



OPINION
in a competition for the academic position of "Associate Professor"
within scientific specialty
"Pharmaceutical chemistry"

for the needs of the **Medical College, University "Prof. Dr. Asen Zlatarov", Burgas,**
announced in SG, no. 45 of 17.6.2022

from

Prof. Stefan Dimitrov Nikolov, DSc

Internal member of the scientific jury, according to Order № RD-241/15.9.2022 of the Rector
of the University "Prof. Dr. Asen Zlatarov" - Burgas Prof. Dr. Magdalena Mitkova

Regarding the procedure for holding the academic position of "Associate Professor":

Area of higher education – 7. Health and sports

Professional field – 7.5 Health care

Scientific specialty – Pharmaceutical chemistry and decision of the Academic Council dated 14.07.2022
(Protocol No. 44).

The only candidate is Senior Assistant Prof. MPharm. Stefan Vanev Harkov, PhD. I declare that I have no conflict of interest with the candidate in the competition, I was not the scientific supervisor of the candidate's doctoral dissertation and I have no co-authorship in the scientific works presented in the competition.

Professional Development

Senior Assistant Professor Stefan Vanev Harkov graduated with a master's degree in the regulated professions "Pharmacy" in 2010 at the Lviv National Medical University "Danilo Halitsky" in Lviv, Ukraine. He defended his master's thesis at the Department of Pharmacognosy and Pharmaceutical Botany. The same year he was accepted for full-time doctoral studies for a period of 4 years at the Lviv National Medical University "Danilo Halitsky".

In 2014, he successfully defended his dissertation on the topic "Synthesis and biological activity of thiazolidine derivatives with a 2-oxo-1,3-dihydroindole fragment in the molecule" and he acquired "PhD" degree in Pharmaceutical Chemistry and Pharmacognosy, which was recognized in the relevant order in Bulgaria – Certificate No. 120/10. 01.2020 and the candidate is included in the NACID register. Since 2016, after a competition, he holds the academic position of "assistant" in Pharmaceutical Chemistry at the Department of Pharmacy of the Medical College. Since 2018, he has been the senior assistant, and since January 2020, the Deputy Director of the college.

Description and analysis of the submitted materials for the competition

In the tender documents Senior Assistant Harkov attached: curriculum vitae drawn up in European format; declaration of the number of points for indicators in District 7. Health care and sports, according to ZRASRB; author reference of the scientific works submitted for participation in the competition and the competition announcement.

In the author reference, the applicant indicates a list including 25 publications, of which:

- Scientific publications in publications referenced and indexed in world-renowned databases with scientific information (SCOPUS) – 16;
- Scientific publications in non-refereed journals with scientific review – 9.

Based on the analysis, the publications are divided into two more sections: "Pharmaceutical Chemistry" (21 items) and "Pharmacognosy" (4 items).

According to the declaration for the number of points by indicators in District 7. Health and Sports, according to ZRASRB, the articles are also distributed by the number of points by indicators (Table 2.) to indicators C. 4.

Scientific publications in publications that are referenced and indexed in world-renowned databases with scientific information (Scopus, Web of Science) - 5 items. (G. 7.).

Publications and reports published in non-refereed peer-reviewed journals or published in edited collective volumes - 9 nos. (G. 8.).

According to the applicant's reference, the number of citations in specialized publications is 4, while in reality they are many times more, and the h-index is 7. (D* - indicator 10.).

The candidate Senior Assistant Harkov fulfills the minimum requirements for occupying the academic position "Associate Professor", according to PPZRASRB, as the total number of points from the indicators is 443 (table 1), and also meets the corresponding indicators - A (50 points), C. 4. (101 points), D (232 points) and D* (60 points).

Research activity

Almost all scientific production is in accordance with the field of higher education, the professional direction and the scientific specialty of the announced competition. The publications are in Bulgarian and foreign scientific journals: refereed scientific publications; collections with a signature, with a scientific editor and publishing house, and is in accordance with the national and university educational and normative base for acquiring scientific degrees and for holding academic positions.

The main scientific contributions of Senior Assistant Harkov are in the field of Pharmaceutical Chemistry and are associated with:

- synthesis of substances with potential biological activity;
- characterization of the synthesized substances;
- determination of the pharmacological activity of the newly synthesized compounds.

The candidate has synthesized a number of new compounds containing thiazolidine, pyrazoline and isatin. In the synthesis, effectively sequentially selected organic reactions were used, which led to the variety of optimal conditions for the synthesis of new compounds with fused heterocyclic systems with good yields, as well as obtaining compounds with a certain pharmacological profile according to predetermined fragments.

