REVIEW

on the presented documents concerning the procedure for awarding the academic position "Associate professor" as announced in State Gazette no. 104/ 15.12.2023

Professional objective 4.2. Chemical sciences (Analytical chemistry)

Applicant: Assist. Prof. Dr. Veronika Valentinova Mihaylova, Chair of Analytical Chemistry, Faculty of Chemistry and Pharmacy, University of Sofia "St. Kl. Okhridski"

Reviewer: Prof. Dr. Vasil Dragomirov Simeonov, DSci, Faculty of Chemistry and Pharmacy, University of Sofia "St. Kl. Okhridski"

Short biographical data for the applicant

Dr. Veronika Mihaylova was born in 1984 in Pernik, Bulgaria. She completed the bachelor degree of qualification objective "Chemistry" at Faculty of Chemistry and Pharmacy in 2007and graduated as master of chemistry (environmental chemistry) in 2009. After graduation Veronika Mihaylova works as "chemist" at Chair of Analytical Chemistry and later as researcher within the frame of a scientific project. She defends her PhD thesis under the tutorship of Prof. Dr. Rumyana Djingova, DSci in 2013 and attends the academic position Assistant professor in the same year.

For the period of her engagement as scientist and academic teacher at the Chair Dr. V. Mihaylova participated in realization of totally 27 scientific publications, which will be analysed and assessed in the present review, 16 scientific projects financed by different institutions. Additionally, she guided several master theses, laboratory practices, seminars and lecture courses for students from Faculty of chemistry and Pharmacy and Faculty of Biology.

In 2014 Veronika Mihaylova participated in a short-term qualification program on chromatographic and spectroscopic analytical methods in France.

Scientometric assessment of the scientific publications of the applicant

Dr. Veronika Mihaylova participates with totally 21 scientific publications in the present competition, Six of them are included in the presented habilitation thesis required by the competition rules, The scientometric analysis includes all 21 publications. They will be assessed with respect to several indicators – assessment of the journal where the studies are published (impact factor, recently the assessment of the journal's quartile is preferred as descriptor for quality) number of citations, number and distribution of the co-authors in the list of authors, as well as the values of h- and i10 – factors as individual descriptors of a certain author (in this case the applicant).

Eight out of totally 21 publications are attributed to Q1, four – in Q2, five – in Q3 and another four in Q4. The dominant number of publications classified in Q1 is a very good indicator for the quality of the studies performed. Impact factor (0.136 and 5.40) have totally 16 out of all 21 (nearly 75 % of the total number) . For them totally 52 citations are presented, which is a very encouraging value having in mind the short period of appearance (between 2020 and 2023 for publications included in the habilitation thesis) and between 2015 and 2023 for the rest of 15 studies used for the purposes of the present procedure.

Very often the scientometric assessment required analysis of the number of co-authors and the position of the applicant in the authors list. I personally support the opinion that each author is of the same importance and his/her position in the list of authors is a very relative criteria. However, it could be mentioned for the sake of statistics, that in the publications included in the habilitation thesis Veronika Mihaylowa is either first or second co-author and this is a convincing factor for her personal contribution. In the rest of 16 publications the attendant is positioned 6 time in the prestigious first or second position. Thus, the general assessment for contribution according to the position in the list of authors is very high. The number of co-authors in all considered 21 publications is between 2 and 9 and the applicant has no independent (personal) publication. It is worth mentioning that the publications of Veronika Mihaylova are marked by relatively high values of h-and i10-indices (h= 6; i10 = 5), which is a good indicator for the interest to her studies during a relatively short period of time. In conclusion could be stated that the scientometric indicators for assessment of the presented publications are high enough and very convincing.

Scientific and educational activity of the applicant. Contributions

The scientific activity of Dr. Veronika Mihaylova could be divided into several objectives, which according to the reviewer could be summarized as follows:

- Environmental analytical chemistry with special impact on application of mass spectroscopy with inductively coupled plasma (as methodical background of the analysis) to determination of the composition of various environmental objects aiming optimal analytical approach (natural and drinking waters, plant samples, soils and sediments);
- Determination of organic pollutants in water bodies in connection to assessment of the effect of waste water purification stations from different regions of the country; this section is related to the activity of a big scientific team on project financed by the National science fund; this activity deserves special attention as it requires very serious work of monitoring, chemical analysis and data mining, interpretation and statistical modeling of the monitoring data by chemometric methods; the information provided by Dr. V. Mihaylova proves convincingly her personal engagement in the project activity as a specific realization of her general scientific interests;
- Investigations in the field of archaeometry linked to the necessity of using spectral and X-ray analytical methods; this is a section dated from the beginning of the scientific activity of Dr. V. Mihaylova and related to her studies on her PhD thesis;
- Investigations of anticancer drugs (platinum complexes) as the activity of Dr. V. Mihaylova is concentrated in the field of her analytical specification for using mass spectroscopy with inductively coupled plasma as analytical approaches for studying of the complex compounds; this is a relatively new objective in the scientific activity of V. Mihaylova.

An important element in the assessment of scientific activity of the applicant is the participation at different scientific forums. From the information presented it gets clear that Dr. V. Mihaylova attended totally 26 conferences with poster and oral presentations. Unfortunately, no information is available for the location of the respective meeting. However, as a quantity measure this is a very good achievement.

Veronika Mihaylova defended her PhD thesis for attending the educational and scientific degree :Doctor" according to the Bulgarian law.

It is important to note that Dr. V. Mihaylova participated in totally 16 scientific projects financed by the National science fund or University of Sofia. This is an importat additional argument in favor of significant activity.

Concerning the scientific contributions of Dr. V. Mihaylova one could reach the following summary:

- using of an original bioindicator (Taraxacum officinale) for biomonitoring of large number analytes in the system soil/plant;
- optimization of analytical procedures mass spectroscopy – inductively coupled plasma for different cases of application for environmental analysis;
- linkage of traditional analytical methods with tests for ecotoxicity and chemometric methods to assess the efficiency and impact of waste water treatment stations on the surface water quality for large number of treatment stations;
- development of analytical procedures for anticancer platinum complexes (different states of platinum in accumulation in different biological systems).

Assist. Prof. Dr. Veronika Mihaylova is engaged with a significant amount of educational activity – laboratory practice, seminars (analytical chemistry and chemometrics) as well as lecture courses. Important issue in this type of activity is the tutorship of master thesis of master students (totally 5 cases) both in master and bachelor programs.

Conclusion

The general assessment of the applicant for the academic position " docent" (associate professor) Dr.Veronika Mihaylova concerning her scientific and teaching activity is very high. This is not surprising for the reviewer since I know Veronika Mihaylova as a student both in bachelor and master levels of education in chemistry. She always appeared as an intelligent and engaged student, promising young assistant in the beginning of her career and serious researcher and teacher in the stage of her habilitation.

The information presented to the procedure corresponds completely to the requirements of the law for development of the academic staff in Bulgaria and the manual for its application at the University of Sofia. Therefore, I shall vote convincingly affirmative (vote “yes”) for awarding the academic position “docent” to assistant professor Dr. Veronika Valentinova Mihaylova in professional objective 4.2, Chemical Sciences (Analytical Chemistry).

Sofia, 09/04/2024 Reviewer:

Prof. Dr. V. Simeonov, DSc