

REVIEW

*By Prof. Stefka Valcheva-Kuzmanova, MD, PhD, DSc,
Department of Pharmacology and Clinical Pharmacology and Therapeutics,
Faculty of Medicine at MU – Varna*

Subject: Competition (announced in the State Gazette issue 61 / 23.07.2021) for the academic position of "Associate professor" in the field of higher education 7. "Health and Sports", professional direction 7.4. "Public Health", specialty "Public Health Management (Drug Use and Pharmacoeconomics in Health Care) ", for the needs of the Department of Pharmacology and Clinical Pharmacology and Therapeutics,
at Faculty of Medicine at Medical University – Varna

General presentation of the procedure

By order of the Rector of MU – Varna P-109-271/25.05.2023 I was elected a member of the Scientific Jury, and by decision of the meeting of the Scientific Jury (protocol №1 from 09.06.2023) I was elected to prepare a review on the procedure for acquiring the academic position "Associate professor" in the field of higher education 7. "Health and Sports", professional direction 7.4. "Public Health", specialty "Public Health Management (Drug Use and Pharmacoeconomics in Health Care)", for the needs of Department of Pharmacology and Clinical Pharmacology and Therapeutics, at Faculty of Medicine at Medical University – Varna.

In the current competition, the only candidate is chief assistant professor Mpharm Miroslav Tsonkov Eftimov, PhD.

Biographical data about the candidate

Chief assistant professor Mpharm Miroslav Tsonkov Eftimov, PhD, was born on 03.05.1981 in the town of Shumen. In 2004, he graduated as a Master of Pharmacy. The positions of Miroslav Eftimov in Department of Pharmacology and Clinical Pharmacology and Therapeutics are: from 2008 to 2017 – assistant professor, from 2017 until now – chief assistant professor. His total experience as a teacher is more than 14 years, which fulfills the requirement of Art. 125, item 3 of the Regulations for the development of the academic staff at Medical University – Varna, according to which the candidates must have held the

academic positions "assistant professor", "chief assistant professor" or elective non-academic position in MU-Varna not less than 5 years.

During the years of his teaching experience, Mpharm Miroslav Eftimov persistently and responsibly built himself up as a teacher and scientist. From 2013 to 2015, he was a PhD student on independent training at Department of Pharmacology and Clinical Pharmacology and Therapeutics. Since 2015, he has been a "Doctor" in the doctoral program "Pharmacology (including pharmacokinetics and chemotherapy)" after successfully defending a dissertation on the topic: "Pharmacological study of the effect of *Aronia melanocarpa* fruit juice in behavioral models in rats" with scientific supervisors Prof. Dr. Stefka Valcheva-Kuzmanova and Prof. Dr. Roman Tashev. With the dissertation he fulfills the requirement under Art. 125, item 1 of the Regulations for the development of the academic staff at Medical University – Varna.

Mpharm Miroslav Eftimov speaks English.

He has a total of 54 publications and 34 participations in scientific forums. He has a Second place poster award at 2nd International Food Chemistry Congress, 16-19 March 2023, Mirage Park Resort, Kemer/Antalya, Republic of Turkey.

Mpharm Miroslav Eftimov has participated in 5 research projects supervised by Prof. Stefka Valcheva-Kuzmanova, MD, PhD, DSc, of which 3 were financed by the "Science" Fund of MU – Varna (2011, 2014 and 2016) and 2 – financed by the Bulgarian National Science Fund, Ministry of Education and Science (2016 and 2020).

General description of the submitted materials for the competition

The documents provided for the competition are in accordance with the Act on Development of the Academic Staff in the Republic of Bulgaria, the Regulations for the implementation of the Academic Staff Development Act and the Regulations for the development of the academic staff at Medical University – Varna.

Evaluation of the candidate's scientific works

According to the presented academic report issued by MU-Varna, in the current competition Mpharm Miroslav Eftimov fulfills the minimum scientometric requirements for the academic position "Associate professor" specified in Appendix 1 of the Regulations for the development of the academic staff at Medical University – Varna.

He participates in the competition with:

1. Dissertation on "Pharmacological study of the effect of *Aronia melanocarpa* fruit juice in behavioral models in rats", which brings him **50** points;

2. Scientific publications equivalent to a habilitation work (monograph) - 10 in number (with a requirement for at least 10) in journals that are referenced and indexed in world-famous databases with scientific information, which bring him **104.21** points (with a requirement for a minimum of 100 points);

3. Publications and reports published in scientific publications, referenced and indexed in world-renowned databases with scientific information – 10 in number (**85.63** points with a requirement for a minimum of 80 points) + Publications in non-refereed journals – 15 in number. From all these publications the total points are **203.44** with a mandatory minimum of 200 points.

