

## SCIENTIFIC REVIEW

By Prof. Magdalen Zlatanov, PhD

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According to the order issued by the Rector of the Medical University “Prof. Dr. Paraskev Stoyanov” – Varna № P-109-161/14.04.2022, I have been appointed a member of the Scientific Jury and according to the decision of the meeting of the Scientific Jury (Protocol №1/27.04.2022) I was appointed to prepare a Scientific review on the procedure for acquiring the academic position “Associate Professor” in the Field of higher education: 4. “Natural Sciences, Mathematics and Informatics”, Professional direction 4.2. “Chemical science”, specialty “Chemistry” for the needs of the Department of Chemistry at the Faculty of Pharmacy, MU-Varna, according to the announcement in the State Gazette, Issue 14/ from February 18, 2022.

The only candidate in the current competition for “Associate professor” is Chief Asst. Prof. Veselina Zdravkova Panayotova, PhD, Department of Chemistry, Faculty of Pharmacy at the Medical University “Prof. Dr. Paraskev Stoyanov” – Varna.

The documents provided by the candidate in the competition are in full compliance with the Law for the Development of the Academic Staff in the Republic of Bulgaria, the Regulation for the implementation of the Law for the Development of the Academic Staff in the Republic of Bulgaria and the Regulation for the Development of the Academic Staff at the Medical University – Varna.

### 1. Short biographical data

Chief Asst. Prof. Veselina Panayotova was born in Varna in 1984. In 2003 she graduated from the High School of Foreign Languages “Joan Ekzarh”, Varna with a profile in English language. In 2007 she graduated as a Bachelor in Chemistry at Sofia University “St. Kliment Ohridski”. In 2009 she graduated as a Master in “Modern Spectral and Chromatographic Methods of Analysis” at the Faculty of Chemistry and Pharmacy, Sofia University “St. Kliment Ohridski”. In 2015 she successfully defended her doctoral thesis entitled “Determination of biologically active substances in Black Sea algae” at the Medical University of Varna and acquired the educational and scientific degree “Doctor” in the scientific specialty: “Bioorganic chemistry, chemistry of

natural and physiologically active substances”. In 2019 she acquired a specialty in the field of healthcare “Theoretical Foundations in Medical Chemistry”.

Chief Asst. Prof. Veselina Panayotova has more than 9 years of teaching experience at the Medical University “Prof. Dr. Paraskev Stoyanov” – Varna. In 2009, shortly after graduation, she was appointed a Chemist (on a Civil Contract) in the Department of Chemistry, Faculty of Pharmacy, Medical University “Prof. Dr. Paraskev Stoyanov” – Varna. From March 2010 to September 2012 Veselina Panayotova was a full-time PhD student at the Department of Chemistry and in October 2012 she was appointed an assistant professor at the Department of Chemistry, Faculty of Pharmacy at MU-Varna. Since October 2016 until now she has been a Chief Assistant Professor at the Department of Chemistry, Faculty of Pharmacy at the Medical University - Varna. Chief Asst. Prof. Vesselina Panayotova has registered scientific profiles in Google Scholar and ResearchGate, for which she has attached copies in the University Library of the MU – Varna.

## **2. General description of the submitted materials**

Chief Asst. Prof. Vesselina Panayotova has authored 1 monograph and co-authored 7 textbooks, 38 scientific papers and 1 book chapter. She has participated in 6 national research projects and has been the research coordinator of one of them, funded by the National Research Fund. For participation in the competition chief Asst. Prof. Vesselina Panayotova has presented 31 scientific contributions (Appendix 13.1) as follows:

- Habilitation thesis – Monograph
- In compliance with the minimal requirements: 15 scientific publications in scientific journals, referenced and indexed in world famous databases (Scopus and/or Web of Science) with SJR and/or IF
- Beyond the minimal requirements: 4 scientific publications in scientific journals, referenced in the Web of Science without SJR and 11 scientific publications in non-refereed journals with scientific review or conference proceedings without IF and SJR (non-indexed)

Chief Asst. Prof. Vesselina Panayotova is the first author of 11 and the corresponding author of 12 of the publications submitted for participation in the competition. According to the Academic Report, the total Impact Factor of the journals in which the candidate has publications is 20,974 (Appendix 13).

