



OPINION

By Prof. Nasya Borisova Tomlekova
determined in accordance with Order No. RD 16/807 of 18.06.2024.
of the Rector of the Agricultural University – Plovdiv
for a member of the scientific jury

Regarding the competition for "Associate Professor" in:
field of higher education: 6. Agrarian Sciences and Veterinary Medicine
professional field: 6.1 Crop production,
scientific specialty: "Biochemistry of plants",
announced in SG No. 36 of 23.04.2024.
with candidate Adelina Slavova Harizanova
from the Agricultural University – Plovdiv,
Faculty of Agronomy, Department of Plant Physiology and Biochemistry

1. Brief Presentation of the Candidate.

Adelina Slavova Harizanova is an established researcher and lecturer in the fields of plant physiology and biochemistry, with extensive experience in agronomy and plant protection. She has a career at the Agricultural University in Plovdiv, where she has held the positions of Assistant and Chief Assistant in Plant Biochemistry. She earned her Bachelor's and Master's degrees in Plant Protection from the Agricultural University of Plovdiv and obtained her PhD in Plant Physiology from the same university in 2017. In addition to her teaching activities, she is actively involved in scientific research projects, consultancy, and the trade of agricultural products. Dr. Harizanova is a member of the editorial board of the "Journal of Central European Agriculture" and participates in the Advisory Council to the Common Agricultural Policy at "SJS Bulgaria" Ltd.

2. General Description of the Academic Output.

In the competition for "Associate Professor," Dr. Adelina Harizanova participates with a total output of 35 works, grouped as follows:

Scientific publications in the nomenclature specialty – 35 works, of which:

- Publications related to the doctoral dissertation – 5 works, which are not subject to review.
- Publications with impact factor – 5 works with a total IF of 7.8, as well as a total SJR of 1.992, categorized as Q2 (1 publication), Q3 (1 publication), and Q4 (2 publications).
- Publications in peer-reviewed and referenced scientific journals – 30 works.
- Publications in conference proceedings – 19 works.

Dr. Harizanova's personal contribution to the 35 works is illustrated by the fact that 1 is sole-authored, in 12 she is the first author, in 17 she is the second author, and in the remaining 5 she is the third or subsequent author.

Manuals – 1 piece.

A total of 35 works are subject to analysis for the preparation of the review.

3. Teaching Activities.

Dr. Adelina Harizanova has been a faculty member at the Agricultural University since 2017, where she conducts practical classes in biochemistry. During this period, she has actively participated in the education of both Bulgarian and international students and has contributed to the development of the educational process through innovations and methodological approaches. Her main responsibilities include delivering lectures (126 hours), conducting practical classes

(1984 hours), leading Erasmus seminars (75 hours), and supervising theses (extracurricular commitment of approximately 364 hours).

Teaching Experience: Dr. Harizanova has 7 years of teaching experience. Over the past six years, she has supervised 5 students who have successfully defended their theses in the field of biotic and abiotic stress, including 2 bachelor's theses and 3 master's theses.

Published Educational Materials: Harizanova, A. "Silicon and Stress in Plants," 2024. Agricultural University Publishing House – Plovdiv. ISBN - 978-954-517-332-5. 127 pages.

She has also been involved in the development of curricula. The total number of teaching hours (practical classes) is approximately 2549.

4. Research Activities of Assistant Professor Adelina Slavova Harizanova.

Publishing Areas: Her scientific work primarily focuses on studying mechanisms for overcoming plant stress and improving crop quality. The main research directions include:

4.1. Application of Silicon in Agriculture: Her research demonstrates how silicon (in the form of H_4SiO_4) enhances plant physiological traits under stress conditions (e.g., spider mites) by activating enzymatic and antioxidant systems. Studies on the effects of foliar treatments in cucumbers and zucchinis are centered on enzyme activity, photosynthetic pigment content, and antioxidant defense.

4.2. Biostimulants and Stress: Harizanova investigates the effects of biostimulants like Naturamin WSP on plants exposed to low positive temperatures, showing how these products improve water relations and reduce lipid peroxidation, membrane condition, and activation of the antioxidant system in plants.

