

REVIEW

on a competition for the occupation of an academic position "professor" at the Medical University "Prof. Dr. Paraskev Stoyanov" - Varna, announced in State Gazette no. 7 of 23.01.2024 for the needs of the Department of Pharmaceutical Chemistry at the Faculty of Pharmacy at the MU "Prof. Dr. Paraskev Stoyanov" - Varna.

by field of higher education: 7. Health care and sports

professional direction: 7.3. Pharmacy

scientific specialty: Pharmaceutical Chemistry

by prof. Alexander Borisov Zlatkov, Ph.D., DSc,

designated as a member of the scientific jury, determined by Protocol of the Faculty Council of the Faculty of Pharmacy No. 71/28.02.2024 and order No. P-109-92/21.03.2024 of the Rector of the MU "Prof. Dr. Paraskev Stoyanov" - Varna

The review of the materials presented in the competition is based on the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria, the Regulations for its Application, as well as the Regulations on the Development of the Academic Staff at the Medical University "Prof. Dr. Paraskev Stoyanov" – Varna.

The review was prepared on the basis of the Decision of the Meeting of the Scientific Jury and Protocol No. 1/04/03/2024. There were no established procedural violations.

Documents for participation in the announced competition for the academic position of "professor" in the scientific specialty Pharmaceutical Chemistry in the Department of Pharmaceutical Chemistry at the Faculty of Pharmacy at the MU "Prof. Dr. Paraskev Stoyanov" - Varna submitted a single candidate Assoc. Prof. Svetlana Fotkova Georgieva, Ph.D., assoc. prof. in the same department. According to the Declaration of Credibility dated 31.01.2024 submitted by the candidate, the documentation has been prepared in accordance with the requirements of the current legal framework and no plagiarism in scientific works has been proven according to the law.

- In connection with my participation as a member of the scientific jury, I declare that:

- - I have no conflict of interest;
- - I have not found any violations in the course of the competition so far and I have no comments on the materials provided to me for review.

Biographical and professional data of the candidate

Assoc. prof. Svetlana Fotkova was born in 1981 in the city of Burgas. In 2003, he obtained a bachelor's degree in biotechnology at "Asen Zlatarov" University - Burgas, and in 2006 - a master's degree in biotechnology at the same university. In 2008, he joined the University "Prof. Dr. Asen Zlatarov" - Burgas, College of Medicine, Department of Pharmacy and was immediately enrolled as a part-time doctoral student at the Department of Biotechnology, where she defended her dissertation on the topic "Biotransformation of compounds with estrogenic activity using laccase immobilized on a polymer membrane in non-isothermal bioreactor" in the scientific specialty "Pharmaceutical Chemistry" and obtained the scientific degree "Doctor" in 2011. In September 2012, she was selected as an assistant in the Department of "Pharmaceutical Sciences" of the Faculty of Pharmacy at the Medical University "Prof. Dr. Paraskev Stoyanov " Varna. In 2013, Sv. Fotkova was elected as an Associate Professor at the Medical University "Prof. Dr. Paraskev Stoyanov" Varna in the scientific specialty "Pharmaceutical Chemistry". In parallel, Fotkova obtained a master's degree in organic chemistry in 2016 at Shumen University "Bishop Konstantin Preslavski", specialty in "Analysis of medicinal products" in 2019 at Medical University - Sofia, and in 2022 he graduated in pharmacy at the Faculty of Pharmacy of the University of Varna and acquired the qualification of master pharmacist. During the period 2014 - 2018, Assoc. prof. Fotkova was the head of the department "Pharmaceutical Sciences and Pharmaceutical Management" Faculty in Pharmacy, at the Medical University "Prof. Dr. Paraskev Stoyanov" Varna, and during the period 2018 - 2022 - at the "Pharmaceutical Chemistry" department in the same faculty of the MU-Varna. Assoc. prof. Sv. Fotkova is a member of the Bulgarian Scientific Society of Pharmacy (BNDF). Prof. St. Fotkova speaks English and Russian.

Academic and teaching activity of the candidate

It is clear from the submitted documents that assoc. prof. Sv. Fotkova has serious teaching experience. She is engaged in a significant amount of teaching and learning work.

From 2008 to the present, assoc. prof. Fotkova actively participates in the education of students in the field of Pharmaceutical Chemistry, initially at the Medical College of the University "Prof. Dr. Asen Zlatarov"-Burgas, and then at the MU-Varna, where he also began teaching in the field of Pharmaceutical Analysis. For the entire period of her teaching activity, she has the full study load required by the rules of MU-Varna, which is evident from the presented report on the study load.

