonizing the data when applying Regulation 1305/2013 (G7.6); opportunities are proposed to identify strategies to improve saline soils, according to the types of production systems and the level of exposure to salt imbalances, the level of salinization and its effect in the EU countries (G7.10; G8.1; G8.3; G8. 4); the optimal quantities for the favorable impact of the sediments from production and economic activity, as well as the physical and agrochemical properties of the Technogenic soils, have been established (G7.11); a generalized assessment and classification of forest soils, their protection and restoration was made and up-to-date information on soil types in forest ecosystems was obtained (G7.9); specialized networks have been created for detailed soil research, which allows monitoring of diffuse pollution after the use of mineral fertilizers and water protection from nitrate pollution (G8.5; G8.8); an assessment of the soils in the municipality of Dulovo for the cultivation of fast-growing tree species and recommendations for the use of Paulownia species against wind erosion (G8.5) were made. An important positive aspect of Assoc. Prof. Hristov's scientific research is the candidate's aspiration and ability, along with purely scientific contributions, to seek results with applied value for agriculture and forestry.

In the attached *Habilitation extended reference* for scientific contributions, 10 scientific publications (Nos. B4.1 to B4.10) are identified in editions that are referenced and indexed in the world databases, as equivalent for equating to a monographic work (requirement according to note 12 of The Annex to Article 1a, Paragraph 1 of the Regulations for the Implementation of the LDASRB). This reference contains the most significant personal contributions of the applicant related to the study of forest soils affected by natural or anthropogenic influence and their modern classification, *namely*: the existence of a destructive process in the profile of brown forest soils was confirmed due to the impact of exchangeable aluminum on secondary minerals, as well as the formation of clay minerals with a lower cation exchange capacity (B4.2, B4.5); the accumulation of high amounts of organic matter (humus) in the primitive soils of the humate or humate-fluvate type with a high potential for organic carbon sequestration (B4.3, B4.4) has been proven; the forest vegetation properties of Rendzinas and Typical cinnamon forest (carbonate) soils, classified as moderately rich and moderately suitable for the development of forest tree vegetation are established (B4.8); the main soil units of Vitosha have been established (Leptosols, Umbrisols, Histosols, Gleysols, Cambisols, Luvisols), formed by delayed chemical weathering, predominant mechanical destruction of the soil-forming rocks, low degree of decomposition of organic matter (B4.6); soils in mountain - forest territories with over 80% sand in the soil profiles were studied - the main diagnostic criterion in the classification of Sandy soils (Arenosols) (B4.10); a decrease in the total amount of microorganisms in the depth of the soil profile is observed, regardless of the type of soil, and the group of non-spore-forming bacteria is dominant, and the soil reaction has the strongest effect on the group of micromycetes (mold fungi) (B4.1); a high positive correlation of the microbial amount with organic carbon, total nitrogen, absorbable K, electrical conductivity (EC) and Ca exchange was found, and the high carbonate content in soils has an adverse effect on their development (B4.7); a high dependence of the catalase activity of the microorganisms in the dead forest litter on the main tree species was found, and the catalase activity was slightly higher in the fermentation FH layer compared to the fresh litter L layer (B4.9).

5. Evaluation of the candidate's personal contribution

The presented scientific production, the formulated conclusions, recommendations and contributions are the personal work of the candidate, the result of own collections and experimental activity. All presented scientific works are on the subject of the current competition. The large number of joint publications testifies to Assoc. Prof. Hristov's very good ability for teamwork. The candidate did not present separation protocols for the share of his participation in them, therefore I consider this participation to be equal and I am convinced that there is a specific personal contribution in them.

6. Critical notes and recommendations

I have no critical remarks about the scientific production of Assoc. Prof. Hristov. I can only point out some gaps in the preparation of the materials for the competition, such as the absence of a summary report on the candidate's direct classroom employment (it is given only by discipline).

7. Personal impressions

My personal impressions of the candidate's work date back to the time when he was developing his dissertation work. My positive assessment of his research activity is based on his professionalism, skills in applying modern methods and approaches to work, expressed interest in scientific research and experimentation. On a personal level, he is positive, correct and fully dedicated to his teaching activities, which is highly valued by his colleagues and students.

8. Conclusion

Based on the analysis of the applicant's overall pedagogical, scientific and scientific-applied activities, I believe that Assoc. Prof. Dr. Biser Hristov meets the requirements of the LDASRB and the Regulations for Development of Academic Staff at the University of Forestry (RDASUF). At the announced competition for the academic position of "professor", he presented himself with a scientific production sufficient in terms of volume and quality, which exceeded the national scientometric requirements. His active teaching activity, the guidance of graduates and doctoral students are proof of his ability to combine scientific and teaching work. All this gives me reason to positively evaluate his overall activity and to **PROPOSAL the candidate Assoc. Prof. Dr. Biser Emilov Hristov to occupy the academic position of "professor" in the discipline "Soil Science" from professional direction 6.1. "Crop science"**.

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