4.3. Microalgae and Contaminated Soils: Research focuses on the effects of applying microalgae to plants grown in petroleum-contaminated soils, concentrating on water relations, cell membranes, and photosynthetic activity.

4.4. Biostimulants and Yield Quality: Her studies include the use of biostimulants to enhance amino acid content and other nutrients in alfalfa, as well as increasing nitrogen metabolism enzyme activity.

4.5. Optimization of Coriander Yield: By examining the impact of different preceding crops and nitrogen fertilization levels on coriander productivity and quality, she identifies more suitable agrotechnical approaches for Southeastern Bulgaria.

Assistant Professor Harizanova actively publishes her research results in reputable scientific journals with both high and lower impact factors, demonstrating the broad applicability and significance of her work in various scientific fields.

Citation and Peer Review of Scientific Work: Her scientific output is well-refereed within the academic community, reflecting the significance and impact of her research. Her publications appear in journals with varying impact factors and SJR rankings, including:

- **High Impact Factor Journals:** Industrial Crops and Products (IF 5.9, SJR Q2) – 3 articles
- **Medium and Low Impact Factor Journals:** Acta Agrobotanica (SJR Q2, IF 1.2); Agronomy Research (SJR Q3); Journal of Central European Agriculture (SJR Q4, IF 0.7); Turkish Journal of Agricultural and Natural Sciences (SJR Q4).
- **Peer-Reviewed Journals:** Agricultural Sciences; Scientific Papers. Series A. Agronomy; Scientific Papers. Series B. Horticulture.

In addition to her international journal publications, Assistant Professor Harizanova has made significant contributions to national scientific literature through publications in specialized journals such as "Plant Protection & Seeds and Fertilizers." These works demonstrate not only the academic but also the practical applicability of her research in agriculture and plant protection. The book "Silicon and Plant Stress" (2024), published by the Academic Publishing House of AU,

summarizes her doctoral thesis and contributes to the dissemination of knowledge in this specialized field. Harizanova actively participates in scientific competitions and conferences, where her work receives recognition and citations from other researchers, highlighting her contribution to the advancement of agricultural sciences.

In summary, Assistant Professor Adelina Harizanova's research activity addresses contemporary issues in agriculture, utilizing innovations to improve plant stress resilience. Her publications and book reflect high quality and significance, with strong citation in the academic community. Her research significantly contributes to plant physiology and agronomy, with her work published in peer-reviewed journals and monographs, emphasizing the international importance of her research.

Participation in Scientific Projects: Assistant Professor Adelina Harizanova actively participates in numerous scientific projects focused on crop resilience, the use of biostimulants and micronutrients to improve yields, and the application of innovative methods to address plant stress factors. She works on projects funded by both national and international sources, demonstrating the broad applicability and significance of her research in practical settings.

5. Remarks and Recommendations.

Although Dr. Harizanova meets the competition requirements, I would like to make the following recommendations: The review of Assistant Professor Adelina Harizanova's scientific activity indicates a need to increase publications in journals with higher impact factors and to expand international collaboration. It is also advisable to deepen research in specific scientific areas that have the potential for new and significant discoveries. I have no substantial comments regarding the presentation of the documents, except for a few minor details. For instance, while the level of foreign language proficiency is described, the specific languages spoken by the candidate are not listed.

6. Conclusion.

Based on the analysis of the pedagogical, scientific, and applied scientific activities of the candidate, I believe that Adelina Slavova Harizanova meets the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria (ZRASRB), the regulations of the law (PPZRASRB), and the Rules of the Agricultural University for its implementation. The materials submitted for the competition (documents, reports, publications, contributions, citations, and supporting evidence) demonstrate that the candidate Adelina Slavova Harizanova possesses in-depth theoretical knowledge and professional skills in the scientific specialty "Plant Biochemistry".

All of this gives me the grounds to evaluate her overall activity **positively**. I take the liberty to suggest that the esteemed Scientific Jury also vote positively, and that the Faculty Council of the Faculty of Agronomy, Department of Plant Physiology and Biochemistry at the Agricultural University – Plovdiv, elect Adelina Slavova Harizanova as an "**Associate Professor**" in the scientific specialty "**Plant Biochemistry**".

Date: 01.09.2024
City: Plovdiv

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(Prof. Nasya Tomlekova)