

REVIEW

Competition for the occupation of the academic position "Associate Professor", Higher Education 7 "Health and Sports", Professional Direction 7.3 "Pharmacy", Specialty "Pharmacology", for the needs of the Laboratory "Metabolomics", Department "Biotechnology" at the Institute of Microbiology /IMicB BAS/

Candidate: Assist. Prof. Liliya Vladimirova Mihaylova, PhD

Reviewer: Prof Dr Jane Dimitrova Tchekalarova

In the announced competition for the academic position of "Assoc. Prof." in the 7.3. "Pharmacy" for the needs of the "Biotechnology" Department, Laboratory of Metabolomics at the Institute of Microbiology /IMicB/ BAS, announced in the State Gazette, No. 28 of 2 April 2024, and according to the Order N/I 57 of 23 April 2024, one candidate applied Dr Liliya Vladimirova Mihaylova, currently working as Assoc. Prof. at the same department. The documents of Dr. Liliya Mihaylova submitted for participation in the competition show that the procedure for its publication and announcement has been followed and fully complies with the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria (LDASRB) and the Regulations for its implementation, as well as with the Regulations on the conditions for acquiring scientific degrees and for occupying academic positions at BAS and the Regulations on the conditions for acquiring scientific degrees and for occupying academic positions at IMicB BAS. The scientific works presented in the competition do not repeat the works presented in the abstract of the dissertation for the award of the educational and scientific degree of "Doctor" and in the competition for the academic position of "Chief Assistant"

I declare that I have no conflict of interest regarding the announced competition.

1. General data on the career and professional development of the candidate

Liliya Vladimirova Mihaylova graduated from the Faculty of Pharmacy /FF/, Medical University /MU/ - Plovdiv in 2013 with a Master's degree in Pharmacy. In the period 2013-2016 she worked as a specialist in the analysis of medicinal products at the same institution, where in the period 2013-2017 she developed a dissertation for the acquisition of the educational and scientific degree "Doctor" on the topic "Study of the effects of extracts from RHODIOLA ROSEA L. and CURCUMA LONGA L. and their active components salidroside and curcumin on a model of chronic stress" with the scientific supervisor Prof. Dr. Danyanka Getova Spasova.

In the period 2016-2018, Liliya Mihaylova was appointed to the position of "Assistant" in the Department of "Pharmacology and Medical Toxicology", FF, MU - Plovdiv. In 2018, she started working as a post-doctoral researcher at the Centre for Plant Systems Biology and Biotechnology, Plovdiv, and in 2021, until today, Dr. Mihaylova works as a "Chief Assistant" at the Metabolomics Laboratory, Department of Biotechnology, Institute of Microbiology BAS. In 2023, Dr. Mihaylova became the coordinator of the PlantaSYST project for IMicB BAS.

The main scientific interests of the applicant for this competition are related to studies of obesity and approaches to its treatment, ageing processes, including that of the skin, and the identification of mechanisms of action of natural substances of plant origin for the prevention and treatment of various diseases.

2. Scientific metrics

The active research activity of Dr. Liliya Mihaylova, which is reflected in her participation in eight research projects, four of which are international and four national, as well as the

candidate's enormous scientific output, makes an excellent impression. Proof of the importance of Dr Mihaylova's research and the high regard in which it is held by the international community is provided by the fact that the majority of her publications are in Q1 journals (18 out of 24 - of the peer-reviewed ones) and by the high citation rate of the publications submitted for the competition. Her personal contribution to these publications is confirmed by the fact that she is the first author in seven of them and the second author in another seven. The publications are grouped according to the guidelines for fulfilling the minimum requirements - Annex to Art. 1a, par. 1 of the Regulations for the Implementation of the LDASRB in Higher Education 7 "Health and Sport", 7.3. "Pharmacy". The academic performance of the candidate exceeds not only the minimum requirements of the Regulations for the Implementation of the LDASRB, but also the additional criteria for the growth of academic staff to the Regulations of the IMicB - BAS. They testify to her confirmation as an established scientific expert in the relevant scientific field at national and international level. For the current competition, Dr Mihaylova has presented a list of 37 publications, with an additional seven publications (from No. 38 to No. 44) related to the sd "Doctor", which are not part of the current competition and therefore will not be evaluated. The distribution of the minimum required points by groups of indicators for the academic position of "Assoc Prof" is as follows: Indicator A - 50 points (required 50 points), B - 134.17 points (sum of indicators 3 and 4 - required 100 points), D7 - 264.36 points (sum of indicators 5 to 9 - required 200 points), Indicator D - 6525 points (sum of indicators 5 to 9 - required 200 points). Indicator D - 6525 points (sum of indicators from 10 to 12 - required 50), Indicator E - 15690 points. The total numerical value is 713043 points, with 400 points required, i.e. more than 18 times the numerical criterion set. Regarding the fulfilment of the additional criteria for the growth of the academic staff laid down in the regulations of the IMicB BAN with the required 20 (after sd "Doctor") in five of them: 1st author or correspondent, Dr. Mihaylova presented 37 publications (after sd "Doctor") in 13 of them: 1st

