ATTN: THE CHAIRMAN OF THE SCIENTIFIC JURY
ANNOUNCED BY ORDER NO R-109-517/NOVEMBER 30, 2023
OF THE RECTOR OF THE MEDICAL UNIVERSITY
'PROF. PARASKEV STOYANOV' OF VARNA

PEER REVIEW

by **Prof. Milena Atanasova Atanasova-Radeva, PhD**

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Concerning: a competition for tenure of the academic position of '**Associate Professor**' in the field of higher education No 7. Public health and sports, professional trend No 7.4 Public health, speciality of Public Health Management (Medical Biology)

Brief information about the competition

On the grounds of a decision of the Faculty Council of the Faculty of Pharmacy (Protocol No 63/November 10, 2023) and Order R-109-517/November 30, 2023 of the Rector of the Medical University 'Prof. Paraskev Stoyanov' of Varna I have been elected member of the Scientific jury and according to Protocol No 1/December 14, 2023, I am assigned to prepare a peer review in relation to the procedure for tenure of the academic position of 'ASSOCIATE PROFESSOR' for the needs of the Department of Biology, Faculty of Pharmacy, Medical University 'Prof. Paraskev Stoyanov' of Varna announced in *State* gazette No 83/October 3, 2023 in the field of higher education No 7. Public health and sports, professional trend No 7.4 Public health, speciality of Public Health Management (Medical Biology).

Assistant-in-chief biologist Tsonka Slavova Dimitrova, PhD, is the only candidate in the competition. The inspection of the documents submitted to me demonstrates that they are precisely prepared and completely meet the requirements of the Law for development of the academic staff in the Republic of Bulgaria and the Statute-Book for its application.

Brief biographical data

Tsonka Slavova Dimitrova acquires the educational qualification degree of 'Master' in the specialty of Biology at the Faculty of Biology of the University 'Paisii Hilendarski' of Plovdiv in 2000. In June 2001, she is appointed as biologist at the Immunohistochemical Laboratory in the Clinic for General and Clinical Pathology at St. Marina University Hospital of Varna, sole joint-stock company where she works until 2010. Her teaching internship started on 04.III.2010 as an assistant professor of biology at the Department of Biology, Faculty of Pharmacy, Medical University „Prof. Paraskev Stoyanov" of Varna. In 2019, she enters the full-time PhD program of Medical biology of the Faculty of Pharmacy, Medical University of Varna. After successful defence of a dissertation on "Study of screening methods for early diagnosis of patients with gastrointestinal disorders due to mushroom consumption" in on October 8, 2021, Tsonka Slavova Dimitrova acquired the scientific and educational degree of 'doctor of philosophy' in the scientific speciality of Medical biology. Since 2022, she occupied the academic position of 'assistant-in-chief' in the same department. Assistant-in-chief Tsonka Dimitrova performs classes in Medical biology during the period between 2012 and 2016 and on June 1, 2016, she acquired this speciality and thus she meets the additional precondition of the announced competition.

Evaluation of candidate's scientific activity

Scientometric indicators

Assistant-in-chief biologist Tsonka Slavova Dimitrova, PhD, participates in the present competition with the following scientific works:

- ✓ one dissertation work for the acquisition of the scientific and educational degree of 'doctor of philosophy' (indicator A1 of 50 scores);
- ✓ ten articles which are abstracted and indexed in world-famous data-bases with scientific information and are publications equivalent to a monograph/a research work qualifying for an academic degree (indicator B4 with a total of 187,3 scores);
- ✓ two articles which are abstracted and indexed in world-famous data-bases with scientific information (indicator Г7 with a total of 120 scores), and
- ✓ ten articles which are published in non-referenced journals with scientific peer reviewing or in edited collective volumes (indicator Г8 with a total of 108,9 scores).

She is co-author of five text-books of a total volume of 652 pages as well as of six reports presented at scientific forums in Bulgaria, however, they ARE NOT available in her documentation related to the present competition.