Under the scientific guidance of Assoc. Prof. Fotkova, 7 dissertations were successfully defended for fulfillment of the requirements for obtaining a doctoral degree, and she is currently the supervisor of three full-time doctoral students.

Research activity of the candidate

Regarding his research work, assoc. prof. Sv. Fotkova fully covers the scientometric criteria established in the Regulations for the conditions and procedures for acquiring scientific degrees and holding academic positions at the MU-Varna.

For participation in the competition for associate professor, Fotkova presents a list of works, which she divides into the following sections: Articles in journals with IF - 8 articles, Articles in refereed scientific publications - 6 articles; Articles in non-refereed journals - 27 items; Publications beyond the minimum requirements for accomplish a.p. "professor" (essentially in non-refereed journals) - 14 nos. or a total of 55 scientific publications that I accept as corresponding to the theme of the competition and subject to review. A monographic work with the title "Systematic review of the properties and action of nutritional supplements. Safety and quality", 2024, Varna, ed. At MU-Varna (ISBN: 978-619-221-472-2), which contains a number of data from own research. also corresponding to the theme of the competition, which I will address separately. The monography is a collective work, the participation of Assoc. Prof. Fotkova is 50% and meets the requirement for a monographic work. A separation protocol between the two authors has been

duly submitted certifying the possibility of it being used by both in competitions for accomplish academic positions.

The distribution of the scientific works with which associate professor Fotkova participated in the competition for the appointment of the a.p. "Professor" can be represented as follows:

Type of scientific activity	Общ брой	First / last author	other position
Total number of articles	55	27	28

Monograph	1	co-authored	
Articles in journals			
• with IF	8	4	4
• refereed	6		6
• non-refereed	27	15	12
• other	14	8	6
		leader	participator
Participation in national scientific projects	7	5	2
Participation in international scientific projects	1		1

As an addition to the documentation of Assoc. Prof. Fotkova's scientific activity, the list of 87 participations in national and international scientific events can also be accepted.

A total of 8 of the presented publications are in IF journals. The applicant's total IF is 18.036 as per the reference provided. One of these publications was cited 8 times in scientific publications, referenced and indexed in world-renowned databases of scientific information.

General characteristics of the candidate's scientific activity

Assoc. Prof. Fotkova's research activity is mainly focused on the chemistry of medicinal and synthetic substances and their potential application in the therapy of socially significant diseases. Research covers the following main scientific directions:

1. Scientific contributions related to the synthesis and analysis of nitroimidazole and bexarotene analogs.

Contributions in this field can be summarized and focused in three main aspects.

The first involves the synthesis and characterization of a group of nitroimidazole derivatives (publications G8-6 and G8-26 according to the list of scientific publications under the competition).

The second involves the synthesis and characterization of hydrazone derivatives of bexarotene. The latter have been subjected to in vitro and in vivo tests for potential biological activity, including the manifestation of antioxidant properties, and the results shown are promising. Studies have shown that newly synthesized bexarotene hydrazones can increase the levels of antioxidant enzymes such as superoxide dismutase (SOD) as well as decrease the levels of malondialdehyde (MDA), an indicator of oxidative damage (Publications G8-18, Supplementary 6, 7 and 11).

The third aspect involves exploring the possibilities for drug design of retinoids. Research shows that small structural changes in retinoid molecules can lead to significant differences in their biological properties (Publications G8-3).

2. Scientific contributions related to the application of in vivo and in vitro models to determine the toxicological, pharmacological and antimicrobial profile of biologically active substances.

By using the QSAR Toolbox software, studies related to:

- Simulation of hepatic in vivo metabolism in rats, using metabolic models for the potential metabolic activity of the structure of Bexarotene and its newly synthesized derivatives, benzocaine, metronidazole, mofarotene, hypericin and hyperforin (publications G7-3, G7-6, G8-15, G8 -19, additional 9, 10, 13).
- Simulation of skin metabolism - the possible skin metabolites of newly synthesized analogues of bexarotene, metronidazole, benzocaine and the synthetic flavoring - Lismeral were predicted (publications Γ7-4, Γ7-5, Γ8-17, Γ8-20, Γ8-21, Γ8- 24, D8-27).
- Prediction of oral activity – most of the predicted metabolites showed high (class III) levels of toxicity and four showed low (class I) levels of toxicity. None are classified as Class II. Only phenyl-substituted saturated and unsaturated aliphatic aldehydes show acute oral toxicity (Publication G8-22).

- Antimicrobial activity prediction – studies show that some of the metabolites generated do not bind to DNA or proteins (Publication G8-25).

