

## OPINION

### of Associate Prof. Dimitrina Zhivkova Zheleva-Dimitrova, PhD

Department of Pharmacognosy, Faculty of Pharmacy, Medical University-Sofia  
External member of the scientific jury with Order № ПД – 28/05.02.2021 of the Rector of the  
University "Prof. Dr. Asen Zlatarov ", Burgas

**Regarding:** the procedure for obtaining the Academic degree "Associate professor" in the Higher education area 7. Healthcare and sports, professional field 7.3. Pharmacy, in the scientific specialty "Pharmaceutical Chemistry and Pharmacognosy" for the needs of education in the specialty "Assistant Pharmacist", Department of Pharmacy, at the Medical College, University "Prof. Dr. Asen Zlatarov ", Burgas, announced in the Bulgarian State Official Journal, 105 / 11.12.2020

As a participant in the announced procedure the only candidate who has submitted documents is Stephan Vanev Harkov, PhD, chief assistant professor in the Department of Pharmacy, at the Medical College, University "Prof. Dr. Asen Zlatarov ".

#### I. Candidate career development.

Stephan Vanev Harkov, PhD graduated with a master's degree in pharmacy in 2010 at the National Medical University "Danilo Galitsky" in Lviv, Ukraine. From 2010 to 2014 he was a PhD student in the Department of Pharmaceutical, Organic and Bioorganic Chemistry at the same University, where in 2014 successfully obtained PhD degree in the specialty of Pharmaceutical Chemistry and Pharmacognosy.

Dr. Harkov take a position of assistant professor at the Department of Pharmacy, Medical College, University "Prof. Dr. Asen Zlatarov ", Burgas since September 2016. Since February 2018 he is a chief assistant professor at the same college.

#### II. Educational-teaching activity

As a chief assistant professor, Dr. Harkov is a lecturer in the following disciplines: "Pharmaceutical Chemistry", "Pharmacognosy", "Drug technology with Biopharmacy", "Training Practice" - specialty "Assistant Pharmacist", for "Professional Bachelor", regular training. According to the presented documents, the educational workload of the candidate for the last 2019/2020 is 630 school hours.

#### III. Scientific-research activity

##### 1. Scientific publications

Dr. Harkov applied for participation in this competition **26 scientific publications**. For the current competition, the real number of publications after the PhD degree are **21**. After a reference with the PhD abstract from the NACID database, it was found that publications № 22-26, actually participate in the PhD abstract and according the Regulations on the terms and conditions for acquiring scientific degrees and holding academic positions University "Prof. Dr. Asen Zlatarov ", Burgas, should not participate in this competition. 21 works, which are aside from the PhD thesis are being considered for review and taken into consideration for the final evaluation. Dr. Harkov is the sole author of 4 articles. The **original papers are 16** (none in a journal with an impact factor). The **review articles are 5** (№ 4, 6, 12, 14, 19). The scientific publications in journals,



referenced and indexed in worldwid databases are 14, and the scientific publications in non-refereed journals with scientific review-7. 20 from the presented scientific publications are in English, and 1 (№ 21) in Russian.

## **2. Conformity assessment of the minimum required points by groups of indicators.**

**Indicator A1:** PhD thesis - 50 points

**Indicator B4 (consecutive number C4):** 11 articles are presented, № 1 participated in the PhD thesis and should be excluded. After the correction in group B there are 10 scientific publications, all published in referenced and indexed international journals, as the total sum of points in group B is 89 points.

**Indicators G5-9 (consecutive number D5-9):** 6 publications are presented for G7 indicator, №1 participated in the PhD thesis and should be excluded, and № 6 is not published (only submitted) and should not participate in this competition. According to G8 indicator, 8 publications are presented, №1 participated in the PhD thesis and should be excluded. The total number of points in group G is 186 points.

**Indicator D10 (consecutive number E10):** Citations or reviews in scientific journals, referenced and indexed in worldwide databases with scientific information or in monographs and collective volumes - the candidate indicates  $4 \times 15 = 60$  points, without presenting any evidence for the citations. According to Scopus database, 12 citations were found, and the candidate meets the minimum requirements for this indicator.

## **3. Scientific contributions**

The main scientific contributions of Dr. Harkov are in the area of pharmaceutical chemistry and in particular in the synthesis of compounds including thiazolidine, pyrazoline and isatin fragments and their study on antiviral, antitumor, antioxidant, anti-inflammatory activity; the use of *in silico* methods, as well as molecular docking and QSAR-modeling.

During the last year, Dr. Harkov focused his scientific potential to Pharmacognosy, as his objects are species of the genus *Geum* L. and *Punica granatum* L. Dr. Harkov applied microscopic tools for analysis of the anatomy, titrimetric methods and TLC for phytochemical analysis.

According to the presented materials, the scientific contributions of Dr. Harkov can be considered in three main direction:

**1. Fundamental aspect** - the data on the synthesis and biological activity of various heterocyclic systems are summarized, a review of current knowledges regarding the prospects and challenges for the use of thiazoloquinazolines and others heterocyclic compounds were presented. Current advances in pharmacological screening of various groups of heterocyclic compounds are analyzed.

**2. Applied aspect** - new heterocyclic compounds with potential pharmacological activity have been synthesized using organic synthesis methods, silico methods, molecular docking and QSAR modeling. Various screening methods have been used to determine biological activity. The contributing character is aimed at the synthesis of new compounds with potential pharmacological activity.

**3. Confirmatory aspect** - morphological, anatomical and phytochemical study on different *Geum* species and *Punica granatum*.



The future perspectives for the development of scientific work of Dr. Harkov are related to the continuation of the research for biological activity of newly synthesized compounds, as well as focusing on the phytopharmacological potential of medicinal plants.

**Critical notes:**

Regarding the materials presented in the competition, in my opinion, Dr. Stefan Vanev Harkov, does not meet the minimum requirements for holding the academic position of "Associate Professor" according to the Regulations of the University "Prof. Dr. Asen Zlatarov", Burgas, which should be discussed by the scientific jury and to give the candidate the opportunity to present his opinion.

There is a discrepancy between the number and composition of the publications with which the author claims to participate in the competition (26 publications) and the Declaration of the minimum required points for the groups of indicators (25 publications, one of which is unpublished).

There is no evidence for the citations, as well as with which exactly the cited candidate participates in this competition.

There is unequal ratio between the pharmacognosy and pharmaceutical chemistry in the scientific contributions of the candidate - only 4 publications in the field of pharmacognosy in an unrefereed journal. There is no clear presentation of the candidate's scientific contributions in the field of pharmacognosy, as well as the use of modern approaches and methods of analysis in this area. In-depth and analytical approach in the investigation of known and new medicinal plants, using adequate and modern methods, as well as more articles in this field in renowned phytochemical journals are recommended.

**Conclusion:**

After a scientific jury discussion on the critical remarks and the presentation of the candidate opinion, I will determine my final opinion for the award of Dr. Stefan Vanev Harkov, in the academic position of "Associate Professor in the Higher education area 7. Healthcare and sports, professional field 7.3. Pharmacy, in the scientific specialty "Pharmaceutical Chemistry and Pharmacognosy" for the needs of training in the specialty "Assistant Pharmacist", Department of Pharmacy, at the Medical College, University "Prof. Dr. Asen Zlatarov", Burgas.

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Opinion prepared by:

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