Assistant-in-chief biologist Tsonka Slavova Dimitrova, PhD, is the only author of five papers, the first author of two papers, the second author of ten papers, the third author of one paper, the fourth author of three papers, and the ninth author of one paper as a participant in an international authors' collective published in a foreign journal. These articles are published in eight Bulgarian and two foreign journals after the acquisition of the scientific and educational degree of 'doctor of philosophy'.

The total number of the citations of one article is four (in four articles by foreign authors in four foreign journals). They bring 60 scores against the 50 scores required for the coverage of the minimal requirements for the academic position of 'Associate Professor' in the professional trends of the competition.

Assistant-in-chief biologist Tsonka Slavova Dimitrova, PhD.has active scientific profiles in:

- ✓ Google Scholar: https://scholar.google.com/citations?user=53yyqNEAAAAJ
- ✓ ORCID: 0000-0002-8796-7155
- ✓ SCOPUS Author ID: 57954623200.

Main scientific contributions

Research and publication activities of assistant-in-chief biologist Tsonka Slavova Dimitrova, PhD, are determined by her activity as a specialist I two main scientific fields:

1) characteristics of the knowledge of wild mushrooms and of their usage

2) dermatoglyphics and immunohistochemistry of breast cancer and patients' quality of life.

She has several publications in other areas too - disinfection and therapy with ozone in COVID-19; cryopreservation of embryos; platelet-rich plasma; *Trichomonas tenax* in a periodontal disease and antimicrobial effectiveness of the bioactive glass.

Contributions in a scientific field

1) characteristics of the knowledge of wild mushrooms and of their usage

An undoubted contribution in the scientific trend of ethnomycology and ethnobotany are the results related to the attitudes and knowledge of the population in the Region of Varna concerning the usage of the edible wild mushrooms as well as concerning the recognition of the toxic counterparts of some of them of the respondents with different demographic and educational

peculiarities. In the paper "Ethnomycological research in the field of wild mushrooms and medicinal plants" (Acta Scientifica Naturalis. 2021), the findings from several newly-published investigations by Bulgarian and foreign authors devoted to the knowledge of popular wild mushroom and medicinal plants and of their usage are systematized. The necessity of intensification of the joint ethnomycological and ethnobotanical activity ion Europe is emphasized (B4-No 8).

In the dissertation work for the acquisition of the scientific and educational degree of 'doctor of philosophy' (A1), the results from the first in our country inquiry investigation on the extent of awareness of a total of 200 adult individuals in the Region of Varna about the wild mushrooms and the ways of their usage are systematized. The peculiarities of the intoxications with the wild mushroom *Amanita phalloides* in 147 patients hospitalized in the Clinic of Intensive Treatment of Acute Intoxications and Toxiocoallergies of Naval Hospital of Varna at Military Medical Academy during the period 1991-2015 are analyzed. The socio-medical importance of the poisonings with wild mushrooms is discussed. The various usage of the edible wild mushrooms by the population and the necessity of an effective prevention of the poisonings with toxic wild mushrooms are confirmed. For the first time in Bulgaria, Meixner's test for detection of amatoxins in stomach contents and in mushroom samples and ELISA examination for detection of amatoxins in urine are approved.

In „Distribution of edible, toxic and medicinal wild mushrooms in Europe and Bulgaria" (Acta Scientifica Naturalis. 2021), the results from recent investigations by Bulgarian and foreign authors devoted to the identification and current distribution of some species of wild edible, toxic and medicinal mushrooms in Bulgaria and several European countries are systematized. Several newly-recognized mushrooms are presented. The role of the investigations of the safety of the wild mushrooms under the conditions of environmental pollution is outlined (Г7-No 1).