### **Scientific indicators**

The total number of points according to the presented scientific contributions is as follows:

- Indicator A1. PhD Thesis – 50 points.
- Indicator B3. Monograph "Marine phospholipids – sources of long-chain polyunsaturated fatty acids" – 100 points.
- Indicator G7. Scientific papers – 210 points (required minimum – 200 points)
- Indicator D11. Citations covering the minimum requirements for holding the academic position "Associate Professor" – 54 points, 11 publications cited.
- Citations beyond the minimum requirements for holding the academic position "Associate Professor" submitted by the candidate for participation in the competition – 44 points, 10 publications cited.
- The total number of noticed citations of chief asst. prof. V. Panayotova according to Google Scholar is 120 excluding self-citations.

**The scientific contributions and their citations of the candidate meet the requirements of the competition for the academic position "Associate professor".**

### **3. Teaching activity**

Until March 8, 2022, chief asst. prof. Vesselina Panayotova has a teaching experience of 9 years 5 months and 8 days. She conducts practical and seminar exercises in the discipline Chemistry for students in Medicine and Dental Medicine – in Bulgarian and English language, practical and seminar exercises in Inorganic and Organic Chemistry and Analytical Chemistry for students in Medical Laboratory – in Bulgarian language, selected lectures and practical and seminar exercises in Physical Chemistry with Colloid Chemistry for students in Pharmacy, as well as selected lectures in an elective course "Environment and health" for students in Pharmacy and Dental Medicine – in Bulgarian language. According to the submitted Report on the workload for the last 5 years, chief asst. prof. V. Panayotova has the following workload: for 2016/2017 – 280 academic hours, for 2017/2018 – 452 academic hours (of which 40 academic hours of lectures in English), for 2018/2019 – 560 academic hours (of which 48 academic hours of lectures in English), for 2019/2020 – 388 academic hours (of which 6 academic hours of lectures

in Bulgarian), for 2020/2021 – 532 academic hours (of which 16 academic hours of lectures in Bulgarian), with the requirements of 360 hours per academic year. The workload of the candidate exceeds the requirements of Art. № 125, Item 3 of the Regulation for the Development of the Academic Staff at the Medical University – Varna, according to which the candidates for holding the academic position “Associate Professor” must have had a workload of at least 100 academic hours on average per year, distributed over the past 10 years.

Chief asst. prof. Vesselina Panayotova has co-authored 2 textbooks designed for practical and seminar exercises in Chemistry for students in Medicine and Dental Medicine, English language program and Inorganic and Organic Chemistry for students in Medical Laboratory. She is a co-author of 5 textbooks in English, which help the self-preparation of candidates in the English language program at MU-Varna. She has participated in the development of curricula for lectures and exercises in Chemistry for students in Medicine and Dental Medicine, English language program, as well as for the elective course Environment and Health for students in Pharmacy. The lecture courses for the specialties Medicine, Dental Medicine and Pharmacy are available on the electronic platforms of the Medical University – Varna.

Chief asst. prof. Vesselina Panayotova is the academic coordinator for the first year students, specialty Medicine – English language program.

#### **4. Analysis of the scientific contributions submitted for participation in the competition**

The contributions of the scientific works of chief asst. prof. Vesselina Panayotova are presented accurately and described in details (Appendix 18). They are aimed at characterizing the quality and safety of marine and freshwater organisms. The presented works can be summarized in the following main directions:

1. Composition and biological/functional activity of marine and freshwater organisms
2. Safety of marine and freshwater organisms
3. Assessment of the risk-benefit ratio from the consumption of Black Sea shellfish

The scientific directions in the scientific work presented by the candidate have are focused on improving the quality of life – food, health and biodiversity and are in line with the objectives of a number of priority strategic documents. The presented works can be summarized by subject in the following areas:

## 1. Composition and biological/functional activity of marine and freshwater organisms

This direction is presented in the largest number of full-text publications (21 in total, 11 of which are published in refereed and indexed journals, and 7 with Impact Factor), as well as in the habilitation work – the monograph “Marine phospholipids – sources of long-chain polyunsaturated fatty acids” (Annex 13). The publications and the monograph present original experimental research. Chief asst. prof. Vesselina Panayotova provides new data on the lipid composition, the content of fat-soluble vitamins and carotenoids, as well as the fatty acid profile of several species of Black Sea molluscs (*№* Г7-09, Г7-11), algae (*№* Г7-01, Г7-02, *№* 03, 04) and freshwater fish (*№* 02, 06). The monograph presents up-to-date scientific information from recent years on the properties and bioavailability of omega-3 polyunsaturated fatty acids, with the main emphasis on “marine” polar lipids containing omega-3 polyunsaturated fatty acids. The presented monographic work contains a large amount of data from the author's own research, examining the lipid composition of economically important Black Sea mollusks. The results of the experimental studies reveal the potential of Black Sea mollusks in response to the growing demand for high-quality marine lipids, sources of polar bonded omega-3 fatty acids.

