

OPINION

from prof. Ginka Atanasova Antova, PhD,
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on the materials submitted for the competition
for the academic position of "Associate 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-109-168/14.04.2022 I was appointed a member of the Scientific Jury, and by Protocol 1 from meeting of scientific Jury I was elected to prepare an opinion on procedure for holding the academic position "Associate Professor" in the field 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, issue 14 of 18.02.2022, two competitions for "Associate Professor" have been announced, and for one of them the candidate is Chief Assistant Professor Katya Peycheva Ivanova, PhD in Chemistry.

1. Brief introduction of the candidate

Chief Assistant Professor Katya Peycheva Ivanova, PhD graduated in *Analytical Chemistry* as a Bachelor in 2005 and 2 Master's Degrees in *Modern Spectral and Chromatographic Methods of Analysis* and *Chemistry Teacher* in 2007 at St. Kliment Ohridski Sofia University, Faculty of Chemistry and Pharmacy. Initially she worked as a chief expert on quality control in Devnya Plast Jsc., in August 2008 she was appointed as an Assistant Professor at the Department of Chemistry, Faculty of Pharmacy, MU - Varna and since July 2018 she has been a Chief Assistant Professor. In 2017 she obtained the Educational and Scientific Degree *Doctor* in the scientific specialty *Bioorganic Chemistry, Chemistry of Natural and Physiologically Active Substances*. On 1st June 2019 she acquired an additional specialty in *Theoretical Foundations of Medical Chemistry*.

From 01.02.2007 to 01.08.2007 she was on internship at Prof. Michail Baklanov's research group IMEC, Leuven, Belgium. In the time 01.05 - 01.07.2016 under the Erasmus program she specialized in Lancaster Environmental Centre, Lancaster, UK (Erasmus Student at Prof. Hao Zhang's research group).

2. General description of the scientific production

In the competition for Associate Professor Chief Assistant Professor Katya Peycheva Ivanova participates with a total of 24 scientific papers, grouped as follows:

- ✓ *Work for the attainment of academic rank – 1 monograph* – (Peycheva, K. *Toxic and essential elements in Black Sea fish. Assessment of the potential health risk for the consumer*, 2021, 133 pages, Varna, MU-Varna, ISBN 978-619-221-356-5);

- ✓ **12 scientific publications to cover the minimum scientometric indicators** (in journals indexed in Scopus and/or Web of Science, with SJR and IF) - of which:
 - in *Food control* – 1 (Q1 - IF₂₀₁₇=4,185 and SJR₂₀₁₇=1,502);
 - in *Animals* – 1 (Q1 - IF₂₀₂₀=2,752 and SJR₂₀₂₀=0,584);
 - in *Regional Studies in Marine Science* – 1 (Q2 - IF₂₀₂₁=1,624 and SJR₂₀₂₀=0,464);
 - in *International Journal of Environmental Research and Public Health* – 1 (Q2 - IF₂₀₂₁=3,390 and SJR₂₀₂₀=0,502);
 - in *Natural Product Research* – 1 (Q2 - IF₂₀₂₁=2,861 and SJR₂₀₂₀=0,478);
 - in *Biomolecules* – 1 (Q2 - IF₂₀₂₁=4,569 and SJR₂₀₂₀=1,125).
 - in *Bulgarian Chemical Communication* – 4 (Q4, IF₂₀₁₇=0,242 and SJR₂₀₁₇=0,156, SJR₂₀₁₉=0,142 and SJR₂₀₂₀=0,179);
 - in *Journal of IMAB* – 1 (Q4, SJR₂₀₂₀=0,225);
 - in *Egyptian Journal of Aquatic Biology and Fisheries* – 1 (Q4 - SJR₂₀₁₉=0,16).
- ✓ **11 full-text publications outside the minimum scientometric indicators**, of which: 4 scientific publications in the journal *Ovidius University Annals of Chemistry*, included in the ESCI of the Web of Science (without IF and SJR) and 7 articles published in unrefereed journals with scientific review or conference proceedings without IF and SJR (non-indexed).