The new compounds were characterized using NMR spectroscopy, elemental analysis and melting point determination. The spectral data are interpreted correctly, the methods are accurately described, in the elemental analysis there is comparability between calculated and found values.

After the synthesis of the new thiazolidine, pyrazoline and isatine fragments, they were also studied pharmacologically, proving their high activity and low toxicity, which suggests their use as potential drugs. Antitumor, antiviral and antioxidant activity studies "in vitro" were conducted, as well as a detailed study of their toxicity "in vivo". By in silico study and COMPARE analysis, a comparison of the antitumor activity of the compounds with known antitumor agents was carried out.

These studies can serve as a basis for building hypotheses about the mechanism of action and formulating proposals for the targeted synthesis of new drug molecules. The new thiazolo[4,5-b]pyridine derivatives were tested on carrageenan-induced rat edema and showed strong anti-inflammatory activity that exceeded that of diclofenac.

Senior Assistant Harkov continues his research in the field of Pharmaceutical Chemistry through his participation in two research contracts. Low toxic newly synthesized compounds (hydrazide and hydrazone derivatives) and limitation of the toxic action of antibiotics by immobilization in the chitosan structure were obtained.

From the analysis of the achieved results of the research activity of senior assistant Harkov, reflected in scientific works in the "Pharmaceutical Chemistry" section, I define the nature of scientific contributions as: scientific-theoretical related to the synthesis of compounds new to science including thiazolidine, pyrazoline and isatine fragments;

scientific and applied related to the application of various screening methods for determining biological activity and

contributions of a confirmatory nature related to "Pharmacognosy" publications.

From the above, I conclude that Senior Assistant Harkov, PhD is an established researcher in the field of pharmaceutical chemistry, has a wide range of modern synthetic approaches, analyzes and interprets data, and exhibits precision in scientific research.

Educational activity and personal impressions

I know Senior assistant Stefan Harkov, PhD since joining the Medical College in Burgas as an assistant in 2016. I have been impressed since then with the demonstrated desire to work at the college, accompanied by tenacity in completing the assigned tasks and, above all, great diligence. He participated in the development of 5 study programs, three of which are in Pharmaceutical Chemistry, in Educational Practice and in Pre-Diploma Internship for the specialty "Pharmacist" and two study programs in "Chemistry of medicinal products" and in "Phytotherapy and cosmetology" for "Bachelor" degree, for the specialty "Chemistry of cosmetic and surfactants". He took part in the teaching of three of the most important pharmaceutical disciplines - pharmaceutical chemistry, pharmacognosy and technology of drugs with biopharmacy, as well as the guidance of the educational practice and the pre-graduate internship of the specialty "Pharmacist" for "Professional Bachelor". The teaching activity of the candidate consists of giving lectures, leading practical exercises and teaching practice, conducting practical exams with the students and regular participation as a member of examination committees in the semester and state examinations. I can confidently say that he is an erudite teacher, with extensive and in-depth knowledge and pedagogical skills in presenting the study material, he is demanding of students and deservedly enjoys respect and authority from his colleagues, as well as from all students. During the pandemic years, and even before that, Harkov was the connection of all students from all courses of the specialty "Pharmacist" with the teachers - local and visiting. His participation in the creation of the Laboratory of Drug Technology and its equipment with materials, reagents, relevant equipment, etc. is active. Along with the busy teaching work, he flawlessly copes with the administrative activities as Deputy director of the college. I give a positive assessment of the candidate's educational activities and he is fully responsible for the requested academic position "Associate professor", in the field of higher education.

Conclusion

Evaluating the overall scientific activity, in which scientific contributions stand out, echo in the scientific literature and meeting the minimum national requirements of the NACID and the

scientometric indicators of the Regulations for the conditions and procedures for acquiring scientific degrees and holding academic positions at the University "Prof. Dr. Asen Zlatarov" - Burgas and taking into account the high evaluation for the educational activity, which is important for the requested academic position, I make the following conclusion: I recommend the members of the Scientific Jury to choose Senior assistant MPh. Stefan Vanev Harkov, PhD for ASSOCIATE PROFESSOR, in professional direction 7.5. Health care; scientific specialty "Pharmaceutical Chemistry".

Sofia
14.11.2022

Member of the Scientific Jury:
prof. Stefan Nikolov, DSc