To the Chairman of the Scientific Jury

Designated by Order № P-109-292/05.09.2024

REVIEW

From

Prof. Magdalena Spasova Kondeva-Burdina, PhD.

Department of Pharmacology, Pharmacotherapy and Toxicology,

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REGARDING: appointment to the academic post of "ASSOCIATE PROFESSOR" in the field of higher education 7. Health and Sport; professional field 7.3. Pharmacy; scientific specialty "Toxicology" from the Law on the Development of the Academic Staff of the Republic of Bulgaria for the needs of the Department of Pharmacology, Toxicology and Pharmacotherapy at the Faculty of Pharmacy, MU-Varna.

On the basis of the Order № P-109-292/05.09.2024, I am included in the membership of the scientific jury for conducting a competition for the academic position of "ASSOCIATE PROFESSOR" in the scientific specialty "Toxicology" and I am appointed to prepare a REVIEW according to the requirements of the Law on the Development of the Academic Staff of the Republic of Bulgaria and the Law on the Development of Academic Staff at the Medical University of Varna.

The only candidate in the announced competition is **chief assist. mag. pharm. Nadezhda Rumenova Karkkeselyan, PhD.**

Biographical data

Education

2002-2006 - Secondary education at the First Language High School/ "Foreign Language" profile with German language, town Varna.

2006-2011 - Higher education/ Master's degree in Pharmacy at the Faculty of Pharmacy, Medical University of Plovdiv.

2016-2018 - PhD/independent PhD student at the Department of Pharmacology, Toxicology and Pharmacotherapy, specialty "Toxicology", MU-Varna. Title of the PhD thesis: "Pharmacotherapeutic study, potential side and toxic effects of cardioprotective drugs in the treatment of hospitalized patients with chronic heart failure",

Professional/Academic Development:

- 2011-2013 - Master Pharmacist at "Zhivita" Pharmacy, Varna

- 2013-2014 - Visiting Assistant Professor at MU-Varna

- 2014-2019 - Assistant Professor at MU-Varna

- 2019-present - Senior Assistant Professor at MU-Varna

Specializations:

- Toxicology and toxicological analysis

- Hospital Pharmacy

Additional qualifications:

- ✓ Basic training course according to the European School of Clinical Homeopathy.
- ✓ Training course "Working with electronic platform "Blackboard Learn +" - level I.
- ✓ Training course "Working with electronic platform "Blackboard Learn +" - level II.
- ✓ Training course "Working with electronic platform "Blackboard Learn +" - level III.
- ✓ Completed additional training course "Protection and welfare of experimental animals used for scientific or educational purposes" at the Faculty of Veterinary Medicine of Trakia University-Stara Zagora.

Research activities

The overall scientific activity of chief assist. prof. Nadezhda Karkkeselyan, PhD is presented by groups, in accordance with the Academic Staff Development Act and the regulations for its application, as follows:

- ✓ 1 monograph;
- ✓ **22** publications, of which **8** are published in refereed and indexed journals;
- ✓ Participation in **21** scientific forums with 33 papers;
- ✓ **3** participations in research projects;
- ✓ citations.

Indicator	Requirement according to the Law on the Development of the Academic Staff of the Republic of Bulgaria and the Regulations for Application of the Law on Academic Staff Development of MU-Varna.	**Chief assit. prof. Nadezhda Karkkeselyan, PhD**
А	50	50
В	100	100
Г (5-9)	200	212,47
Д (10-12)	50	160
Total:	**400**	**522,47**

It is noteworthy that the candidate **exceeds** the mandatory quantitative indicators for holding the academic position "Associate Professor" according to the Law on the Development of the Academic Staff of the Republic of Bulgaria and the Regulations for the Application of the Law on Academic Staff Development of MU-Varna.

Much of the candidate's scientific work has focused on various aspects of pharmacotherapy in patients with cardiovascular disease, including drug-drug interactions, as well as the administration of medicinal and natural substances (pharmacokinetics, biological activity, interactions and side effects).

The main directions in the research work of the candidate are related on the one hand to the analysis of pharmacotherapy in hospitalized patients, and on the other hand to conducting *in vitro* and *in vivo* studies (in

experimental animals) of herbal, natural products and medicinal substances.

The scientific works of the candidate can be presented in several main directions:

1. Study for potential drug interactions.
2. Pharmacotherapeutic and toxicological studies.
3. Study of natural substances and probiotics.
4. Marine medicine, therapy and toxicology.

Contributions of chief assist. prof. Nadezhda Karkkeselyan, PhD could be divided into two groups:

- ✓ scientific-theoretical;
- ✓ scientific and applied.

STRAND 1: SCREENING FOR POTENTIAL DRUG INTERACTIONS

There are 4 scientific publications in this field and they are scientific and applied contributions. In the scientific publications: **G7.1.; G7.6.; G8.3.; G8.4.** are presented author's data from studies on potential drug interactions in hospitalized patients, who passed through the Department of Internal Medicine of the University Hospital "St. Marina" in Varna. In the articles the patients were selected according to different criteria - diagnosis: heart failure, age and medications taken. The interactions of drugs with small therapeutic width (e.g. cardiac glycosides), which are at risk of severe adverse drug reactions, are especially studied.