The personal participation of Chief Assistant Professor Psycheva, PhD in these 23 scientific publications is illustrated by the fact that in 11 (5 of the first group and 6 of the second group) – she is the first (48%), in 4 – the second (17%), in 3 - the fourth (13%)) and in 5 she is the fifth author (22%). In 12 of them he is a corresponding author.

It is very impressive that some of the scientific papers submitted for review are the result of cooperation of colleagues from the Department of Chemistry (Faculty of Pharmacy, MU-Varna) with colleagues from the Department of Microbiology and Virology (Faculty of Medicine, MU-Varna) and foreign research groups from Italy (University of Messina; Institute of Experimental Zoology in Palermo, Sicily; Institute of Marine Biological Resources and Biotechnology, Messina).

✓ **Citation of scientific production**

For the period 2011 - 2021, the candidate has 119 citations according to Scopus and 256 citations according to Google Scholar, with auto-citations excluded. In the competition for Associate Professor Chief Assistant Professor Katya Psycheva Ivanova participated with 33 citations covering the national minimum requirements of the indicator for citations when holding this academic position (66 points) and with 21 citations outside the minimum requirements, which are again from scientific journals, referenced and indexed in Scopus and Web of Science (42 points). Of the 54 citations submitted for the competition, 53 are by foreign authors, which shows that the results presented in scientific publications have been recognized by a number of scientists abroad.

Chief Assistant Professor Katya Psycheva Ivanova has fulfilled the national minimum requirements of the Regulations for the implementation of the Academic Staff Development Act

of the Republic of Bulgaria and the requirements of the Regulations for the development of the academic staff of the Medical University - Varna (21.03.2022). The points indicated for each indicator are described in detail and supported by evidence.

Achievement of the national minimum requirements and the regulations of MU - Varna
in professional field 4.2. Chemical sciences

| Group of indicators | A | B | C | D | E | F | total |
|-------------------------------|-----------|----------|------------|------------|-----------|----------|--------------|
| National minimum requirements | 50 | – | 100 | 200 | 50 | – | 400 |
| Achievement | 50 | – | 100 | 205 | 66 | - | 421 |

3. Teaching activity

Chief Assistant Professor Peycheva, PhD has experience as a lecturer in higher education institution (5 years 5 months and 13 days - experience as a chief assistant professor out of total experience in the specialty of 9 years 5 months and 8 days), and **has led exercises and seminars** in *Chemistry in Medicine - Bulgarian and English training*, in the specialty *Dental Medicine - English language training*, *General and Inorganic Chemistry in Pharmacy*, *Physical Chemistry with Colloid Chemistry* and *Chemistry and Environment in Pharmacy* and *Chemistry and Environment in Dental Medicine*, as well as lecture courses in *Physical Chemistry with Colloid Chemistry* and *Chemistry and Environment* in specialty *Pharmacy* and *Chemistry and Environment* in specialty *Medicine* and *Dental Medicine*. Her study load for the period 2016/2017 - 2020/2021 varies from 222 to 552 hours per school year. Chief Assistant Professor Peycheva is a co-author of **8** textbooks in English with a total volume of 1527 pages, and in all of them she is the second author. She has participated in the development of curricula in *General and Inorganic Chemistry* for students majoring in Pharmacy, in *Chemistry and Environment* for major *Medicine*, *Dentistry* and *Pharmacy*. Chief Assistant Professor Peycheva is first-year students' academic coordinator, in major *Medicine - English language training* and is a mentor to six students demonstrators at the Department of Chemistry. She participates in the preparation and organization of the annual *Open Days* for the Bulgarian language program and in the *University Open Days* for the English language program at MU-Varna. She is a member of the commission for examination and evaluation of examination papers in chemistry of candidate students for Bulgarian and English language training at MU - Varna and participates in conducting candidate student courses for preparation of candidate students in chemistry. She was a member of the scientific jury in the sessions for student and doctoral presentations at the VII Pharmaceutical Business Forum and Scientific-Practical Conference, 2021. Her scientific work with students is an indicator of her qualities as a teacher - 2 students participated with a poster at *The Sea and Health Scientific Forum* in 2015, and 4 students are actively involved in the experimental research work of 2 research projects.

