

# OPINION



by prof. Maya Boyanova Georgieva, PhD  
appointed as a member of the scientific jury, by order No. R-3080/24.10.2023 of the  
Rector of the Medical University - Plovdiv.

on a competition for the occupation of an academic position "**Associate Professor**" in "**Pharmacognosy and Phytochemistry**" in the field of higher education: 7. Health care and sports, Professional direction 7.3. Pharmacy at the Department of "**Pharmacognosy and Pharmaceutical Chemistry**" for the teaching of Bulgarian and English in the discipline "**Pharmacognosy and Phytochemistry**", announced in the Official Gazette no. 59 of 11.07.2023 and on the approved proposal of the FS of the FF of MU-Plovdiv (Ex. No. 8 of 18.10.2023).

For participation in the announced competition for the academic position of "**associate professor**" in "Pharmacognosy and phytochemistry" in the field of higher education: 7. Health and sports, Professional direction 7.3. Pharmacy to the Department of "Pharmacognosy and Pharmaceutical Chemistry" for the teaching in Bulgarian and in English in the discipline "Pharmacognosy and Phytochemistry", documents were submitted by two candidates - Ch. assistant Diana Karcheva-Bahchevanska, PhD, and ch. assistant Paolina Lukova-Katsarova, PhD.

In connection with my participation as a member of the scientific jury, I declare that there is no conflict of interest with the candidates.

Within the framework of the opinion prepared by me, each candidate will be evaluated individually, and the analysis of the submitted documents will be carried out in alphabetical order of the first names of the candidates.

## I. Analysis of the career profile of the candidates.

### *ch. asst. Diana Petrova Karcheva-Bahchevanska, PhD*

Ch. Assistant Professor Diana Karcheva-Bahchevanska was born in 1984. In 2003, she completed her secondary education at "Sveti Kliment Ohridski" Secondary School, Plovdiv, and the same year she was admitted to the Medical College of MU - Plovdiv in the specialty "Assistant Pharmacist". In 2006, she successfully obtained the "Professional Bachelor" degree. In 2012, she acquired a master's degree in pharmacy after completing pharmacy studies at the Faculty of Pharmacy of the Medical University - Plovdiv. In 2016, she was enrolled as a doctoral student at the MU - Plovdiv and in 2018, she obtained PhD in

"Pharmacognosy and Phytochemistry" after a successfully defended dissertation on the topic "Investigation of the functional properties of polyphenolic extracts in species of the genus *Vaccinium* L. on enzymes of carbohydrate metabolism". In 2013, she started her postgraduate studies in the specialty "Medicinal plants and phytopharmaceutical products" at the MU - Plovdiv, which she successfully completed in 2018 and acquired the same specialty.

The candidate's career began in 2006, when she was appointed as an assistant pharmacist at Poli Pharmacy. After acquiring the ED "master pharmacist", the candidate continues her work path as a master in the same pharmacy. During the period 2015-2018, she worked as a researcher at the Laboratory of Biochemistry and Microbiology, Sector of Scientific Research in the field of pharmaceutical sciences (phytochemistry and enzymology) at the Technology Center at Plovdiv University "Paisiy Hilendarski". In 2016, she became an Academic Mentor of Pharmacy students under the "Student Practices Phase 1" program of the Ministry of Education and Culture, at the MU Plovdiv where she is mainly engaged in teaching activities in the field of Pharmacy. In parallel with this, from 2012 to the present, she has successively held the academic position of assistant and chief assistant in the Department of "Pharmacognosy and Pharmaceutical Chemistry" at the Faculty of Pharmacy of the Medical University - Plovdiv, where she is engaged in the training of pharmacy students to acquire the educational degrees "Master " and "Professional Bachelor". Currently ch. Asst Professor Diana Karcheva-Bahchevanska is the administrative head of the "Pharmacognosy and Pharmaceutical Chemistry" department at the Faculty of Pharmacy at the MU - Plovdiv.