author or correspondent, presented 435 citations with a required 100, from an IF threshold of 20, she has an IF = 130.96, with a Hirsch index requirement of $h = 5$, the candidate is with $h = 12$.

3. Main scientific contributions and directions of the candidate's research work

Within the relatively short period of Dr. Liliya Mihaylova's work at the Institute of Medical Sciences, BAS, Metabolomics Laboratory (from 2021), she developed a very intensive activity related to the management of a project from the Bulgarian side with European funding under the Horizon 2020 programme on the topic "Establishment of a Plant Systems Biology and Biotechnology Centre for the transformation of basic scientific research into sustainable bio-based technologies in Bulgaria (PlantaSYST)". At the same time, in the period 2018-2023, she works as a postdoctoral fellow at the Centre for Plant Systems Biology and Biotechnology (CBSBB) in the city of Plovdiv. The scientific interests and contributions in the professional career of Dr. Liliya Mihaylova are consistent and deep and are in the following main directions: 1) and 5) contributions are related to the development of *in vitro* preclinical models of obesity in human adipocytes and *in vivo* model in *C. elegans*. Contributions 2), 3) and 4) relate to studies on: mechanism of action and anti-obesogenic activity of a broad panel of medicinal plant extracts; a key obesity signalling pathway involving phosphoinositide 3-kinase (PI3K)/protein kinase B (AKT) inhibition; involvement of extracts and pure compounds in the molecular mechanisms involved in aging processes in *C. elegans*. Contribution 5) relates to studies on immunomodulatory and anti-inflammatory effects of extracts and pure substances of adaptogenic plants in *in vivo* rat models of chronic stress.

The scientific results presented are of a fundamental nature, on the one hand, related to the study of molecular mechanisms that determine the efficacy of plant extracts in ageing, obesity and chronic stress, and, on the other hand, of a highly applied medico-biological nature, related to the determination of their efficacy in different pathogenic models. Dr. Lilia Mihaylova's

contributions include her active personal participation in the team, where she is working on the development or adaptation of modern analytical approaches to characterize plant secondary metabolites with potential activity in obesity and induced ageing, and to determine their molecular mechanism of action.

The candidate's work has been highly recognized in recent years with an award for merit in the field from the Bulgarian Phytochemical Society, a nomination for the Pythagoras Award for the best young scientist in the field of life sciences and medicine, and an annual award for scientific excellence in IMicB BAS.


Question: Does the candidate have ideas for developing new topics and introducing new methodological approaches in her future academic development?

4. Conclusion

From the analysis of the materials presented by Dr. Liliya Mihaylova in the competition for the position of "Associate Professor". Liliya Mihaylova, I am of the opinion that by all indicators she not only fully meets, but far exceeds the nationwide criteria for occupying the academic position of "Associate Professor" according to the LDASRB and its implementing regulations, as well as the Regulations on the conditions for acquiring scientific degrees and for occupying academic positions at BAS and the Regulations on the conditions for acquiring scientific degrees and for occupying academic positions at IMicB BAS: Ph.D. degree, high quality scientific output, more than 400 citations, 75% of publications in Q1 journals, coordinator from the Bulgarian side of a project with European funding under the Horizon 2020 programme. Dr. Liliya Mihaylova is a pharmacist with a clearly defined and recognizable scientific profile at a high national and European level, which is due to her qualities related to work ability, precision and perfectionism in the performance of her professional duties, curiosity and, last but not least, collaborative and teamwork skills. In this regard, I strongly recommend the members of the Honourable Scientific Jury to vote positively and to appoint Dr. Liliya Mihaylova to the

academic rank of "Associate Professor" in the field of specialization 7 3 "Pharmacy" for the needs of the "Biotechnology" Department, "Metabolomics" Laboratory at IMicB - BAS.

30.07.2024 г.


**На основание
чл. 2 от ЗЗЛД**

(Prof Dr Jana Tchekalarova)