4. Full-text publications in scientific journals and collections, beyond the minimum scientometric requirements for the academic position "Associate professor" – 2 publications in non-refereed journals, which bring him **6.46** points.

In addition, 8 publications are included in the submitted academic report from MU-Varna, with which Mpharm Miroslav Eftimov has participated in the competition for chief assistant professor, as well as 6 other publications related to the dissertation.

The presented academic report shows the high publication activity, as many of the results from the scientific research of the teams in which Mpharm Miroslav Eftimov has participated have found good reception in journals, refereed and indexed in Scopus and/or Web of Science.

The scientific research topics of Mpharm Miroslav Eftimov are very diverse and include a large number of experimental studies of the effects of various pharmacological agents, as well as disease management and pharmacoeconomics.

The scientific contributions of the presented works can be grouped thematically in two main directions: **I. Foods and nutrition**, in which the role of biologically active substances of plant origin was investigated in experimental pharmacological studies, and **II. Disease prevention and management of diseases and health systems**.

In the first direction, **Food and nutrition**, the emphasis is on polyphenols which are amongst the most widespread biologically active substances in plants. In this direction, the effects of *Aronia melanocarpa* fruit juice, aqueous and alcoholic infusions from the leaves and wood of *Cotinus coggygia*, aqueous infusions from *Kochia scoparia* seeds, *Chaenomeles maulei* fruit juice, anethole and chlorogenic acid were studied.

1. For the first time, beneficial effects of *Aronia melanocarpa* fruit juice on rat behavior have been established: 1.1. On depressive symptoms: in young/healthy animals the juice showed an antidepressant-like effect; it prevented the development of a depressive-like state in rats exposed to circadian rhythm disruption, social isolation and ovariectomy; 1.2. On anxiety: it prevented the development of anxiety in rats with alimentary-induced

metabolic syndrome, in ovariectomized rats, in rats exposed to disruption of the circadian rhythm, as well as in rats from the offspring of animals treated during pregnancy; 1.3. On cognitive functions: the juice improved memory and learning in young/healthy rats and spatial memory in rats with diet-induced metabolic syndrome; 1.4. On sleep: it did not prolong thiopental-induced sleep in rats. In addition to effects on behavior, other effects of *Aronia melanocarpa* fruit juice were found: it increased bone density and pain threshold in ovariectomized rats and reduced carrageenan-induced paw inflammation in rats with metabolic syndrome. These results are popularized through 12 publications.

2. New, beneficial effects of aqueous and alcoholic infusions from leaves and wood of *Cotinus coggygria* were discovered: anti-inflammatory effect in carrageenan-induced rat paw edema, gastroprotective effect in indomethacin-induced ulcerogenesis and hepatoprotective effect in paracetamol-induced hepatotoxicity in rats. These results are included in 4 publications.

3. An aqueous infusion of *Kochia scoparia* seeds was found to improve spatial memory, and to exert antidepressant and anxiolytic effects in a rat model of metabolic syndrome. These results are included in 1 publication.

4. It was established that *Chaenomeles maulei* fruit juice showed anxiolytic-like and psychostimulant effects in young/healthy rats, these results being included in 1 publication.

5. In a model of high-calorie diet-induced metabolic syndrome, anethole favorably affected visceral adiposity, had no significant effect on lipid profile, and worsened liver function. These results are promoted through 2 publications.

6. Chlorogenic acid in ovariectomized rats prevented the decrease in bone mineral density and the development of hyperalgesia. These results are included in 1 publication.

7. Important contributions of scientific-applied value are the developed models of postmenopausal syndrome induced by ovariectomy, as well as of ethanol-induced oxidative stress, the results being promoted through 2 publications.

8. In 1 paper, a review of the literature on drug-induced hyperglycemia was made. It shows the skills of Mpharm Miroslav Eftimov to competently handle scientific literature.

In the second direction, **Disease prevention and management of diseases and health systems**, the contributions are related to pharmacoeconomic studies and analyzes in occupational medicine.

1. A cost-effectiveness analysis of active cosmetic acne treatment complexes tested in an in vivo efficacy test was conducted, and the results were included in 1 publication. This analysis shows that Mpharm Miroslav Eftimov has the skills to conduct pharmacoeconomic studies.