***ch. asst. Paolina Kancheva Lukova-Katsarova, PhD***

Ch. Asst Professor Paolina Lukova-Katsarova was born in 1987. In 2006, she graduated from the Ivan Vazov Language High School in Plovdiv. In 2012, she acquired the qualification of master pharmacist after successfully completing pharmacy studies at the Faculty of Pharmacy of the Medical University - Plovdiv. In 2016, she was enrolled as a doctoral student at the MU - Plovdiv in the Ph.D. program "Pharmacognosy" and in 2018 she obtained the Ph "Doctor" in "Pharmacognosy" after a successfully defended dissertation on the topic "Investigation of the prebiotic potential of polysaccharides in some species of the genus *Plantago* L., distributed in Bulgaria". In 2013, she started her postgraduate studies in the specialty "Medicinal plants and phytopharmaceutical products" at the MU - Plovdiv, which she successfully completed in 2018 and acquired a specialty in "Medicinal plants and phytopharmaceutical products".

The candidate's career began in 2010 when she was appointed as an intern successively at Pharmatrading EOOD, and in 2011 at Farmacia "Lda Olga Santamaria", Vitoria Gasteiz, Spain. During the period 2012-2017, she worked as a master pharmacist in the "Fortepharma" Pharmacy, Plovdiv. In parallel with this, for the period 2012 - 2018, she held the position of assistant in Pharmacognosy, and from 2018 to the present, the academic position of chief assistant in Pharmacognosy at the Medical University - Plovdiv, where she is engaged in the training of pharmacy students for the acquisition of educational degrees "Master" and "Professional Bachelor". The candidate is currently the chief administrative assistant of the

Department of "Pharmacognosy and Pharmaceutical Chemistry" at the Faculty of Pharmacy at the MU - Plovdiv.

The data provided in the resumes of the two candidates determine their qualifications as suitable for participation in the announced competition and meeting the conditions laid down in the Regulations for Academic Development of the Medical University - Plovdiv, Section IV, Art. 107 item 2 for not less than two years a) to have employed AP "Assistant", AP "Chief Assistant".

## II. General description of the submitted materials for the competition.

Both candidates have provided in electronic form a complete set of documents corresponding to 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 for the Academic Development of the Medical University - Plovdiv and the relevant Quality Criteria for the Development of the Academic Staff of Medical University - Plovdiv.

## III. Evaluation of the scientific works of the candidates for the overall academic development.

### ✓ *General characteristics of scientific production and publication activity;*

The scientific activity of the candidate *ch. assistant professor Diana Karcheva-Bahchevanska* can be summarized in: contributions of a scientific nature, contributions of a scientific-applied nature and contributions of an applied nature, mainly in the field of pharmacognosy and phytochemistry.

The scientific research activity of the candidate *Karcheva-Bahchevanska* is mainly related to the performance of in-depth meta-analyses on a global scale, referring to studies related to the biological activity of adaptogens of plant origin and evaluation of the benefits and potential of plant-based diets in reducing body fat weight. In addition, the inhibitory effect of fruit extracts from the species *Vaccinium myrtillus* L., widespread in Bulgaria, on the key enzyme amylase was investigated. The first worldwide histochemical study describing the localization of an essential oil from *Echinophora tenuifolia* subsp. *Sibthorpiana*. The localization and chemical profile of an essential oil from *Rhaponticum carthamoides* (Willd.), cultivated in Bulgaria, are described for the first time. For the first time, the chemical profile of the essential oils of *T. macrophyllum* (Waldst. & Kit.) Schultz Bip. originating in Bulgaria, from the flowering aerial parts of *Cardaria draba* (L.) originating in Bulgaria. For the first time, essential oils from seeds of Bulgarian and Indian populations of fenugreek were obtained by secondary distillation of hydrolate to extract the residual oil in them. Extraction of polysaccharides from the genus *Plantago* was performed and their biological activity was evaluated. Also, the need for mandatory analytical control for nutritional supplements was thoroughly analyzed and argued, as well as comparative analyzes were conducted on the chemical composition of essential oils from bio-cultivated and commercial products in Bulgaria..

The publications provided for evaluation of *ch. asst professor Diana Diana Karcheva-Bahchevanska* fully cover the scientific topics of the competition for the academic position of "associate professor" in "Pharmacognosy and Phytochemistry". In view of the nature of the research and findings presented in **Publication 4**, which are directed at another area of pharmaceutical science, I am excluding this publication from my review.

The scientific activity of the candidate *ch. Assistant Professor Paolina Lukova-Katsarova* can be summarized in the following directions: isolation, structural characterization and enzymatic modification of polysaccharides from seaweed and higher plants; study of biological activities of poly- and oligosaccharides from higher plants and seaweed and use of natural polysaccharides as drug carriers.