The anonymous inquiry investigation „Wild edible mushroom usage by the urban and rural population in the Region of Varna" (J of IMAB. 2023) demonstrates some interesting characteristics of the attitude towards the edible wild mushrooms among 200 participants in the Region of Varna. The study reveals some peculiarities of the attitudes towards the edible wild mushrooms among the urban and rural population in the Region of Varna and the size of the usage of commonly occurring mushrooms in dependence on respondents' main residence. The negative attitude the edible wild mushrooms dominates among the respondents in the towns, villages, and all the respondents as a whole on the territory of the Region of Varna (B4-No 1).

Some differences in the attitude towards the edible wild mushrooms and the size of the usage of common mushrooms in dependence on respondents' educational level are rendered an account (Wild edible mushroom usage by inhabitants with different educational level in the Region of Varna. Scripta Scientifica Pharmaceutica. 2022). A satisfactory awareness of 200 adult individuals with elementary, secondary, and higher education in terms of the edible wild mushrooms in the Region of Varna is established. The respondents with secondary education are best informed about these mushrooms (Г8-No 4).

In the retrospective clinico-epidemiological study „A retrospective demographic study of wild mushroom intoxications in the region of Varna, Bulgaria" (Scripta Scientifica Pharmaceutica. 2023) of a total of 672 patients болни the Region of Varna, hospitalized on the occasion of acute intoxications with wild mushrooms in the Clinic of Intensive Treatment of Acute Intoxications and Toxicoallergies of Naval Hospital of Varna at Military Medical Academy during the period between 2005 and 2022, considerable differences in terms of the gender and age characteristics are established. A considerable diminution of the number of the poisoned males, females and all the patients as a whole during the second nine-year period is observed (Г8-No 1).

The description of *Cephalanthera damasonium*, which occurs in the floristic region of North-Eastern Bulgaria, and however, is described for the first time in the protected natural reserves along the valley of Batova river and Dry river, is an original contribution in the publication „New records and noteworthy data of plants, algae and fungi in SE Europe and adjacent regions" (Botanica Serbica. 2022) (B4-No 3).

Contributions in a scientific field

2) dermatoglyphics and immunohistochemistry of breast cancer and patients' quality of life

In the article "Quantitative dermatoglyphic patterns in female breast cancer patients. IMAB. 2023", statistically significant differences between the women with breast cancer and the healthy women in terms of some main quantitative dermatoglyphic characteristics of the finger and palmar papillary traits are established. An asymmetry of the dermatoglyphic characteristics in both groups examined is identified, too. The relationship between the dermatoglyphic traits in women and their predisposition to the development of the disease, and some peculiarities of the dermatoglyphic status are accepted as a prognostic biomarker (B4-No 6).

In the analysis of the quantitative characteristics of the palmar ridge count in females with breast cancer and healthy females, certain statistically significant differences in terms of the dermatoglyphic palmoscopic characteristics between the female patients and the controls are found out. The established differences correlate with predisposition to the development of this medico-socially significant disease and could help the accomplishment of a rapid, cheap, and reliable early screening (B4-No 10).

The role of the dermatoglyphics for the prevention and prognostication of breast cancer identified in newly-published articles by Bulgarian and foreign authors is the object of a concise survey (Comparative dermatoglyphic study of the palmar ridge count in breast carcinoma patients from Northeast Bulgaria. Acta Morphol. Anthropol. 2018). The essential differences between the female patients and the healthy controls in terms of the qualitative and quantitative dactiloscopic and palmoscopic characteristics and the findings of the fluctuation asymmetry can be made use of as a cost-effective and reliable analytical tool for a successful early prevention and for improvement of the prognosis of the disease (Г7-No 2).

In the quantitative analysis of the dermatoglyphic dactiloscopic characteristics, a series of statistically significant differences between the female breast cancer patients and the healthy women in terms of the finger ridge count of the first and second finger of the right hand and of the second and third finger of the left hand are established. These results can help the accomplishment of a rapid, cheap, and reliable early screening of this socially significabnt disease in our country (Г8-No 8).