4. Research work

According to the presented scientific works of Chief Assistant Professor Peycheva, PhD it can be seen that her research interests are in the following three areas: 1) safety of Black Sea and freshwater fish and molluscs; 2) composition and biological/functional activity of marine

and freshwater organisms and molluscs and 3) assessment of the risk-benefit ratio in the consumption of Black Sea molluscs.

Scientific and scientific-applied contributions

A comparative study was performed on the content of toxic and essential elements in various tissues of Black Sea and freshwater organisms and of Black Sea water and sediments, assessing the risk associated with the consumption of Black Sea and freshwater fish and molluscs. A tendency is established to reduce the total concentration of toxic chemical elements in the studied organisms in the period 2010-2021. An assessment of the distribution of toxic and essential elements in the *sea water - biota - sediment* system has been performed. The presented results are a significant step towards the introduction of an appropriate species of fish / molluscs as indicator organisms of pollution of the Black Sea.

The lipid composition and vitamin content of Black Sea and Mediterranean mussels, veined rapa whelks, shrimp, Black Sea and freshwater fish were studied. The quality of the studied fish and molluscs as a food was evaluated on the basis of fatty acid composition, ratios of ω -3/ ω -6 and Polyunsaturated fatty acids/Saturated Fatty Acids and lipid indices (atherogenic, thrombogenic and cholesterolemic). The seasonal changes and the influence of the heat treatment on the lipid composition of marine organisms have been studied and the obtained results have been used to assess their nutritional qualities. Studies on the phenolic content and biological activity of mollusc extracts have been carried out, and the data obtained provide information on the presence of biologically active compounds that can be isolated and used for the development of drugs of marine origin.

For the first time in our country an assessment of the risk-benefit ratio in the consumption of Black Sea and freshwater fish and molluscs (mussels and shellfish) based on the calculated daily/weekly intake, non-carcinogenic risk factor (THQ), carcinogenic risk factor (TR) and hazard index (HI). These studies are of a monitoring nature, as they cover a long period of time and can be used to compare data from other seas (Aegean, Mediterranean, etc.).

Since 2008 till now Chief Assistant Professor Katya Peycheva, PhD has participated in 8 projects, 4 of which are to the Research Fund of the Ministry of Education and Science, 2 under the National Program *Young Scientists and Postdoctoral Students* of the Ministry of Education, 1 under the EEA grant program and 1 under the *Maritime Affairs and Fisheries Program 2014 - 2020*, co-financed by the European Union through the European Maritime and Fisheries Fund.

An indicator of the scientific work of Chief Assistant Professor Peycheva are her numerous participations in scientific and international scientific forums (39 for the period 2009-2022), as 18 of them are at scientific forums abroad (Romania, Greece, Spain, Turkey, Portugal, Russia, Hungary and Germany). She has received 3 awards for best poster (1st place in the poster sessions of international conferences in Romania in 2010 and 2015 and 2nd place at the 6th Food Safety Congress, 2018, Istanbul, Turkey).

She is also a reviewer of 4 publications in international scientific journals, indexed and referenced in world databases (*Marine Pollution Bulletin, Environmental Monitoring and Assessment, Fishes, Journal of Environmental and Public Health*).


Chief Assistant Professor Katya Peycheva has registered scientific profiles with Google Scholar, Research Gate and ORCID (Reference of the University Library, MU-Varna with attached links).

The publication of research results in specialized journals and collections, their promotion at international conferences and her participation in research projects are a recognition of the professional qualities of the candidate as a researcher. My recommendation to her is for a wider coverage of research in specialized scientific journals abroad with impact factor and impact rank.

CONCLUSION

Based on the presented documents and the scientific achievements, I believe that the scientometric data of **Chief Assistant Professor Katya Peycheva Ivanova, PhD** fully meet the national minimum requirements for holding the academic position of **Associate 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 21.03.2022). 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 Chief Assistant Professor Katya Peycheva Ivanova, PhD** of the academic position **Associate Professor** at MU - Varna in the field of higher education 4. Natural Sciences, Mathematics and Informatics, professional field 4.2. Chemical sciences, specialty Chemistry.

23.05. 2022

Opinion prepared by: 
Prof. Ginka Antova, PhD