Investigation of the potential of antimicrobial activity of newly synthesized compounds. The potential antimicrobial activity of novel metronidazole derivatives against clinical isolates of *Staphylococcus aureus*, *Bacillus subtilis*, *Escherichia coli* and *Candida albicans* was investigated. The tested derivatives did not show antibacterial activity against E.coli and B. subtilis strains. Some drugs used as local anesthetics have also been found to demonstrate antimicrobial effects (Publications G7-1, G7-2, Supplementary 8)

3. Scientific contributions related to the safety and quality of food, nutritional supplements and natural products.

The purpose of research in this direction is to study the attitudes of consumers in North-Eastern Bulgaria towards the use of herbal medicines and herbal supplements. The results are presented in publications D8-1, D8-2 and additional 5 according to the list of scientific publications under the competition.

4. Scientific contributions related to tracking trends for modern therapy of socially significant diseases

- Oncology. – Studies show that new-generation retinoids can inhibit the growth of normal and malignant breast cells (Publications G8-4, G8-14).
- Acne - The results of a study conducted on patients using isotretinoin tablets in the formulation of the drug Roaccutane for the treatment of acne were analyzed and summarized, and found that many adverse psychiatric effects were reported. In addition, the experience of various specialists who apply metronidazole topically to patients with acne rosacea is summarized (Publications G8-7, G8-11, Supplement 2).
- Bacterial and fungal infections - various schemes for the treatment of Helicobacter pylori infection are presented in scientific publications, the potential antibacterial effects of rose oil, some hydrazone derivatives of retinoids have been studied (publications Г8-8, Г8-10, Г8-13, Г8 -23, additional 1, 4, 12)
- Based's disease and multiple sclerosis - research related to various treatment schemes for the mentioned diseases are presented in scientific publications (publications Г8-9, Г8-12, Г8-16).
- Other - new studies show that the fruits of Opuntia Ficus, thanks to the diverse chemical composition, can also be applied in various aspects of

daily life, as well as in the prevention and therapy of various diseases (publication D8-5).

5. The monograph presented by assoc. prof. Fotkova for participation in the competition "Systematic review of the properties and action of nutritional supplements. Safety and quality" is essentially an original monographic work, including the literature data collected by the authors as well as some own studies and additional information about food supplements. In the monographic work, a significant share is occupied by vitamins, as the main ingredients of nutritional supplements, along with amino acids, minerals and antioxidants. Attention has been paid to the regulatory framework governing the distribution and use of nutritional supplements, as well as trends and attitudes in their market. A study of the nutritional behavior of students in Bulgaria and Russia has been published, which is entirely a contribution of the author's team.

Citations of works of assoc. prof. Svetlana Fotkova by other authors

In the reference presented by assoc. prof. Fotkova, one publication with IF is indicated, which has been cited 8 times in scientific publications, referenced and indexed in world-famous databases with scientific information, which covers the minimum requirements for occupying the a.p. professor.

The contributions of assoc. prof. Fotkova's research are theoretical, scientific-applied and applied, with the three groups being evenly represented.

Assoc. prof. Fotkova's participation in obtaining the results is essential. Obviously, the quality of scientific developments with the participation of the candidate is at a very high level, as well as the ability to work in a team. The presented facts determine assoc. prof. Sv. Fotkova as a qualified scientist.

CONCLUSION

The values of the scientometric indicators of Associate Professor S. Fotkova in the main groups of indicators compared with the requirements of the Medical University of Varna, set out in Appendix 1 of PRASMU in the Medical University of Varna for the occupation of the academic position "professor" in professional direction 7.3. Pharmacy, are presented in the table:

Group of indicators	requirements of MU-Varna	assoc. prof. Sv. Fotkova
A	50	50
C	100	100
D	200	307.8
E	100	120
F	100	380
Maximum total points	550	957.8

As can be seen, associate professor Sv. Fotkova fully meets the requirements for occupying the academic position of "professor".

Based on what was said in my review about the assets in the teaching and research work of the candidate in the competition for the academic position "professor" in the scientific specialty "Pharmaceutical Chemistry", I believe that associate professor Svetlana Fotkova Georgieva, PhD is a proven teacher and a scientist possessing the necessary qualities to occupy this academic position. Her qualification, teaching experience and achieved scientific results allow me to give a positive assessment and confidently suggest to the respected Scientific Jury to support my proposal for awarding the academic position of "Professor" to assoc prof. Svetlana Fotkova Georgieva in the field of higher education: 7. Healthcare and sport, professional direction: 7.3. Pharmacy and Science specialty: Pharmaceutical Chemistry.

Sofia

30.05.2024

prof. Alexander Zlatkov, Ph.D., DSc