

REVIEW

of the materials presented by Assoc. Prof. Albena Vasileva Merdzhanova, Ph.D. for participation in a competition for the academic position of "Full Professor" in the field of higher education 4. Natural sciences, mathematics and informatics, professional direction 4.2. Chemical sciences, specialty "Chemistry" for the needs of the "Chemistry" department of the Faculty of Pharmacy of the Medical University "Prof. Dr. Paraskev Stoyanov" - Varna, according to an announcement in the State Gazette, no. 7 of 23.01.2024.

Reviewer: Prof. Kiril Blazhev Gavazov, Ph.D

Professional field: 4.2. Chemical Sciences

Department of "Chemical Sciences" at the Faculty of Pharmacy of MU-Plovdiv

I. Analysis of the candidate's career profile

Associate Professor Albena Merdzhanova, Ph.D. was born in 1966 (for brevity, only the name will be mentioned in the text below).

She received a master's degree from the University of Chemical Technology and Metallurgy - Sofia in 1993. Her specialty is "Bioproduction Technology" and her qualification is "Biotechnological Engineer". Her second master's degree is from 2017 (Episcop K. Preslavski University, master's program "Organic Chemistry").

In the period 2011 - 2014, Albena Merdzhanova was an independent doctoral student at the Chemistry Department of the University of Varna, scientific specialty "Bioorganic Chemistry, Chemistry of Natural and Physiologically Active Substances". Under the supervision of Prof. Lubomir Makedonski, Ph.D., she defends a thesis entitled "Fatty acid composition of Black Sea and freshwater fish".

In the period 2018-2020, she is a specialist at the Medical University "Prof. Dr. Paraskev Stoyanov" - Varna to acquire a specialty in the field of health care.

Professional and academic development. In the period 1993 - 1999, Albena Merdzhanova was an engineer at the Institute of Oceanology - BAS, Varna. From 1999 to 2001, he was PhD III-degree at the Institute of Oceanology - BAS, Varna; from 2001 to 2005 - PhD II-degree at the Institute of Oceanology - BAS, Varna; and from 01.02.2005 - n.s. I-degree at the Institute of Oceanology - BAS, Varna.

Since August 17, 2005, he has held the academic position of "Chief Assistant" at the Medical University "Dr. P. Stoyanov" - Varna. Since October 2018, he has been an "Associate Professor" in the Department of Chemistry of the Faculty of Pharmacy at the Medical University of Varna, and since June 2023 he has been the head of the same department.

Her total teaching experience is 25 years.

She led laboratory experiments and seminars on:

- ✓ "Chemistry" of students from the "Medicine" speciality.
- ✓ "Chemistry" of students from the "Dental Medicine" speciality.
- ✓ "Inorganic and organic chemistry" of students from the "Medical laboratory technician" specialty, College of Medicine, 1st year.
- ✓ "Analytical Chemistry" of students from the "Medical Laboratory Assistant" specialty, Medical College, 1st year.
- ✓ "Inorganic Chemistry" of students from the "Assistant Pharmacist" specialty, Medical College, 1st year.
- ✓ "Analytical Chemistry" of students from the "Pharmacist's Assistant" specialty, Medical College, 1st year.

She has prepared the following lecture courses:

- "Chemistry" for students majoring in "Medicine", 1st year.

- "Inorganic and Organic Chemistry" for students from the "Medical Laboratory Assistant" specialty, Medical College, 1st year.
- "Inorganic Chemistry" for students from the "Assistant Pharmacist" specialty, Medical College, 1st year.
- "Composition and safety of food" for students from the specialty "Pharmacy" (Free elective discipline).
- "Perfumes and fragrances in cosmetic production" for students majoring in "Cosmetology" (Free elective discipline).

Currently, she is the scientific **supervisor of four doctoral students**: one in full-time study and three in independent training.

She is the **sole author** of a **monograph** ("Biologically active fatty acids in support of human health") and **two study aids** (with ISBN), published in 2023 by the Publishing House of MU - Varna.

