OPINION

by Assoc. Prof. Tsvetelina Sashkova Paunova-Krasteva,
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Concerning: materials submitted for participation in a competition for the academic position of Associate Professor, area 4. Natural Sciences, Mathematics and Informatics, Professional Direction 4.3. Biological Sciences, for the Department of Infectious Microbiology, Laboratory "Bacterial Virulence, Resistance and New Antimicrobial Agents", at the Institute of Microbiology "Stephan Angeloff".

Brief information about the competition

According to the announcement in the "State Gazette" issue 66 of 12.08.2025, only one candidate, Senior Assistant Professor, Dr. Lyudmila Dimitrova, has submitted documents for the academic position of Associate Professor. As a member of the scientific jury for this competition, I am included by order of the Director of the Institute of Microbiology, BAS No. I-142/01.10.2025. The submitted documents are in accordance with the requirements of the Law on the Development of Academic Staff in the Republic of Bulgaria (ZRASRB), the Regulations for its implementation, as well as the Regulations on the terms and conditions for acquiring scientific degrees and occupying academic positions at the Institute of Microbiology, BAS.

Professional CV of the Candidate

Dr. Dimitrova defended her master's degree at Sofia University "St. Kliment Ohridski", Faculty of Biology, majoring in Ecology and Environmental Protection in 2012 on the topic: "Changes in the composition and structure of the macrozoobenthic community in the Kladnishka River during the period 2008-2012." She was enrolled as a doctoral student at the Institute of Microbiology, where she obtained the scientific and educational degree "doctor" in 2019 on the topic: "Biological activity of extracts and compounds isolated from *Geum urbanum* L." From 2020 to the present, Dr. Dimitrova has been working as a senior assistant at the institute. She is the author and co-author of 38 scientific publications in refereed and indexed scientific journals with a total Impact Factor of 84.068. She is a participant in 26 nationally and internationally funded projects. The scientific results of Dr. Dimitrova's research have been reported in a total of 13 national and international scientific forums.

Implementation of Scientometric Indicators for the Academic Position of "Associate Professor"

Dr. Dimitrova participates in this competition with 24 publications (in 6 of which she is the first author), with a total Impact Factor of 79.468 and an H-index of 10, which shows that she meets the minimum national requirements according to the ZRASRB, as well as the additional ones of the Institute of Microbiology, namely:
Group A (minimum requirements - 50 points): Dissertation for the award of the educational and scientific degree "doctor": "Biological activity of extracts and compounds isolated from Geum urbanum L." (2019). **Points scored – 50**

Group B, indicator 4 (minimum requirements - 100 points): A total of 3 publications with a quartile Q1 are included in the report for this indicator; 1 publication with quartile Q2 and three publications with Q3. **Points earned – 140**

Group G, indicator 7 (minimum requirements - 220 points): This group presents refereed and indexed publications only by the number 7, as follows: 8 with quartile Q1, 2 with quartile Q2, 1 with quartile Q3 and 2 with quartile Q4. **Points earned – 279**

Group D, indicator 11 (minimum requirements - 60 points): According to this indicator, the accumulated points from the citations of the publications are 982. Dr. Dimitrova also reports on the preparation of reviews with a total number of points of 84. **Points earned – 1066**

From the presented scientometric indicators of Dr. Dimitrova, it is clear that she meets the required criteria regulated in the Law on the Scientific and Technical Research of the Republic of Bulgaria and those of the Institute of Microbiology.

Characteristics of the main scientific directions and the most important contributions

The main scientific activities of Dr. Dimitrova can be united in a direction related to the study of the antimicrobial activity of biologically active substances and determining their toxicological profile. In this regard, a number of results have been achieved:

1. An assessment of the antineoplastic, antiviral and toxicological effects of extracts of *Geum urbanum* L. was made. Their cytotoxic profile on tumorigenic and non-tumorigenic cell lines was determined. By means of high-performance liquid chromatography and mass spectrometry, the chemical composition of the ethyl acetate extract of the above-ground parts was studied, in vivo experiments were conducted to specify the pathological changes in the liver and kidneys in albino mice.

2. Experiments were conducted to prove the cytotoxic profile against Burkitt's lymphoma, it was found that butanol extracts induce cell apoptosis and suppress the "oncogenic" superoxide.

3. After treatment with ¼ sub-MIC of ethyl acetate extracts, a reduction in biofilm formation and motility of *Pseudomonas aeruginosa* has been demonstrated. In this regard, a hypothesis for suppression of the expression of the Las/RhI quorum sensing system has been commented on. A redox-modulating capacity of ethyl acetate extracts and inhibition of α-glucosidase have been established.

4. From the *in vivo* experiments conducted, information was obtained regarding the toxicity of the ethyl acetate extract of aerial parts. The results show a lack of histopathological changes in the tissues of the spleen and Peyer's patches.

5. In another series of experiments, the activity of propolis against *Staphylococcus aureus* was studied. Natural deep eutectic solvents were selected for the successful extraction of metabolic products from the group of total phenols, flavones and flavonols.

6. The chemical composition, antimicrobial activity, cytotoxicity and genotoxicity of propolis extracts obtained by natural deep eutectic solvents were studied.

7. The antimicrobial activity of plantain and barberry extracts against potential pathogens was studied, in addition, their cytotoxicity and genotoxicity were established.

Conclusion

The documents and materials presented by Dr. Dimitrova meet all the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria and the Regulations for its implementation. From the presented extended reference of the scientific publications and contributions to them, I believe that Dr. Dimitrova participates in the current competition as an established scientist in the fields of: microbiology, biochemistry, cell biology, etc. The scientific publications and their impact in reputable journals, as well as the scientific awards are proof of her contribution to science.

Based on the above, I confidently give my positive assessment and recommend to the esteemed Scientific Jury to approve the candidacy of Senior Asst. Dr. Lyudmila Lyudmilova Dimitrova for the academic position of "Associate Professor" in the professional field 4.3. Biological Sciences.

Sofia 14.11.2025

Reviewer:
/Assoc. Prof. Tsvetelina Paunova-Krasteva/