

OPINION

from prof. Ginka Atanasova Antova, PhD,
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on the materials submitted for the competition
for the academic position of "Professor"

at Medical University – Varna “Prof. Dr. Paraskev Stoyanov”
in Area of higher education: 4. Natural sciences, mathematics and informatics
Professional field: 4.2. Chemical sciences, Specialty "Chemistry“

According to the order of the Rector of the Medical University - Varna No P-109-94/21.03.2024 and No P-109-134/05.04.2024 (addendum to the Order for the composition of the scientific jury for the academic position of professor, specialty Chemistry) I was appointed a member of the scientific jury, and by Protocol 1/04.04.2024 from meeting of scientific jury I was elected to prepare an opinion on procedure for holding the academic position "Professor" in the area of higher education 4. Natural Sciences, Mathematics and Informatics, professional field 4.2. Chemical sciences, specialty “Chemistry”. For the needs of the Faculty of Pharmacy, Department of Chemistry in the State Gazette, № 7 of 23.01.2024, a competition for "Professor" have been announced, the only candidate being associate professor Albena Vasileva Merdzhanova, PhD in Chemistry.

1. Brief introduction of the candidate

Associate professor Albena Merdzhanova, PhD she completed her higher education at UCTM-Sofia in 1993, and in 2016 she obtained a master's degree in Organic Chemistry at “Konstantin Preslavsky”, University of Shumen. Initially, she worked as an engineer and research assistant at the Institute of Oceanology, BAS-Varna, since 2005 she has been the chief assistant in Medical Chemistry at the Medical University of Varna, and from 2008 to 2018 she has been the administrative chief assistant at the Department of Chemistry at the Medical University of Varna. In 2014 she obtained the Educational and Scientific Degree “*Doctor*” in the scientific specialty *Bioorganic Chemistry, Chemistry of Natural and Physiologically Active Substances* (topic of the dissertation: „*Fatty acid composition of Black Sea and freshwater fish*“). In 2018, she held the academic position of "associate professor" in the specialty "Chemistry" and from June 2023 she was elected head of the "Chemistry" department. In 2021, she obtained a certificate for a recognized specialty "*Theoretical Foundations of Medicinal Chemistry*". She is a member of the Faculty Council of the Faculty of Pharmacy since its creation, since 2018 a member of the Mandate Committee and since 2020 a member of the Faculty's Program Council. Member of the Bulgarian Society of Nutrition and Dietetics since 2015 and since 2016 is a member of the Editorial Board of the Chemistry Journal of Ovidius University - Constanta, Romania.

2. General description of the scientific production

The candidate, associate professor Albena Merdzhanova, PhD participates in the competition with:

❖ **Work for the attainment of academic rank – 1 monograph**

- Merdzhanova, A. „Biologically active fatty acids supporting human health“, ed. Medical University of Varna, 2023, ISBN 978-619-221-455-5 (166 pages)

❖ **Teaching aids:** 2 textbooks with a total volume of 260 pages:

- Merdzhanova, A. Inorganic and Organic Chemistry, Textbook for Medical College, ed. Medical University – Varna, 2023, ISBN 978-619-221-445-6
- Merdzhanova, A. Inorganic Chemistry, 1-st part, Textbook for Medical College, ed. Medical University – Varna, 2023, ISBN 978-619-221-446-3
- ❖ **University manual that is used in the school network:** 2 pieces, with a total volume of 230 pages:
 - Makedonski L., **Merdzhanova A.**, Dobрева D., Georgieva S., Peycheva K., Gerasimova A., Panayotova V., Naneva L., Collection of tasks for the candidate exam in chemistry, 2022, ISBN 9786192213848
 - Makedonski L., **Merdzhanova A.**, Dobрева D., Georgieva S., Peycheva K., Gerasimova A., Panayotova V., Naneva L., Collection of test questions for candidate examination in Chemistry, 2022, ISBN 9786192213848
- ❖ **Scientific publications:** total 58 publication, of which:
 - 36 scientific publications in journals with SJR and/or IF (indexed in *Scopus* and/or *Web of Science*);
 - 10 scientific publications referenced in *Web of Science/Scopus* without SJR;
 - 1 book chapter;
 - 11 articles published in non-refereed peer-reviewed journals or conference proceedings without IF and SJR (not indexed).