2. A retrospective analysis of morbidity and temporary disability in a construction company for the period 2019-2021 was performed and the impact of COVID-19 on these indicators was studied. The contribution of these analyzes is the detection of the leading diseases as a cause of temporary disability which is a prerequisite for the implementation of appropriate preventive measures. These results are included in 2 publications.

Evaluation of the scientific publications equivalent to a habilitation work

Mpharm Miroslav Eftimov participates in the competition with 10 scientific publications, equivalent to a habilitation work. They are full-text papers in scientific journals, referenced and indexed in Scopus and/or Web of Science: *Bulgarian Journal of Agricultural Science*, *Comptes Rendus de l'Académie Bulgare des Sciences*, *Farmacica* (2 papers), *Food and Chemical Toxicology*, *Acta Medica Bulgarica*, *Bulgarian Chemical Communications* (2 papers), *Folia medica* and *Acta alimentaria*. Publication activity in journals with an impact factor proves the scientific value of the research in which Mpharm Miroslav Eftimov has participated. They are dedicated to various issues in the field of experimental pharmacology.

Two of the papers contain results from a subchronic toxicity study of infusions of *Cotinus coggygria* in rats. Through biochemical and histopathological studies, it was established that the ethanol infusion from the wood and the aqueous infusion from the leaves of the plant did not exhibit toxicity.

Another publication is devoted to the effects of an aqueous infusion of *Cotinus coggygria* leaves on behavior and lipid peroxidation in rats. It was demonstrated that this infusion did not cause sedation and motor dyscoordination, and reduced the signs of depression, these effects being accompanied by a decrease in serum lipid peroxides.

The fourth publication shows important results on the protective effects of *Aronia melanocarpa* fruit juices prepared alone or combined with *Rosa canina* or *Alchemilla vulgaris* extracts in an indomethacin-induced gastric ulcer model in rats. The juices reduced the severity of indomethacin-induced gastric lesions and antagonized the effects of indomethacin on apoptosis and lipid peroxidation.

The fifth and sixth papers are devoted to the effects of *Chaenomeles maulei* fruit juice. In tests for depression and anxiety the 2-weeks administration of the juice in rats was found to have no anxiolytic activity but showed an antidepressant-like effect. The study of indices of liver and kidney function established the safety of subchronic administration of this juice.

The seventh publication contains results of the chronic administration of an aqueous infusion of *Kochia scoparia* seeds in rats with a model of metabolic syndrome, in which

the infusion exhibited a weak and short-lasting anti-inflammatory effect on carrageenan-induced paw inflammation.

The eighth publication is devoted to effects of ovariectomy-induced estrogen deficiency on behavior, lipid metabolism, inflammation and bone density in rats. This is a multidirectional study of the changes that estrogen deficiency induced, namely depression, anxiety, hyperalgesia, obesity, dyslipidemia and inflammation, and accompanied by a nonsignificant decrease in bone mineral density.

The ninth publication deals with the effects of chlorogenic acid on behavior and metabolism in ovariectomized rats. The acid prevented some of the negative consequences of estrogen deficiency (anxiety and depressive behavior, increased sensitivity to pain and decreased bone density), but did not affect the increased fat accumulation and increased cholesterol levels.

The tenth paper is devoted to the beneficial effects of *Aronia melanocarpa* fruit juice on glucose tolerance, lipid metabolism and obesity in a rat model of metabolic syndrome, related to its ability to antagonize most of the negative effects of a high-calorie diet on carbohydrate and lipid metabolism.

The publications equivalent to a habilitation work show that Mpharm Miroslav Eftimov has mastered numerous experimental models and can adequately interpret the results of biochemical, histopathological, antropometric measurements, as well as behavioral tests in experimental animals.

Reflection (citation) of the candidate's publications in the national and foreign literature

In the candidate's academic reference issued by MU – Varna, the minimum number of required citations is included: 6 in scientific journals, referenced and indexed in world-renowned databases with scientific information or in monographs and collective volumes and 2 citations in non-refereed peer-reviewed journals, through which the required minimum of 100 points is fulfilled.

In the author's own reference for scientific contributions Mpharm Miroslav Eftimov indicated that the observed number of citations is 33 according to SCOPUS and 166 according to Google Scholar. This indicator shows the great interest in the international scientific community to the studies in which the candidate has participated. This is confirmed by the total impact factor of the journals in which Mpharm Miroslav Eftimov has publications which is 52,414. The candidate has an h-index according to SCOPUS – 4, and according to Google Scholar – 7.

