

**REVIEW**

**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

**Assoc. Prof. Svetlana Fotkova Georgieva, Ph.D.**

Department of "Pharmaceutical Chemistry" at the Faculty of Pharmacy, Medical University

"Prof. Dr. Paraskev Stoyanov" – Varna, 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

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 Terms and Procedures for Acquiring Scientific Degrees and Holding Academic Positions and Quality Criteria for Development of the academic staff of the University "Prof. Dr. Asen Zlatarov" - Burgas.

The review was prepared on the basis of a Decision from a Meeting of the Scientific Jury. I have no established procedural violations, conflicts of interest and remarks on the materials provided.

For participation in the announced competition for the academic position "Associate Professor" in the scientific specialty "Pharmaceutical Chemistry" in the Department of "Health and Pharmaceutical Care" at the Medical College at the University "Prof. Dr. Asen Zlatarov" - Burgas documents were submitted by a single candidate Stefan Vanev Harkov, Ph.D., senior assistant professor in the same department.

**Biographical data:** In 2010 Senior. Assistant Professor Stefan Vanev Harkov graduated with a master's degree in the specialty of the regulated professions "Pharmacy" at the Lviv

National Medical University "Danilo Galitsky", Lviv, Ukraine. He defended his master's thesis at the Department of "Pharmacognosy and Pharmaceutical Botany". In 2010, he was enrolled as a doctoral student in the Department of "Pharmaceutical, Organic and Bioorganic Chemistry" at the Lviv National Medical University "Danilo Galitsky", Lviv, Ukraine, with a study period of 4 years. 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 obtained "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 holding a competition, he holds the academic position of "assistant" majoring in "Pharmaceutical Chemistry" at the "Pharmacy" Department of the Medical College at the University "Prof. Dr. Asen Zlatarov" - Burgas. Since 2018, he has been the senior assistant, and since January 2020, the Deputy Director of the college.

Harkov's work experience is over 10 years. He works as a Master Pharmacist in various pharmaceutical organizations and has significant practical experience, skills and established positions in professional, teaching and scientific circles.

**Teaching activity:** Senior Assistant Professor Stefan Harkov has the necessary teaching experience and activities at the University "Prof. Dr. Asen Zlatarov" - Burgas and Medical College. Since the academic year 2016/17, he has held the academic position of "assistant", and since 2018 he has been the senior assistant. Possesses the necessary work load. The total work load for the last six academic years is 3397 hours or an average of 567 hours per year at a standard of 400 study hours. The report on the work load covers the requirements of the University "Prof. Dr. Asen Zlatarov" - Burgas.

**Scientific and research activity:** Senior assistant professor Harkov, PhD presents a total of 25 scientific publications, including 16 publications in publications that are referenced and indexed in world-famous databases with scientific information, all in English and with an impact-rank, as well as referenced and indexed in world-renowned databases of scientific information (Scopus, Web of Science) and 9 in non-refereed peer-reviewed journals. In 3 of the presented publications Senior Assistant Professor Harkov is the first or last author, four are the independent author, and in 18 publications he is in a different position in the author group.

The minimum national requirements and scientometric indicators are met for the relevant field of higher education and scientific specialty, as well as the Regulations for the conditions and procedures for acquiring scientific degrees and occupying academic positions at the University "Prof. Dr. Asen Zlatarov" - Burgas.

The publishing activity of Senior Assistant Professor Stefan Harkov PhD is evenly distributed over the years, making an impression of its increase after taking the academic position of "senior assistant". The quality and quantity of the scientific production after the defense of the dissertation work are independently sufficient to satisfy the requirements for occupying the academic position "Associate Professor".

Harkov's scientific interests are mainly in the field of pharmaceutical chemistry. The candidate has extensively screened newly synthesized compounds comprising thiazolidine, pyrazoline and isatine moieties for their activity and toxicity as potential drugs. The synthesized compounds were studied for anti-tumor, antiviral and antioxidant activity "in vitro" and a detailed investigation of their toxicity "in vivo" was carried out. An *in silico* study and COMPARE analysis of groups of potentially antitumor and antiviral agents was conducted, on the basis of which conclusions regarding the mechanism of action of these molecules were defined and, based on the obtained results, approaches for the synthesis of new medicinal molecules can be proposed.

Scientific contributions can be divided into two main directions:

1) Fundamental aspect – summarizing the data on synthesis and biological activity of various heterocyclic systems, reviewing the current knowledge regarding the prospects and challenges for the use of thiazoloquinazolines and other representatives of heterocyclic compounds. Analysis of current advances in the pharmacological screening of different groups of heterocyclic compounds.

2) Applied aspect – synthesis of new heterocyclic compounds with potential pharmacological activity using organic synthesis methods, *in silico* methods, molecular docking and QSAR modeling. Various screening methods have been applied to determine biological activity. The contribution nature is based on the synthesis of new compounds with potential pharmacological activity.

In the presented scientific research activity of Senior Assistant it is related to the candidate's scientific interests in the field of phytochemistry and pharmacognosy. In this regard, a morphological, anatomical and phytochemical study of representatives of the genus "*Geum* L.", namely *Geum urbanum* and *Geum rivale*, as well as *Punica granatum*, the underground and above-ground organs of *Geum urbanum*, was carried out and the quantitative content of BAS was determined. Quantitative analysis of tannins in individual organs (underground and aboveground) was performed depending on the period and phase of picking. Phytopreparations were obtained and their antimicrobial activity was determined.

From the information presented on this indicator, it is clear that Harkov's scientific interests and achievements match the profile of the competition and that he is a researcher who possesses modern theoretical and practical knowledge in the field of pharmaceutical chemistry.

**Citations of scientific works:** The presented reference includes a list of 4 citations.

**General assessment:** The submitted materials for the competition give me reason to believe that Senior Assistant Professor Stefan Vanev Harkov, Ph.D. covers all basic and additional requirements for holding the academic position "Associate Professor" at the University "Prof. Dr. Asen Zlatarov" - Burgas, according to PPZRASRB and the Regulations for the implementation of ZRASRB. The author's quantitative reference for research activity and scientific activity is presented in the following table:

A group of metrics	Content	Minimum number of points according to national requirements	Regulations of the University "Prof. Dr. Asen Zlatarov" - Burgas	Senior Assistant Stefan Harkov
A	Indicator 1	50	50	50
B	Indicator 2	-	-	-
C	Indicator 3 or 4	100	100	101
D	Sum of metrics from 5 to 9	200	220	232
E	Sum of metrics from 10 to 12	50	60	60
F	Sum of metrics from 13 to the end	-	20	30
<b>Maximum total points</b>		400	450	473

The scientific developments are in the field of the competition's scientific specialty – pharmaceutical chemistry. They have a pronounced practical orientation, which shows that the candidate is an established specialist in practice and has proven achievements in the scientific and research field.

**Conclusion:**

The attached materials on the competition give me reason to believe that the candidate is a well-rounded scientist with deep knowledge and practical skills in the field of pharmaceutical chemistry. Senior assistant professor Stefan Harkov demonstrates creative thinking and the ability to select and successfully solve tasks of essential importance for science and practice. Due to the above, I give a positive assessment and propose to the honorable jury to award the academic position "Associate Professor" to the candidate **Senior Assistant Professor Stefan Vanev Harkov, PhD.**

18.11.2022

Varna

Member of the scientific jury:.....

Assoc. Prof. Svetlana Fōtkova/Georgieva, PhD