In the academic reference for the competition for the academic position "professor", associate professor Albena Merdzhanova presented:

 - *Publications related to the doctoral dissertation* – 2 publications;
 - *Publications related to holding an academic position "Chief assistant professor"* - 8;
 - *Publications related to holding the academic position of "Associate professor"* - 17;
 - *Publications related to holding the academic position of "professor"* - 22 publications,

of which:

 - ✦ ***scientific publications to cover the minimum scientometric indicators***, published in journals, referenced and indexed in world-renowned databases of scientific information (*Web of Science* and *Scopus*) – 18 publications, of them in:
 - *Journal of IMAB* – 3 publications (Q4 - SJR₂₀₁₉=0.108; Q3 - SJR₂₀₂₀=0.225, SJR₂₀₂₁=?);
 - *Toxics* – 2 publications (Q1 - IF₂₀₂₂=4.6 and SJR₂₀₂₂=0.761; IF₂₀₂₃= -; SJR₂₀₂₃=0.815);
 - *Bulgarian Chemical Communications* – 2 publications (Q4 - SJR₂₀₁₉=0.142; SJR₂₀₂₀=0.179);
 - *Acta Zoologica Bulgarica* -2 publications (Q4 - SJR₂₀₂₃=0.216; SJR₂₀₂₄= -);
 - *Egyptian Journal of Aquatic Biology and Fisheries* – 1 publication (Q4 - SJR₂₀₁₉=0.16);
 - *Iranian Journal of Fisheries Sciences* – 1 publication (Q3 - SJR₂₀₂₀=0.312);
 - *Regional Studies in Marine Science* – 1 publication (Q2 - SJR₂₀₂₁=0.49);
 - *International Journal of Environmental Research and Public Health* – 1 publication (Q2 - SJR₂₀₂₁=0.814);
 - *Natural Product Research* – 1 publication (Q2 – IF₂₀₂₁=2.488; SJR₂₀₂₁=0.446);
 - *Biomolecules* – 1 publication (Q1 - IF₂₀₂₁=6.064; SJR₂₀₂₁=1.019);
 - *Food Science & Nutrition* – 1 publication (Q1 - IF₂₀₂₂=3.9 and SJR₂₀₂₂=0.691);
 - *Acta medica Bulgarica* – 1 publication (Q4, SJR₂₀₁₁=0.1);
 - *Ovidius University Annals of Chemistry* – 1 publication (Q4 IF₂₀₁₈=0.9).

✚ **full-text publications outside the minimum scientometric indicators** – 4 publications (1 - in *Acta Scientifica Naturalis*, ESCI of *Web of Science* and 3 publications, published in non-refereed peer-reviewed journals or conference proceedings without IF and SJR).

The personal participation of associate professor Albena Merdzhanova, PhD in these 22 scientific publications is illustrated by the fact that in 6 she is first (~30%), in 6 - the second (~30%), in 3 – it is the third and fourth and in 4 - the fifth author. Assoc. prof. Merdzhanova is the author of a monograph and 2 textbooks, as well as the second author of the university textbooks that are used in the school network.

❖ **Citation of scientific production**

The candidate worked purposefully for many years, accumulated significant results, which she made available to a wide audience and received recognition from a number of scientists abroad. The total number of citations presented is 52, of which 47 are from foreign authors.

Associate professor Albena Merdzhanova has fulfilled the national minimum requirements and the requirements of Regulations of MU – Varna for the development of the academic staff.

The specified points for each indicator are supported by evidence, and even for indicators D and F assoc. prof. Merdzhanova exceeded the required points of the national minimum requirements of the Regulations for the implementation of the Academic Staff Development Act of the Republic of Bulgaria.

Achievement of the national minimum requirements
in professional field 4.2. Chemical sciences

| Group of indicators | A | B | C3 | D | E | F | total |
|-------------------------------|-----------|----------|------------|------------|------------|------------|------------|
| National minimum requirements | 50 | – | 100 | 200 | 100 | 150 | 600 |
| Achievement | 50 | – | 100 | 298 | 104 | 214 | 766 |

3. Teaching activity

Assoc. prof. Merdzhanova, PhD has experience as a teacher in higher education (13 years 2 months and 07 days - experience as a chief assistant professor and 5 years 3 months and 06 days - experience as associate professor from total teaching experience in the specialty of 29 years 10 months and 08 day). She led lecture courses on: "*Chemistry*" in the specialty of Medicine, "*Inorganic and Organic Chemistry*" and "*Inorganic Chemistry*" in the specialties of Medical Laboratory assistant and Assistant Pharmacist at the Medical College and freely elective disciplines "*Composition and Food Safety*" in the specialty of Pharmacy and "*Perfumes and fragrances in cosmetic production*" of the specialty Cosmetology. She also led exercises and seminars on: "*Chemistry*" for students from Medicine and Dental Medicine, "*Inorganic and Organic Chemistry*", "*Inorganic Chemistry*" and "*Analytical Chemistry*" for Medical laboratory assistant and assistant pharmacist at Medical College. Her study load for the period 2019/2020 – 2022/2023 varies from 233 to 394 hours per academic year. She has participated in the development of curricula in "*Inorganic Chemistry*" for students majoring in Assistant Pharmacist, "*Inorganic and Organic Chemistry*" for the specialty Medical laboratory assistant and "*Perfumes and fragrances in cosmetic production*" for the specialty Cosmetology.