The focus of another of the articles presented falls on pharmacokinetic drug interactions, which are thought to be more difficult to predict. The observed results contribute to practice by raising awareness of potential interactions when certain drugs are taken concomitantly. These

interactions could have been avoided, but this requires a specific approach - the use of appropriate software or a clinical pharmacist with expertise in drug-drug interactions to draw the necessary expert conclusions for a given pharmacotherapy.

STRAND 2: PHARMACOTHERAPEUTIC AND TOXICOLOGICAL STUDIES

9 scientific publications fall under this heading. The following 4 publications **G7.3.; G8.2.; G8.5.** and **G8.8.** have scientific and theoretical contributions. They focus on new pharmacotherapeutic approaches and toxicological aspects of drug therapy in patients with heart failure and diabetes. The risks of hyperkalemia in patients with heart failure and new options for its management are discussed. Two of the articles presented explore and summarize information on the use of SGLT2 inhibitors in the treatment of heart failure and incretinomimetic therapy with their benefits and risks.

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STRAND 3: RESEARCH ON NATURAL SUBSTANCES AND PROBIOTICS

6 scientific publications fall under this heading. Scientific and theoretical contributions there is a book chapter (published abroad):

- **G9.1.** Georgieva M, Georgiev K, **Hvarchanova N**. Chapter 29. Probiotics: past, present, and future challenges. In: „Probiotics in the Prevention and Management of Human Diseases A Scientific Perspective.“ Elsevier. 2022. Pp. 431-445. ISBN: 978-0-12-823733-5.

This book chapter provides a comprehensive review of information on probiotics with an emphasis on new research challenges related to their application.

5 publications have scientific and applied contributions – **G7.2., G7.5., G7.4., G7.7.** and **G7.8.** These publications present author's data from various studies of an experimental nature. They are focused on the study of biological activity and organoprotective effects of natural substances (mainly plant extracts) and probiotics, as well as on the study of qualitative and quantitative composition of plant extracts. The observed results contribute to practice by indicating the occurrence of potential interactions during simultaneous intake of the studied extracts with drugs. This makes it necessary to take these extracts with caution. Several experiments have focused on investigating the organoprotective effects of plant extracts in experimental animals. The antioxidant activity of Bulgarian probiotic cultures has also been investigated in rats. The developed experimental models (for cardiotoxicity, nephrotoxicity and hepatotoxicity) can be applied to the study of the biological effects of other herbal and medicinal substances.

STRAND 4: MARINE MEDICINE, THERAPEUTICS AND TOXICOLOGY

This area includes 4 scientific publications characterized by scientific and theoretical contributions, namely: **G8.1., G8.6., G8.7**. and **Khverchanova N, Georgieva M, Radeva-Ilieva M, Stoeva S, Georgiev K. The sea - a source of bioactive substances. Varna Medical Forum. 2020; 9(1): 34-39.**

Two of the articles analyze and summarize information on bioactive dinners of marine origin. Two marine toxins, saxitoxin and tetrodotoxin, clinical picture of intoxications with them and their potential pharmacological application are discussed. Information on currently registered medicinal products derived from marine organisms is also examined and summarized, providing a comprehensive view of the development of marine pharmacology. The other two articles are related to an overview of the available clinical possibilities of modern thalassotherapy, a rapidly growing part of health tourism worldwide, including in a coastal country like Bulgaria, and also the legal regulation concerning medical equipment on ships.

Teaching and learning

In terms of teaching and learning activities, in the competition for the academic post of Associate Professor, the candidate participated with **5 teaching aids.**

Chief assist. prof. Nadezhda Karkkeselyan, PhD actively involved in:

- ✓ PHARMACOLOGY exercises for pharmacy students, MU-Varna;
- ✓ Exercises in TOXICOLOGY for pharmacy students, MU-Varna;

- ✓ Lectures on TOXICOLOGY for pharmacy students, MU-Varna;
- ✓ Lectures in PHARMACOLOGY for pharmaceutical assistants, Medical College-Varna
- ✓ Lectures on TOXICOLOGY for pharmaceutical assistants, Medical College-Varna.

CONCLUSION

The comprehensive evaluation of the candidate shows a scientific production that exceeds the quantitative and qualitative requirements of the Low for Academic Staff Development Act in the Republic of Bulgaria and the Regulations for the Development of the Academic Staff of the Medical University-Varna.

The candidate is extremely active in teaching.

On this basis, I confidently propose to the members of the Honourable Scientific Jury to vote POSITIVE for filling the academic position of "Associate Professor" in the scientific specialty "Toxicology", in the field of higher education 7. "Health and Sport", in the professional field 7.3. "Pharmacy", for the needs of the Department of Pharmacology, Toxicology and Pharmacotherapy at the Faculty of Pharmacy, MU-Varna, by chief assist. prof. mag. pharm. Nadezhda Rumenova Karkkeselyan, PhD.

29.10.2024

Sofia Prepared the review:

/Prof. Magdalena Spasova Kondeva-Burdina, PhD/