The studies of *ch. assistant professor Paolina Lukova-Katsarova*, in the first thematic area, the methods for extraction and structural characterization of polysaccharides of natural origin are aimed at optimization. In this regard, the candidate has successfully applied a large set of instrumental approaches, including but not limited to anion exchange chromatography with an amperometric detector (HPAEC-PAD), Fourier transform infrared spectroscopy (FTIR), nuclear magnetic resonance (<sup>1</sup>H NMR), chromatography with size exclusion equipped with multi-angle light scattering laser (SEC-MALS) etc.

Regarding the second field of scientific interests, the candidate directs her efforts to the study of biological activities of polysaccharides, as well as their low molecular weight fractions, with the aim of their potential use as biologically active structures with prebiotic activity; antioxidant activity and anti-inflammatory and immunomodulatory activity.

In my opinion, the specificity of developments in the field of research and use of natural polysaccharides as drug carriers is more closely related to another field of Pharmacy, such as Drug Technology, and for this reason, without diminishing the scientific value of the candidate's publications in this field, I will not review these articles.

✓ *Scientific activity - dissemination and application of the scientific and practical achievements of the candidates among the scientific community;*

Regarding her research work *ch. asst. professor Diana Karcheva-Bahchevanska* fully covers the scientometric criteria established in the Regulations for Academic Development of the Medical University - Plovdiv.

For participation in the competition for AP "Associated professor" Karcheva-Bahchevanska presents a list of **30** scientific papers, **20** of which were published in publications, referenced and indexed in world-famous databases with scientific information (Web of Science and Scopus), **16** of which in **IF** journals and **10** in non-refereed peer-reviewed journals.

Regarding her research work *ch. asst. professor Paolina Lukova-Katsarova* fully covers the scientometric criteria established in the Regulations for Academic Development of the Medical University - Plovdiv.

For participation in the competition for AP "Associated professor" Lukova-Katsarova presents a list of **31** scientific works, **18** of which have been published in publications, referenced and indexed in world-renowned databases of scientific information (Web of Science and Scopus), **all** in journals with **IF**, **3** chapters of collective monographs referenced and indexed in the databases Web of Science and Scopus and **13** publications in non-refereed peer-reviewed journals.

The analysis of the publications submitted to me for opinion shows that in 14 of the indicated publications of the candidate Diana Karcheva-Bahchevanska and 9 of the indicated publications of the candidate Paolina Lukova-Katsarova, the two candidates are co-authors (publications with numbers 7, 8, 11, 14, 15, 16, 17, 18, 19 and 20 from the list of publications referenced in WoS and/or Scopus and numbers 7, 8, 9 and 10 from the list of publications in non-refereed journals by Diana Karcheva-Bahchevanska and numbers 9, 10, 12, 17, 18 from the list of publications referenced in WoS and/or Scopus and numbers 11, 12 and 13 from the list of publications in non-refereed journals by Paolina Lukova-Katsarova). Due to the lack of a separating protocol certifying the commitment of each candidate separately, I will refrain from analyzing the publications thus indicated. This does not reduce their scientific significance and does not compromise their participation in the calculation of the minimum scientometric requirements.

In addition, I cannot fail to point out that a significant part of Paolina Lukova-Katsarova's publications - 10 issues, although they are valuable, are outside the subject of the current competition and are more suitable for the field of Drug Technology, which does not give me the opportunity to include them in the general evaluation of the materials for the competition announced for the appointment of AP "Associate Professor" in "Pharmacognosy and Phytochemistry".

In summary, from the submitted for participation in the competition, a total of 30 publications of ch. assistant professor Diana Karcheva-Bahchevanska, if we exclude the common publications between the two candidates and the publication in another scientific field, it is clear that she participated with 15 articles in the field of the competition, and from the presented 31 publications, if we exclude the common articles and those outside the field of the competition ch. assistant professor Paolina Lukova-Katsarova - participated with 12 articles in the field of the competition.

✓ *Participation in project implementation and management;*

The candidate Diana Karcheva-Bahchevanska participated in the competition with 10 national scientific projects, 2 of which under the Scientific Research Fund and 2 educational projects with European co-financing. In addition, the candidate was a reviewer of 8 scientific articles in refereed scientific journals, 7 of which with IF.