Currently, assoc. prof. Merdzhanova is the scientific supervisor of two doctoral students and co-supervisor of two more.

Her qualities as a teacher are also evidenced by her active work with students involved in research projects and as a mentor for student demonstrators. She also actively participates in the

preparation and organization of the annually held "Open Days" in the Medical University of Varna.

In order to increase her qualification, she participated in practical trainings and seminars in our country - training for working with an electronic learning platform and according to BDS EN ISO/IEC 17025:2018.

4. Research work

According to the presented scientific works of assoc. prof. Merdzhanova, PhD it can be seen that her scientific interests are in the following areas: 1) quality and composition of Black Sea and freshwater organisms (fish, clams, rapans, shrimps; 2) influence of heat treatment on the composition and quality of marine and freshwater organisms as food; 3) safety of marine and freshwater organisms; 4) assessment of the "benefit - risk" ratio when consuming Black Sea organisms and 5) study of changes in the content of free and related fatty acids in blood serum in relation to the study of metabolic syndrome and cardiovascular pathologies.

Scientific and scientific-applied contributions

Prof. Merdjanova's scientific interests are related to the study of the fatty acid composition of lipids of marine and plant origin and other biological samples. New data have been obtained on the quality of a large number of marine and freshwater organisms traditionally consumed in Bulgaria in terms of chemical composition, fatty acid profile, as well as the content of fat-soluble vitamins and pigments. These data can be used to enrich the databases for the chemical and lipid composition of some of the most commonly consumed types of fish and mollusks in Bulgaria. The influence of individual fatty acids in preventing the development of cardiovascular diseases was evaluated by calculating important fatty acid ratios (PUFA/SFA; n-6/n-3) and indices (atherogenic and thrombogenic) characterizing the quality of lipids as food. The positive effect of mussel lyophilisate from the white mussel *Chamelea gallina* with the potential for its protective action in cardiovascular pathologies has been studied and proven.

The influence of heat treatment on the composition and quality of marine and freshwater fish species as food was also studied, and it was found that fish retain a balanced fatty acid composition and are a good source of PUFA.

The content of toxic and essential elements in Black Sea and freshwater fish and molluscs was investigated, and their safety was assessed in terms of the content of toxic elements. The obtained results for essential and toxic elements and parameters characterizing the quality of lipids were used to evaluate the "risk-benefit" ratio when consuming marine and freshwater products.

Research of a monitoring nature covering a large number of aquatic organisms (fish and molluscs) over a long period of time has been carried out. The obtained results show that the studied species can be used as an indicator for the assessment of the pollution of the water basins and will contribute to the updating of the data on the pollution of the Bulgarian water area of the Black Sea.

Assoc. prof. Merdzhanova, PhD has participated in a total of 11 projects, 9 of them being projects with national funding from ministries and government authorities (1 of them she was the research leader of), and 2 being international - under the CESUM BS Center for Sustainable Development of the Black Sea Region and under the European Program BG02 "Integrated Management of Marine inland and coastal waters".

The 37 participations in scientific and international scientific forums for the period 2018–2023 are also an indicator of the scientific activity of assoc. prof. Merdzhanova, 13 of which are at

scientific forums abroad (3-Turkey, 2-Romania, 2-Germany, 2-Ireland, 1-Spain, 1-Greece, 1-Italy and 1-Croatia).

Assoc. prof. Merdzhanova has registered scientific profiles in Google Scholar, ResearchGate, Web of science, ORCID ID (reference from the University Library at MU-Varna, attached links).

The scientific activity and teaching qualification of assoc. prof. Merdzhanova, PhD shows that she is an established university lecturer and researcher. The results achieved in teaching and research activities fully correspond to and exceed the mandatory minimum quantitative scientometric criteria for occupying the academic position of "professor" at the Medical University - Varna, adopted in connection with the implementation of the the Academic Staff Development Act of Republic of Bulgaria.

5. CONCLUSION

Based on the presented documents and the scientific achievements, I believe that the scientometric data of **associate professor Albena Vasileva Merdzhanova, PhD** fully meet the national minimum requirements for holding the academic position of "**Professor**", provided in the Academic Staff Development Act of Republic of Bulgaria and the Regulations for the development of the academic staff at MU - Varna (from 21.11.2022). All this gives me reason to evaluate **positively** her overall work. I would like to recommend to the esteemed scientific jury to **propose to the Faculty Council at the Faculty of Pharmacy of MU - Varna to vote for the award of associate professor Albena Vasileva Merdzhanova, PhD** of the academic position "**Professor**" at MU - Varna in the field of higher education 4. Natural Sciences, Mathematics and Informatics, professional field 4.2. Chemical sciences, specialty Chemistry.

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