

Opinion

from Ivayla Nedialkova Pantcheva-Kadreva, DSc,
concerning a competition for holding an academic position „associate professor“,
Field of higher education 4. Natural science, mathematics and informatics,
Professional direction 4.2. Chemical sciences (Analytical chemistry)
For the needs of the Department of Analytical Chemistry, Faculty of Chemistry and Pharmacy,
Sofia University “St. Kliment Ohridski”

The only candidate in the competition for the academic position "associate professor" announced in the State Gazette (No. 104 of 12.12.2023) is Veronika Valentinova Mihaylova, PhD, recently working as a chief assistant professor at the Department of Analytical Chemistry of the Faculty of Chemistry and Pharmacy, Sofia University. According to the regulatory requirements, Dr. Mihaylova submitted the necessary information in an electronic form and was allowed to participate in the procedure.

Evaluation of the materials for participation in the competition for AP "associate professor" and their compliance according to the recent legislation in force in the Republic of Bulgaria

1. General data

Dr. Mihaylova has presented for the competition a total of 21 studies. In line with the current criteria enshrined in the Law for development of the academic staff of the Republic of Bulgaria (LDASRB) and the Regulations for its implementation, the full-text scientific publications are distributed as follows: Q1 – 8 (200 points); Q2 – 3 (60 points), Q3 – 6 (90 points); Q4 – 4 (48 points) (Scimago Journal & Country Rank). The co-authors include researchers from Sofia University "St. Kl. Ohridski", Medical University - Sofia, Institutes from the Bulgarian Academy of Sciences as well as teams from Poland and Japan.

2. Fulfillment of the groups' requirements by the candidate

Indicator A (50 pts.): The candidate has defended a PhD Thesis for the award of the PhD degree (Diploma № SU-2013-24 / 15.04.2013).

Indicator C (100 pts.): in order to meet the requirements of this indicator, the candidate presents a **Habilitation Thesis** based on 6 scientific publications, which do not repeat the materials of other competitions for holding academic position(s) and acquiring scientific

degree(s). The topic is in the scope of mass spectrometric analysis with inductively coupled plasma (ICP-MS), in which V. Mihailova is working as a member of the scientific team of the Laboratory of Trace Analysis at the Department of Analytical Chemistry. Two of the publications are in journals in the first quadrile [B1, B5], one – in the second [B6], one – in the third [B3], and two – in the fourth [B1, B4]. The total number of points exceeds the national minimum requirements for the acquisition of AP "assoc. prof."

Indicator D (200 pts.): according to the group of indicators D, 15 scientific publications are included (6 – Q1, 2 – Q2, 5 – Q3, 2 – Q4). The presented works fall into various categories of knowledge:

- determination of the elemental composition of environmental samples [B7-8, B10, B16];
- assessment of the impact of treatment plants on adjacent water bodies [B12, B14-15, B17-19];
- archeometric studies [B9, B11, B20];
- analysis of anticancer platinum-based metal complexes [B13, B20].

The common link in all the candidate's scientific works is the ICP-MS, as Dr. Veronika Mihailova develops and applies it adequately according to the specifics of the target samples and the analytes of interest.

Indicator E (50 pts.): Dr. Mihaylova has submitted a list of 92 citations, by which it exceeds significantly the minimum national requirements.

Indicator F (70 pts., specific for FCP): based on the cited publications, the Hirsch index of V. Mihailova is 6 (60 pts.); she was the scientific supervisor of 5 successfully defended BSc/MSc students (50 pts.) and a participant in 11 research projects (55 pts.)

The information presented so far for the fulfillment of the minimum national criteria according to the various indicators for acquiring the AP "associate professor" in Sofia University (Professional direction 4.2. "Chemical Sciences") reveals that the candidate possesses qualifications to carry out research and applied activities. In all indicators, the Faculty's recommended criteria were exceeded.

Indicator	Minimum national criteria	FCP	V. Mihaylova
A	50	50	50
C	100	100	109
D	200	220	289
E	50	70	184
F	-	70	165

3. Main contributions of the candidate

I accept the author's reference for his contributions according to the four categories presented above. The main achievements can be summarized primarily as methodological and scientific-applied – optimization and application of ICP-MS for the study of environmental processes, establishing the origin of archaeological finds, developing a procedure for the determination of elements in biological matrices (cell cultures).

In my opinion, emphasis should be placed on two areas of Dr. Mihaylova's research:

- introduction of the RPa parameter (DRC, ICP-MS), through which suitable conditions are shaped for the simultaneous determination of macro-, micro- and trace analytes in samples of different origins (water and sediments). As a partial result of this research, the first large-scale characterization of Bulgarian mineral and spring waters was carried out.

- development, optimization and validation of an ICP-MS method for the determination of trace concentrations of Pt in various cell cultures and different cell fractions, requiring optimization of the sample preparation steps to achieve complete dissolution of the cell cultures, of the instrumental parameters and of the method validation approaches.

In addition, the candidate successfully applies appropriate techniques to characterize surface water and plant efficiency, as well as participates in the chemical "profiling" of gold finds and belt accessories. These two directions emphasize Veronika's successful collaboration with colleagues, specialists in other fields: 1) the combination of quantitative data, chemometric approaches and ecotoxicological tests could be applied in the developing of a more flexible methodology for prioritizing the indicators responsible for water quality and the way of assessing the plant's effect; 2) the statistical data processing from the archaeological findings and the appropriate interpretation allow the regional and ethnic identification of the analyzed samples. In this type of research, Dr. Mihailova is a member of a team that conducted a large-scale study of belt accessories from the nation's migration period (III-VII centuries AD), incl. the findings discovered on the territory of the Republic of Bulgaria.

4. Teaching activities

The classes in which V. Mihaylova is involved at the FCP are in line with their qualification. She is a lecturer in Analytical chemistry (BSc program "Biology", Faculty of Biology, SU) and Applied statistics (BSc program "Ecochemistry", FCP, SU) and assists the practical courses in Analytical chemistry for BSc students from FB and "Pharmacy" students from FCP. She is a supervisor of five successfully graduated students.

5. Personal impressions

As a member of the Department of Analytical Chemistry, I have known Veronika since she joined the Faculty and I have witnessed her professional development both as a teacher and as a researcher. She approaches the solution of every problem with an exceptional sense of responsibility, she is dedicated to her work, and has proven herself as a successful team member in the implementation of various scientific projects. Dr. Mihaylova's habilitation will offer additional opportunities for supervising doctoral students, attracting project fundings, and establishing more active international cooperation - activities in which I sincerely wish her success.

6. Concluding remarks

According to the current criteria for holding the AP "associate professor", the scientific output of Veronika Mihailova fully meets the requirements laid down in the running Bulgarian legislation and in the recommended additional requirements of the FCP at Sofia University.

From the above-discussed materials, as well as based on my expression of the overall scientific and professional activity of the candidate, I entirely support the election of chief assistant professor Veronika Valentinova Mihaylova as “associate professor” in the professional direction 4.2. "Chemical Sciences" (Analytical Chemistry) for the needs of the Department of Analytical Chemistry, Faculty of Chemistry and Pharmacy, Sofia University “St. Kliment Ohridski”.

April 19, 2024

prof. Ivayla Pantcheva, DSc