The candidate Paolina Lukova-Katsarova participated in the competition with 4 national scientific projects, 1 of which under the Scientific Research Fund and in 3 educational projects with European co-financing. In addition, the candidate was an editor and guest editor in 2 refereed scientific journals, 1 of which with IF.

✓ *Comparative analysis;*

Based on the above-mentioned observations, I consider that the scientific activity of the candidate Diana Karcheva-Bahchevanska is better represented in the field of the announced competition for the appointment of AP "Associate Professor" in "Pharmacognosy and Phytochemistry" in comparison with the information provided by the candidate Paolina Lukova - Katsarova, which gives me reason to give the first a certain advantage in the ranking.

IV. Evaluation of the monographic work submitted for participation in the competition for "ASSOCIATED PROFESSOR" by the candidates.

***ch. asst. Diana Petrova Karcheva-Bahchevanska, PhD***

The monographic work presented in the competition by the sole author ch. asst. professor Diana Karcheva-Bahchevanska, PhD is in a volume of 122 pages on the topic "*HPTLC application and possibilities in the analysis of substances of plant origin*".

The presented monograph is an up-to-date edition, reviewed by two reviewers, selected according to the relevant legal order and dedicated to the improved possibilities in the study of biologically active substances, mainly of plant origin. Considers some practical guidelines for the analysis of different classes of natural compounds: coumarins, flavonoids, alkaloids, saponins, etc. A huge volume of literary data is summarized, which is also combined with personal research.

In this sense, I believe that the presented monograph is in accordance with the subject of the current competition for "Associated Professor".

***ch. asst. Paolina Kancheva Lukova-Katsarova, PhD***

The scientific production, which ch. asst. professor Paolina Lukova-Katsarova, PhD presented in the competition, includes 1 monograph in Bulgarian and the candidate is a co-author in it.

The monograph on "*Polysaccharide microcarriers for drug delivery*" is written on 280 pages and reviewed by two reviewers, elected by the Departmental Council of the Department of Pharmaceutical Sciences and approved by the Faculty Council of the Faculty of Pharmacy at the Medical University - Plovdiv, in accordance with the requirements of the legal provisions. The monographic work represents an in-depth and complete study of one of the major modern technological challenges in the creation of new drugs with microparticles with directed targeting and regulated release of the active drug component.

I believe that the main scientific direction of the monographic work is to a greater extent related to the scientific field of the Drug Technology and thus goes beyond the subject of the current competition for "Associated Professor". This in no way reduces the scientific value of the work and does not cancel its participation in the scientometric indicators of the competition.

## V. Reflection (citation) of the candidate's publications in national and foreign literature (publication image).

In the documents submitted to me for opinion, the reflection (citation) of the candidates' publications are as follows:

Ch. Assistant Professor Diana Karcheva-Bahchevanska, PhD provides a reference accompanied by relevant documentation for a total of 133 citations, distributed as follows: 92 in journals referenced and indexed in Scopus and Web of Science (carrying 1380 points); 5 in peer-reviewed monographs and collective volumes (carrying 50 points) and 36 in non-refereed peer-reviewed journals (carrying 180 points).

Ch. Assistant Professor Paolina Lukova-Katsarova, PhD provides a reference, accompanied by relevant documentation, for a total of 278 citations, distributed as follows: 238 in journals referenced and indexed in Scopus and Web of Science (carrying 3750 points); 3 in peer-reviewed monographs and collective volumes (carrying 30 points) and 37 in non-refereed peer-reviewed journals (carrying 185 points).

It would be difficult for me to compare the citability of the two candidates, due to the presence of co-authorship in a large number of the cited publications, as well as the provision of citations to publications outside the scientific theme of the competition. Of course, I cannot fail to note the fact that, according to the reference provided by Lukova-Katsarova, one of the review articles on the competition has been cited more than 100 times in journals referenced and indexed in Scopus and Web of Science.

The total number of points for both candidates many times exceeds the required 300 points for holding the title of Associate Professor laid down in the Regulations for Academic Development of the Medical University - Plovdiv.

## VI. Complex, qualitative evaluation of the teaching-methodical and teaching activity, incl. scientific guidance of students, doctoral students, specialists.