In the article Immunohistochemical Marker Patterns in Female Breast Cancer. (Open Access Macedonian Journal of Medical Sciences. 2022), the diagnostic value of the conventional immunohistochemical examinations in 128 female breast cancer patients in the city of Varna during the period 2017-2020 is analyzed. Concrete histological and molecular subtypes of the disease concerning the presence of a positive or a negative expression of four biomarkers such as receptors for estrogen and progesterone, human epidermal growth factor receptor-2, and proliferation nuclear protein Ki-67 and their combinations as well as their prognostic value in single patients are analyzed. The role of the expression of single receptors for a suitable and timely decision making concerning the necessity and benefit of an additional chemotherapy in selected surgically treated patients is proved. The new combinations of biomarkers as a basis for diagnostic algorithms are a contribution in this scientific trend (B4-No 5).

In the paper „Therapeutic challenges in quadruple negative breast cancer" (Journal of BioScience and Biotechnology), a survey of the newly-published foreign literature related to the quadruple negative breast cancer, a subtype of the triple negative breast cancer is done. A conclusion of confirmatory nature is drawn: this cancer type is characterized by a negative expression of the androgenic receptors, a high proliferation and immunogenic ability. Because of this it is considered an ideal variant for the cytotoxic chemotherapy and immunotherapy. The results from the application of some new therapeutic agents in the female patients with triple and quadruple negative breast cancer are systematized (Г8-No 5).

The quadruple negative breast cancer is characterized by a negative expression of the estrogen, progesterone and androgenic receptors and of the human epidermal growth factor receptor-2, and it has the poorest prognosis. The prognostic biomarkers known at presence are much less in it than in the triple negative breast cancer. In the publication „Prognostic markers in quadruple negative breast cancer. Therapeutic challenges in quadruple negative breast cancer" (Journal of BioScience and Biotechnology. 2022),the conclusion is drawn that the identification of the circulating microRNAs specific for this malignant tumor can help the diagnosis and prognosis for the development of the disease (Г8-No 6).

In the publication „Institutionalization patterns in breast cancer immunohistochemistry" (J of IMAB. 2022), some basic models of the dynamic science institutionalization in breast cancer immunohistochemistry are scientometrically analyzed within a problem-oriented scientometric investigation. The most significant scientists, journals, scientific institutions and conference proceedings in this interdisciplinary field are outlined. The study is based on articles abstracted in four foreign data-bases published during the period between 2003 and 2018. The results obtained could help the further incorporation of the Bulgarian scientific community to world standards through effective collaboration with leading scientists from abroad and the complex scientometric methodology could be included into the university curricula and the courses of research methodology for doctoral students (B4-No 6).

In the publication „Quality of life of Bulgarian breast cancer female patients" (Open Access Maced J Med Sci. 2021), the unfavourable influence of breast cancer on the individual quality of life is investigated. For the first time in our country, a specialized questionnaire for the patients with upper extremity lymph oedema containing 27 items is compiled and applied in 57 female patients having undergone a successful operative treatment of the disease (B4-No 9).

Contributions in other scientific fields

The review article „Modern applications of ozone for COVID-19 disinfection and treatment" (J of IMAB. 2022) presents ozone as disinfection and therapeutic means because of its outlined antiviral activity under the conditions of still ongoing COVID-19 pandemic. Its capacity to inhibit virus replication and by this way, to indirectly inactivate the viruses is discussed. The role of the modern means and methods for hospital disinfection is noted. The conclusion that ozone therapy is a cheap and good alternative for application in COVID-19 is conformed (B4-No 2).

„Quality of Intact and Artificially Collapsed Human Blastocysts after Vitrification" (Acta Morphologica et Anthropologica. 2022) is a publication which discusses numerous advantages of the routinely applied cryopreservation of embryos during in vitro fertilization. Thirty-one early and 83 expanded blastocysts are juxtaposed. The investigation demonstrates that blastocoel's mechanical collapse by means of micropipette puncture has a positive effect on embryos' survival (B4-No 7).

