

OPINION

by Dr. Anife Ismailova Ahmedova
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of the materials submitted for participation in the competition
for the academic position of "Associate Professor"

at the Faculty of Chemistry and Pharmacy of Sofia University "St. Kliment Ohridski" in professional field 4.2. Chemical sciences, scientific specialty: " Analytical chemistry"

In the competition for the academic position of "Associate Professor", announced in the State Gazette, issue 103 of 12.12.2023 and on the website of Sofia University, participated Chief Assistant Professor Dr. Galina Ivaylova Yotova, from FChPh at Sofia University - Department of Analytical Chemistry as the only candidate.

The set of materials presented by Dr. Yotova is in accordance with the Regulations for the development of the academic staff of Sofia University, and meets the additional criteria of the FChPh of Sofia University for holding the academic position of "Associate Professor".

The candidate has submitted a total of 15 scientific works for participation in the competition that were published in peer-reviewed scientific journals indexed in the world databases with scientific information (Web of Science and Scopus), of which 12 publications in journals with an impact factor (all in Q1) and 3 publications in journals without impact factor but with SJR. The small number of publications that turn out to be sufficient to fulfill the recommended requirements according to the Rules for FChPh of SU is indicative of the fact that they are publications in renowned scientific journals (such as Ecological Indicators, Environmental Pollution, etc.).

Dr. Yotova graduated with a Master's degree in Chemistry (Ecochemistry) from the FChPh at Sofia University in 2012 and defended her PhD dissertation in July 2016 on the topic "Ecometric and ecotoxicological methods in the evaluation of objects from the environment" and with scientific supervisor Prof. Stefan Tsakovski. Since November 2015, she has been appointed as Head. assistant professor at the Department of "Analytical Chemistry" in the FChPh of the SU. In the years during her master's and doctoral studies, Dr. Yotova was also a teacher of "Chemistry and Environmental Protection" at the National Educational Complex of Culture with a Lyceum for the Study of Italian Language and Culture (the so-called Italian Lyceum, in the period 2010-2015) and in the National Science and Mathematics High School (in the period 2015-2017). The total number of her publications is 19, which have been cited 157 times (according to the attached Scopus reference), and the Hirsch index is 7 (excluding self-citations). According to my personal impressions, Dr. Yotova conducts intensive research activities as a participant in 10 scientific research contracts, 4 of which funded by the National Science Fund. She participated with oral and poster presentations at 9 scientific forums (7 international), and one of the participations was awarded with an award for the best poster.

Dr. Yotova's scientific work falls entirely in the field of Chemometrics. Her research covers the application of chemometric approaches and the interpretation of ecotoxicological analysis results, mainly with multivariate analysis of environmental data (water, soil, sediment), drug mixtures and food packaging. The wide range of chemometric approaches used to analyze the specific data according to their specificity and the nature of the answers sought is striking, and includes principal component analysis (PCA), variance analysis with principal component decomposition (ASCA, combined ANOVA and PCA), a method for identifying of components (MCR), partial least squares method with discriminant analysis (PLS-DA), Kohonen self-organizing maps (SOM, a type of neural network as a mapping technique). It should be noted that Dr. Yotova is increasingly actively involved in the application of experimental methods for ecotoxicological assessment of the studied samples (surface and waste water, soil samples and sediments, medicinal mixtures and packaging materials) through ecotoxicological tests tracking life processes in plant and animal species such as plants, microorganisms (bacteria, yeasts) and crustaceans. The complexity of both the investigated samples and the variety of factors influencing their main ecotoxicological characteristics require a precise statistical analysis for the interpretation of the data, which was achieved with the adequate application of appropriate chemometric approaches and allowed to give recommendations and answers to questions of key importance for the environment and human health. All this was achieved thanks to a very thorough knowledge and accurate application of classical and advanced chemometric approaches, their correct selection, and of course critical analysis of the obtained results.

Dr. Yotova has definitely demonstrated proficiency in this type of research, the results of which have been reported in reputable journals in the field of analytical chemistry. Chemometric studies on critical environmental problems have potential for practical application in wastewater treatment process management, risk assessment, and pollution management in regions affected by industrial activity. This explains the large number of citations of her publications.

The successful management of graduates and work with students, as well as work on scientific projects, show that Dr. Yotova is a highly qualified scientist and teacher with the potential to independently formulate and solve scientific problems of practical importance. She also has proven teaching experience that complements her scientific expertise.

I have no critical remarks towards the candidate and I strongly encourage the expansion of the established collaborations for studies on modern topics in interdisciplinary fields of science.

CONCLUSION

In conclusion, I can summarize that the candidate in the competition has submitted a sufficient number of scientific papers published after the PhD defense, which fully meets the required criteria of the Rules for application of ZRASRB and recommended ones for FChPh at Sofia University. The works of the candidate have been published in renowned journals and they have original scientific results with applied contributions, and thereby, have received wide international recognition. The theoretical developments complement the excellently conducted ecotoxicological tests and have been carried out in depth and at a high level. The established scientific contacts with researchers from the country and abroad undoubtedly give a wide horizon for their future development in avant-garde areas of science and practice. The scientific qualification of Ch. Assistant Professor Dr. Galina Ivaylova Yotova is undoubted and the results achieved by her in the research activity fully comply with the minimum national requirements, as well as those in the Regulations of Sofia University for application of the Law on Research and Development. There is no data and no reports of plagiarism.

After getting acquainted with the materials and scientific works presented in the competition, analysis of their significance and scientific and applied contributions, I give my positive assessment and recommend to the Scientific Jury to propose to the Faculty Council of FChPh at Sofia University Ch. Assistant Professor Dr. Galina Ivaylova Yotova to be elected for the academic position of "Associate Professor" at the FChPh at Sofia University in the professional field 4.2. Chemical sciences, scientific specialty: " Analytical chemistry".

20.04.2024

Opinion prepared by:

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