

## STATEMENT

from Assoc. Prof. Kiril Simitchiev, PhD  
Faculty of Chemistry, University of Plovdiv "Paisii Hilendarski",  
member of a scientific jury assigned with order № RD 38-13/10.01.2024 r.  
of the Rector of University of Sofia "St. Kliment Ohridski"

**REGARDING:** competition for the academic position "Associate Professor",  
Field of higher education 4. Natural sciences, mathematics and informatics,  
Professional direction 4.2. Chemical Sciences (Analytical Chemistry),  
published in the Governmental Gazette, no. 103 from 12.12.2023

### Procedure materials

One candidate took part in the announced competition – Chief Assist. Prof. Galina Ivaylova Yotova, PhD. The candidate has submitted all the necessary documents and their examination shows that they are in accordance with the requirements of the Law on the Development of the Academic Staff of the Republic of Bulgaria, the Rules for its Implementation (RILDASRB) and the Rules for the terms and conditions for the acquisition of scientific degrees and occupying academic positions at University of Sofia "St. Kliment Ohridski".

### Brief biographical details of the applicant

Galina Yotova completed her higher education (Bachelor in Chemistry and Teacher in Chemistry and Environmental Protection) in 2010 at the Faculty of Chemistry at University of Sofia "St. Kliment Ohridski". In 2012, she obtained a Master's degree in Chemistry - Ecochemistry at the Faculty of Chemistry and Pharmacy at the University of Sofia. She began her professional career as a teacher of "Chemistry and Environmental Protection", first at the National Educational Complex of Culture with a Lyceum for the Study of Italian Language and Culture with the participation of the Republic of Italy (2010 - 2015), then continued this activity at the National high school of natural sciences and mathematics "Acad. Lyubomir Chakalov" in the city of Sofia (2016 - 2017). From 2015 to the present, she has been working at the University of Sofia "St. Kliment Ohridski", where she successively held the positions of Assistant Professor and Chief Assistant Professor. In 2016, she defended a PhD degree.

### Evaluation of the candidate's research activity

#### *Evaluation of the quantitative indicators for the scientific activities*

In the competition for the academic position "Associate Professor" Ch. Assist. Prof. Galina Yotova participated with 15 scientific publications that were not included in previous competitions for scientific growth. They are distributed in the following way according to the indicators in RILDASRB - 4 in indicator group B (a sum of 100 points was achieved), and the remaining 11 scientific papers in indicator group D (a sum of 230 points was achieved). The majority of the scientific publications (12) were published in first quartile (Q1) journals, indicating that the results were published in recognized and established journals which is a testament of the quality of the accomplished research. Publications in prestigious journals in the field of the environmental assessment and protection are noted such as *Environmental Pollution*, *Science of the Total Environment*, *Ecological Indicators*, *Ecotoxicology and Environmental Safety* and *Environmental Research*. According to the presented materials from the applicant, 157 citations have been noticed considering the entire scientific work of

Dr. Yotova (excluding self-citations of all authors), all of which appeared after the defense of her PhD degree. A search made in Scopus (18.04.2024) shows that the number of citations has increased to 165, which greatly exceeds the requirements for holding the position of "Associate Professor". The Hirsch index of Ch. Assist. Prof. Galina Yotova, according to Scopus (18.04.2024), excluding self-citations of all authors, is 8. The listed indicators show the good scientific recognition of the candidate. An essential component of the scientific work is also the candidate's participation in research projects. Dr. Yotova demonstrated intensive project activity - according to her submitted materials, she takes part in nine projects. The results of the research carried out with the participation of the candidate have been presented at 9 scientific forums in the form of 6 oral presentations and 3 posters.

### ***Evaluation of the scientific contributions***

On the basis of the presented author's materials for the contributions, the submitted habilitation thesis, as well as the publications of the candidate, I define Dr. Yotova's scientific research as interdisciplinary with a scientifically-applied designation. The interdisciplinary nature of the research determines the active cooperation with a number of national and international research groups. Dr. Yotova's scientific research is in the field of application of chemometric approaches for processing multidimensional data obtained during chemical and toxicological analysis of various types of samples with the aim of classifying them into groups and/or searching for cause-and-effect relationships to distinguish the influencing factors on the studied objects.