The existing classifications of platelet-rich plasma concentrates are discussed in an article of review character "Analyzing existing classifications of Platelet-Rich plasma concentrates (PRP)" (Union of Scientists in Bulgaria, city of Plovdiv. 2017 (G8-№ No 10). In another review article „Comparative evaluation of the application of platelet rich plasma (PRP) in orthopedic ambulatory practice for treatment of tendon diseases by innovative obtaining method" (Union of Scientists in Bulgaria, city of Plovdiv. 2017), the clinical application of the platelet-rich plasma obtained by two-step centrifugation in the orthopedic ambulatory practice for treatment of tendon diseases is assessed and discussed, and its advantages over the corticosteroid therapy are outlined (Г8-No 9).

In the review article „Detection of Trichomonas tenax in patients with poor oral hygiene and paradontosis" (Scripta Scientifica Medica. 2022), a correlation dependence between *Trichomonas tenax* presence in the oral cavity and parodontitis development is established (Г8-№ 2).

In the publication „Modern possibilities in the treatment of inflammation caused by *Staphylococcus aureus* biofilm with bioactive glass S53P4" (Journal of BioScience and Biotechnology. 2022), the antimicrobial effectiveness of the bioactive glass on a methicillin-resistant *Staphylococcus aureus* strain is discussed. A confirmatory conclusion about the antibacterial, osteostimulating, and angiogenic properties of the bioactive glass S53P4 which transform it into a reliable means for the treatment of chronic bone infections caused by microorganisms resistant to antibiotics is drawn (Г8-No 7).

Based on the abovementioned, the following generalization of the scientific contributions of the scientific works of assistant-in-chief biologist Tsonka Slavova Dimitrova, PhD, can be made:

The scientific investigations of assistant-in-chief biologist Tsonka Slavova Dimitrova, PhD, testify to active and critical clinical thinking and striving for effective collaboration within interdisciplinary collectives of biologists, botanists, obstetricians-gynecologists, and anatomists. Her publications undoubtedly contribute to the further extension and enrichment of our knowledge of the significant features not only of ethnomycology and ethnobotany but also of the dermatoglyphics, immunohistochemistry, and prognostication of the breast cancer in opur country.

Teaching and lecturer's activity

The mean annual teaching loading of assistant-in-chief biologist Tsonka Slavova Dimitrova, PhD, during the last five academic years - between 2018/2019 and 2022/2023 surpasses 550 hours of auditory occupation for practical exercises and 22 hours for lectures. During the last academic year, the number of the lectures delivered as well as of her participation in the education in English language increases. Assistant-in-chief Dimitrova participates in the teaching of the discipline of 'Biology' of the students of the specialties of Master pharmaceutist and Assistant pharmaceutist and of the discipline of 'Human Biology' of the students of the specialities of 'Medicine' and 'Dental medicine'.

She participates in the elaboration of a course with exercises and lectures in 'Biology' for the master pharmaceutists and assistant pharmaceutists, of test combinations for the performance of the written examination within BLACKBOARD system and of text-books as an aid for students and candidate-students.

Conclusion

I consider that research and teaching and lecturer's activities of assistant-in-chief biologist Tsonka Slavova Dimitrova, PhD, meet the scientometric indicators required by the Law for development of the academic staff in the Republic of Bulgaria, Statute-Book for its application as well as by the concrete requirements listed in the Statute-Book for the development of the academic staff of the Medical University 'Prof. Paraskev Stoyanov' of Varna.

Based on this, I give my positive evaluation and propose to the honourabe members of the Scientific jury to vote for that, assistant-in-chief Tsonka Slavova Dimitrova, PhD, to occupy the academic position of 'Associate Professor' in the scientific speciality of 'Public Health Management (Medical Biology)' in the field of higher education No 7. Public health and sports,

professional trend No 7.4 Public health for the needs of the Department of Biology, Faculty of Pharmacy at the Medical University 'Prof. Paraskev Stoyanov' of Varna.

City of Pleven

PEER REVIEWER:

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

February 12, 2024

(Prof. Milena Atanasova Atanasova-Radeva, PhD)