She is also the **co-author of two other study aids** with ISBN (*1. Collection of tasks for the candidacy exam in chemistry; 2. Collection of test questions for the candidacy exam in chemistry*) intended for preparation for the competitive exam in chemistry at MU-Varna for majors Medicine, Dentistry and Pharmacy, as well as for the field of Military Doctor.

Memberships and activity as a reviewer. Albena Merdzhanova has been a member of the Bulgarian Society of Nutrition and Dietetics since 2015. She is included in the Editorial Board of the Ovidius University Annals of Chemistry. She has provided evidence that she has reviewed scientific articles for several international journals.

II. General impression of the presented materials

The submitted materials are evidence of the candidate's diverse research and educational activities. They are in sync with the competition area.

III. Evaluation of the candidate's scientific works

III.1. General characteristics of scientific production for the entire creative period

The total number of publications of Albena Merdzhanova is 68. Thirty-six of them have been published in journals with SJR and/or IF (Scopus / Web of Science). Her contributions to scientific forums amount to 92. More than 300 independent citations are noted for all publications (excluding self-citations and citations by related authors).

Albena Merdzhanova has profiles in Web of Science, Scopus, Google Scholar, Research Gate and ORCID. According to the Web of Science Core Collection, she has 33 publications and 166 citations (without self-citations). Her H-index is 10. The total number of her publications registered in Scopus is 23. An automatically generated Scopus reference based on 18 selected publications shows that in 22% of them she is the first author, in 6% she is the last author, and in the remaining 72% she is a co-author. She has no research papers as a single author. The number of her citations in Scopus (without self-citations) is 127, and the h-index is 7 (without self-citations).

III.2. Characteristics of the scientific production under the current competition

Albena Merdzhanova participated in the competition for the academic position of "professor" with a monograph (habilitation thesis) and 22 scientific articles. Eighteen of the publications are referenced in Scopus and/or Web of Science, one publication is in an indexed edition, and 3 publications are in non-refereed journals or conference proceedings (which do not have an IF or SJR).

In four of the presented studies, Albena Merdzhanova is the first author (with a major contribution in conducting the experiment, processing the results, and writing the article), and in six she is a corresponding author (with a major

contribution in the conceptualization, methodology and analysis of the results). The publications on the competition mainly cover the period 2018 - 2024. Five articles from previous years (2011 - 2017) that were not used in the competition for the academic position "Assoc. Professor" are also included.

The works presented are mainly devoted to the assessment and characterization of the composition, quality, and safety of consumption of marine and freshwater organisms. They can be seen as a continuation of the research from previous years, which served to acquire the academic position of "Assoc. Professor".

The directions in which the candidate's scientific activity develops are related to:

a) Quality and composition of Black Sea and freshwater organisms (fish, mussels, crabs, shrimps).

b) Effect of heat treatment on the composition and quality of marine and freshwater organisms as food.

c) Safety of marine and freshwater organisms.

d) Assessment of the "benefit - risk" ratio when consuming Black Sea organisms.

e) Study of the changes in the content of free and bound fatty acids (FFA) in blood serum in relation to the study of metabolic syndrome and cardiovascular pathologies.

Albena Merdzhanova's contributions can be classified as scientific and scientific-applied:

- New data were obtained on the quality of a significant number of marine and freshwater organisms that are traditionally consumed in Bulgaria (chemical composition, fatty acid profile, content of fat-soluble vitamins and pigments).

- Some important fatty acid ratios and indices characterizing the quality of lipids as food were calculated. The obtained information can be used to

enrich the available databases on the chemical composition of some commonly consumed types of fish and molluscs.

- The positive effect of mussel lyophilizate from white mussel (*Chamelea gallina*) was studied, along with its potential for protective action in cardiovascular pathologies.
- Monitoring studies have been conducted over a long period of time covering many species. The obtained results contribute to updating the pollution data of the Bulgarian part of the Black Sea.
- It has been shown that aquatic organisms (fish and molluscs) can be used as an indicator to assess the pollution of water bodies.
- The experimental results for the content of toxic and essential elements and the parameters characterizing the quality of lipids (fatty acid composition) were innovatively used to evaluate the "benefit-risk" ratio when consuming marine organisms.