Both candidates participating in the competition present a detailed, duly certified reference for their educational and teaching activities classified as: classroom employment, non-classroom employment (preparation of educational materials, including electronic resources, consultations and administrative activity) and scientific work.

In the documents provided by the two candidates, the fact that the academic reference for academic load of the candidate Paolina Lukova-Katsarova is for the period 2017/2018 to 2019/2020 academic years is distinguished. This is contrary to the required study load according to Appendix 1 Table 1.2. Direction 7.3. Pharmacy Indicator G from the Regulations for Academic Development of MU-Plovdiv, referring to study load for the **last 2** years. For this reason, I cannot accept the teaching load thus provided.

Again, co-authorship is noticeable in the documents of both candidates regarding the mentioned two study aids in pharmacognosy - Notebook - pharmacognosy protocol for students of pharmacy I and II part with authors both candidates and asst.D. Seimenska.

In the study documentation of ch. assistant Diana Karcheva-Bahchevanska, there is evidence that for the period 04.04.2022 until 22.07.2022 ch. assistant professor Karcheva-Bahchevanska was the scientific supervisor of the host organization of 1 intern from Polytech Clermont under the Erasmus+ program.

#### **VII. Critical notes and recommendations.**

As a main critical note, I would note the lack of separating protocols between the two candidates in the large number of common publications with which both participate in the competition.

It is also appropriate to point out the lack of a separation protocol for co-authorship in the monographic work of the candidate Paolina Lukova-Karcheva, which is contrary to the requirements for a monographic work according to the Regulations for the Implementation of the Law on the Development of the Academic Staff in the Republic of Bulgaria in the section Note t 5. Regarding monographs with more than one author, there **must be a separation protocol between the authors**. On the same point, however, I consider the submitted work to be monographic, since the author could be credited with a number of pages that meet the definition of a monograph.

**VIII. General assessment of the applicant's compliance with the minimum national requirements under Art. 2b, para. 2 and 3, respectively, to the requirements under Art. 2b, para. 5 of ZRASRB and the requirements specific to MU - Plovdiv by direction and for units with/without clinical activity, defined in the Regulations for Academic Development at the Medical University - Plovdiv.**

The competition materials submitted to me for review by both candidates are in accordance with the minimum national requirements according to the provisions of Art. 2b para 2 and 3; Art. 2b para. 5 of the Law on the Development of the Academic Staff in the Republic of Bulgaria ZRASRB, the Regulations for its Application, as well as the Regulations for the Academic Development of the Medical University - Plovdiv.

**IX. Conclusion - meets / does not meet the mandatory and specific conditions and scientometric criteria - for the academic position "ASSOCIATED PROFESSOR".**

From the data indicated in the opinion, it can be seen that both candidates meet the mandatory and specific conditions and scientometric criteria for the academic position "Associate Professor" and exceed the required national requirements and the requirements of the Regulations for Academic Development of the Medical University - Plovdiv.



## X. Ranking proposal.

According to the submitted documents and the above analysis of the candidates' works, I believe that both candidates are established specialists in their specific fields. I believe that the scientific achievements and the professional qualities of the candidates satisfy the requirements of the ZRASRB, the Regulations for its implementation, as well as the Regulations for academic development at the Medical University - Plovdiv, applied to candidates for the academic position of "associate professor". Bearing in mind the requirements specified in the relevant regulations regarding the study load and teaching activity in the last 3 years and taking into account the better performance of one candidate in the field of the announced professional direction and topic of the competition for the needs of MU-Plovdiv, I propose the following ranking of the candidates:

1. ch. assistant professor Diana Petrova Karcheva-Bahchevanska, PhD
2. ch. assistant professor Paolina Kancheva Lukova-Katsarova, PhD

Based on this, I give my positive assessment for selection under the current competition for the candidate ch. assistant professor Diana Petrova Karcheva-Bahchevanska, PhD, and I propose to the honorable scientific jury and the relevant council of the receiving structural unit this candidate for the academic position "Associate Professor" in "Pharmacognosy and Phytochemistry" at MU-Plovdiv in the field of higher education: 7 Health care and sports, Professional direction 7.3. Pharmacy at the Department of "Pharmacognosy and Pharmaceutical Chemistry" for the teaching of Bulgarian and English in the discipline "Pharmacognosy and Phytochemistry".

Sofia

18.12.2023



/prof. M. Georgieva, PhD/