Assessment of the candidate's teaching activities

Mpharm Miroslav Eftimov has more than 14 years and 8 months of teaching experience as an assistant professor and chief assistant professor in Department of Pharmacology and Clinical Pharmacology and Therapeutics at Medical University – Varna. He is engaged in a full course of practicals/seminars in Bulgarian and English in "Pharmacology" for students from the specialties: "Medicine", "Dental Medicine" and "Pharmacy", and in Bulgarian in "Fundamentals of Pharmacology and Pharmacoeconomics" for students from the specialty "Healthcare Management". He participates in conducting semester exams. Mpharm Miroslav Eftimov has been always trying to make the teaching interesting and exciting by preparing well-illustrated presentations and games for students. This makes him a beloved and desired teacher.

The report on the academic workload from the last 5 academic years shows that with the requirement of 360 academic hours, Mpharm Miroslav Eftimov had an average annual workload that significantly exceeded the requirement: for 2017/2018 – 693 hours, for 2018/2019 – 582 hours, 2019/2020 – 505 hours, for 2020/ 2021 – 470 hours and for 2021/2022 – 607 hours.

Mpharm Miroslav Eftimov is the co-author of 4 teaching manuals for students: 3 workbooks for practicals/seminars for students from the specialties: "Medicine", "Dental medicine" and "Pharmacy", and 1 collection of test questions in pharmacology for students.

General assessment of the candidate's compliance with the minimum national requirements of Act on Development of the Academic Staff in the Republic of Bulgaria and Minimum scientometric requirements of MU-Varna, defined in the Regulations for the development of the academic staff at MU-Varna

The overall assessment was made on the basis of the academic report officially issued by MU – Varna for the candidate Mpharm Miroslav Eftimov.

A group of indicators	Minimum requirements of MU-Varna for "Associate professor" (points)	Presented evidence of chief assistant professor Mpharm Miroslav Eftimov in the competition for "Associate professor" at MU- Varna (points)
A1. Dissertation for acquisition of educational and scientific degree “Doctor”	50	50

B4. Habilitation work = scientific publications (not less than 10) in journals, which are referenced and indexed in world-renowned databases of scientific information	100	104.21
Г7. Publications and reports published in scientific journals, referenced and indexed in world-renowned databases of scientific information	80	85.63
Г8. Publications and reports published in non-refereed peer-reviewed journals or published in edited collective volumes		
TOTAL (indicators Г5-9)	200	203.44
Д10. Citations or reviews in scientific journals referenced and indexed in world-renowned databases of scientific information or in monographs and collective volumes Д12. Citations or reviews in non-refereed peer-reviewed journals		
TOTAL (indicators Д10-12)	100	100

The table does not include the additional 2 publications to indicator Г8, which bring the candidate additional **6.46** points, as well as the additional number of points for the citations that are not included in the academic report.

As can be seen from the table, chief assistant professor Mpharm Miroslav Eftimov, PhD, fully meets the minimum national requirements of the Act on Development of the Academic Staff in the Republic of Bulgaria and the minimum scientometric requirements of MU-Varna, defined in the Regulations for the Development of the Academic Staff at MU-Varna.

Conclusion

The presented data on the teaching and research activities of chief assistant professor Mpharm Miroslav Eftimov show that he fully meets the requirements for the academic position "Associate professor" according to the Act on Development of the Academic Staff in the Republic of Bulgaria and the Regulations for the Development of the Academic Staff at MU-Varna.

The scientific activity of Mpharm Miroslav Eftimov meets the legal requirements. It is characterized by a variety of issues both in the field of experimental pharmacology and in public health. The candidate masters a large number of experimental pharmacological methods, has a high research activity, successful publication of scientific papers in specialized scientific journals and numerous citations in the international scientific literature.

Mpharm Miroslav Eftimov has many years of academic experience in teaching pharmacology in Bulgarian and English, and pharmacoeconomics in Bulgarian. He is a trained teacher with a very high academic workload, with participation in writing teaching manuals in pharmacology for students.

I know the development of Mpharm Miroslav Eftimov and I have excellent impressions of his high motivation, ethics, responsiveness, diligence and precision in his work, which are the basis of the current results and are a prerequisite for future achievements.

On the basis of my personal impressions and objective facts, I give my **positive assessment** and confidently claim that chief assistant professor Mpharm Miroslav Eftimov, PhD, fulfills all the requirements and possesses all the qualities necessary for the academic position "Associate professor" in "Public Health Management (Drug Use and Pharmacoeconomics in Health Care)" for the needs of Department of Pharmacology and Clinical Pharmacology and Therapeutics at Medical University – Varna.

REVIEWER: 
Prof. Stefka Vasileva Valcheva-Kuzmanova, MD, PhD, DSc

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