The presented **monography** provides in-depth scientific information about biologically active fatty acids and their role in human health. A major emphasis is placed on accessible sources of fatty acids of marine or freshwater origin. It covers 163 pages and includes 14 figures, 21 tables and a comprehensive bibliography – 218 literature sources reflecting current trends in the field of biologically active fatty acids. It includes own scientific developments, the result of long-term work on the problem, which culminated in the work on a successfully completed scientific project funded by the Bulgarian Science Fund, recently led by the candidate (see below).

The monograph is intended for a wide range of readers. The data are presented in a way that makes it possible to easily draw conclusions regarding the quality and composition of the studied marine and freshwater organisms. It is a basis for a better awareness of health professionals in Bulgaria on issues related to the correct choice of affordable local foods.

The **list of citations** for this competition contains 52 citing sources. This number is sufficient to cover the minimum requirements for holding the academic position of "Professor".

The following publications have attracted the most attention:

1. Stancheva, M., Merdzhanova, A., Dobрева, D. A., & Makedonski, L. (2014). Common Carp (*Cyprinus caprio*) and European Catfish (*Sillurus glanis*) from the Danube River as Sources of Fat Soluble Vitamins and Fatty Acids. *Czech Journal of Food Sciences*, 32(1), 16-24. doi:10.17221/31/2013-cjfs
2. Merdzhanova, A., Panayotova, V., Dobрева, D. A., & Peycheva, K. (2021). Can fish and shellfish species from the black sea supply health beneficial amounts of bioactive fatty acids? *Biomolecules*, 11(11). doi:10.3390/biom11111661

The second paper, in which the applicant is both first and corresponding author, is characterized by a high immediacy index. During the preparation of the applicant's documents, this paper was cited 7 times, and currently 12 times (according to Scopus).

IV. Assessment of educational and methodical activity

Albena Merdzhanova's educational and methodological activity fully corresponds to the profile of the competition. It is significant, long-lasting and diverse. It is expressed in:

1. curriculum development
2. conducting lectures and laboratory exercises
3. authorship/co-authorship of teaching aids
4. guidance of PhD students.

Some details on the listed issues were given above (in the subsection "Professional and academic development").

For the last 4 years, Albena Merdzhanova had an average study load of 339 hours. This significantly exceeds the required norm of 126 hours (according to the decision of the academic council of MU-Varna, reflected in Protocol No. 30/11.04.2011).

V. Participation in the implementation and management of projects

Albena Merdzhanova reports on the participation in nine research projects with national funding and two international projects. Five of them are registered in the NACID (Register of Academic Staff and Dissertations) database.

She is the scientific leader of one of the projects (KP-06-03/11, 18.12.2018 – 18.12.2021), entitled "Study of the biological activity and functional properties of tissue from Black Sea bivalves (*Mytilus galloprovincialis*, *Chamelea gallina* and *Donax trunculus*) as a resource for natural nutraceuticals". The amount raised for this project is significant (BGN 120,000.00).

VI. Critical notes and recommendations

I believe that some of the wording in the Creative CV and in the Author's Statement of Contributions could be improved. For example, it is not necessary in the CV to emphasize the fact that the total number of pages of the 22 articles submitted for the competition is 210. (In my opinion, scientific output in the field of chemistry should not be measured by the number of pages).

I wish Albena Merdzhanova further success in her research and teaching-methodical work.

VII. Conclusion

Albena Merdzhanova more than fulfils the minimum requirements for occupying the academic position "Professor", laid down in the national legislation and in the specific requirements of MU-Varna. The presented materials are evidence of her large-scale research and teaching activities.

Albena Merdzhanova's scientific topic is clearly outlined and corresponds well with the field of the competition. Her contributions are significant, and her publications are "visible" and recognizable in the scientific community.

Considering all the above, I allow myself to propose to the respected members of the Scientific Jury to recommend to the Faculty Council Assoc. Prof. Albena Merdzhanova, Ph.D. to be elected to the academic position "Professor" in the field of higher education 4. Natural sciences, mathematics and informatics, professional field 4.2. Chemical Sciences (specialty "Chemistry").

07.05.2024

Signature

Заличено на основание чл. 5, §1, б. „В“ от Регламент (ЕС) 2016/679
--