Another part of the scientific publications provides data on seasonal changes (*№* Г7-06, Г7-13, *№* 08, 10) and changes in lipid composition and vitamin content after culinary treatment and prolonged storage (*№* Г7-03, Г7-05, Г7-07, *№* 08). The significance of these studies is high, because in addition to species-specific, the lipid composition of aquatic organisms depends on the environmental conditions, the reproductive cycle and methods of culinary processing.

The presented data on the antioxidant (*№* Г7-10, *№* 05, 09) and antibacterial activity (*№* Г7-12) of extracts of Black Sea algae and molluscs provide information on the presence of specific biologically active compounds that can be identified and isolated from the extracts and find applications in the development of medicinal products of marine origin.

## 2. Safety of marine and freshwater organisms

A total number of 8 full-text publications are included in this scientific direction, 2 of which have been published in refereed and indexed journals, and 1 is with Impact Factor). Fish and molluscs are sources of various essential macro- and micronutrients in the human diet, but at the same time they are exposed to anthropogenic pollution, for example trace elements (As, Hg, Pb, Cd and Ni). The presented papers examine the content of toxic and essential elements in the Black

Sea and freshwater fish (№ Г7-04, Г7-08, № 06, 13) and molluscs species (№ Г7-04, № 11, 15). The results from publication №15 are included in the Report for the state of the sea in the western part of the Black Sea in 2014 (MISIS Joint Cruise Scientific Report, 2014. "State of the Environment Report on the Western Black Sea based on the Joint MISIS cruise" (SoE-WBS), Moncheva S. and L. Boicenco [Eds], Ed. ExPonto, 401 pp.). In addition to assessing the degree of contamination, the data could also be utilized for the evaluation of the safety of fish and molluscs species (by computation of the estimated daily/weekly intake (EDWI), target hazard quotient (THQ), hazard index (HI) and target cancer risk. (TR).

### 3. Assessment of the risk-benefit ratio for the consumption of Black Sea molluscs

In this direction 2 full-text publications are presented, which have been published in journals with Impact Factor). The data presented in publications № Г7-14 and № Г7-15 could be used to assess the appropriate balance between the risks and benefits from seafood consumption; to ensure that consumers have access to products that are healthy, safe and of good quality, and to promote high standards of health and ecology.

### 5. Scientific and applied contributions

The results from the fatty acid composition were used to calculate the ratios (PUFA/SFA and n-6/n-3) and indices (atherogenic (AI) and thrombogenic (TI)) characterizing the quality of food lipids. The obtained data can be used to enrich databases with the chemical composition of some of the most commonly consumed fish and molluscs species in Bulgaria.

The conducted studies have a monitoring character, as they cover a large number of species and a long period of time. Aquatic organisms (fish, molluscs and algae) can be used as indicators to assess the pollution of water bodies. The obtained results contribute to the enrichment of the data on the pollution of the Black Sea.

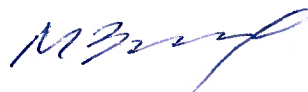
The results obtained for the content of toxic and essential elements and the parameters characterizing the quality of lipids were used to assess the risk-benefit ratio arising from the consumption of seafood and freshwater products.

## CONCLUSION

Based on the materials provided under the announced competition, I believe that chief asst. prof. Veselina Zdravkova Panayotova meets all regulatory requirements for holding the academic position of “Associate Professor”, specified in the Law for the Development of the Academic Staff in the Republic of Bulgaria and the Regulation for the Development of the Academic Staff at the Medical University – Varna. In this regard, I confidently give a positive assessment to the candidate's work and recommend to the Honorable Scientific Jury to propose to the Faculty Council at the Faculty of Pharmacy of MU – Varna, to vote positively for the award of chief asst. prof. Veselina Zdravkova Panayotova, PhD, the academic position “Associate Professor” in the Field of higher education: 4. “Natural Sciences, Mathematics and Informatics”, Professional direction 4.2. “Chemical science”, specialty “Chemistry”.

25.05.2022

Reviewer:



/Prof. Magdalen Zlatanov, PhD /