I accept the scientific contributions appointed by the candidate in the submitted materials as original and correctly formulated, namely:

1. The performance of chemometric and ecotoxicological assessment of water samples (waste water, surface water, water samples from the urban water supply network). An important contribution that should be emphasized is the proposed combination between a water quality assessment index developed by the Canadian Council of the Ministry of the Environment and the self-organizing Kohonen maps as a multivariate chemometric technique for reliable river catchment water quality assessment.

2. Conducting a chemometric and ecotoxicological evaluation of soil samples (surface soil layer) and sediments. A procedure for assessing the bioavailability of elemental pollutants is proposed, based on a correlation between the content of the chemical elements in the grass growing on the studied area and the soluble fraction of soil samples treated with ethylenediaminetetraacetic acid (soil leach). The geochemical background has been established and threshold values were defined for the concentrations of a set of elements (As, Cd, Cr, Cu, Hg, Ni, Pb and Zn) in the surface soil layer on the territory of the Republic of Bulgaria. An assessment of the time dynamics of the anthropogenic impact on the Pchelina dam was carried out by determining the content of a set of chemical elements in sediment samples from different depth layers, and principal component analysis was used as a chemometric approach to process the obtained data.

3. The implementation of chemometric analyses of data for the assessment of the toxicity of active pharmaceutical ingredients (single drug substances or binary mixtures) and packaging materials used for the storage of food products. A range of factors with potential influence on the toxicity of the pharmaceutical substances and the packaging materials have been studied.

For her participation in the current competition Ch. Assist. Prof. Galina Yotova, also presented a habilitation thesis, which includes a summary of the results obtained from chemometric and ecotoxicological evaluation of surface and waste water samples.

### **Evaluation of the teaching activity of the candidate**

The main part of Dr. Yotova's teaching activities covers conducting classes with Bachelor students in compulsory disciplines such as Analytical chemistry, Analytical chemistry with instrumental methods of analysis, Statistical data processing, Chemometrics and Ecometrics. The candidate has also participated in conducting practice classes with students from the Master's programs of the Faculty of Chemistry and Pharmacy at the University of Sofia. Under the supervision of Dr. Yotova, two student diploma theses have been defended.

### **Evaluation of the implementation of the minimum national requirements and the recommended requirements of the Faculty of Chemistry and Pharmacy at the University of Sofia (FChPh-US)**

The comparative analysis of the quantitative criteria achieved by Dr. Yotova in relation to the minimum national requirements for occupying the academic position "Associate Professor", as well as in relation to the recommended requirements of the FChPh-US), shows that the candidate fulfills the above mentioned requirements. It should be emphasized on the significant exceed of the quantitative indicators (points) achieved by Dr. Yotova regarding the indicator "Citations in scientific publications, monographs and collective volumes, referenced and indexed in world-recognizable databases with scientific information (Web of Science and Scopus)". This also applies to the additionally introduced by FChPh-US group of recommended indicators "Ж" for occupying the academic position "Associate Professor" in Professional Direction 4.2. Chemical Sciences.

### **Conclusion**

The submitted materials for the competition meet the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria, the Rules for its Implementation, the Regulations of the University of Sofia, as well as the recommended requirements of the FChPh-US. The self-evaluation materials presented by Galina Yotova give me the reason to conclude that she is an established researcher with significant activities whose academic position would contribute to the development of an important and interdisciplinary field such as the application of chemometric approaches for processing and deriving information from large data set obtained from chemical tests.

**Based on the above, I give a positive assessment and recommend to the respected Scientific Jury to propose the awarding of the academic position "Associate Professor" to Ch. Assist. Prof. Dr. Galina Ivaylova Yotova, in Field of higher education 4. Natural Sciences, Mathematics and Informatics, Professional Direction 4.2. Chemical Sciences (Analytical Chemistry) for the needs of the Faculty of Chemistry and Pharmacy at the University of Sofia "St. Kliment Ohridski".**

21.04.2024

Member of the Scientific Jury:

/ Assoc. Prof. Kiril Simitchiev, PhD/