PEER REVIEW

by Professor Diana Georgieva Ivanova, DSc in Biology, Professor in Biochemistry, at the Medical University 'Prof. Paraskev Stoyanov' of Varna

Re: a competition for acquiring the academic position of 'ASSOCIATE PROFESSOR' in the area of higher education No 4. ***Natural sciences, mathematics and informatics***, professional field No 4.3 ***Biological sciences*** and in the scientific speciality of '***Biology***' for a competition promulgated in *State gazette* No 14/February 18, 2022.

1. Brief information about the competition

Based on the decision of the Faculty Council of the Faculty of Pharmacy (Protocol No 33/April 11, 2022) and an order of the Rector of the Medical University 'Prof. Paraskev Stoyanov' of Varna (No R-109-159/April 14, 2022) I have been appointed as a member of the Scientific jury and according to Protocol No 1/April 27, 2022, I am assigned to prepare a peer review in relation to a procedure for tenure of the academic position of 'ASSOCIATE PROFESSOR' for the needs of the Department of Biology in the Medical University of Varna in the field of higher education No 4. ***Natural sciences, mathematics and informatics***, in professional trend No 4.3 ***Biological sciences*** and the scientific speciality of '***Biology***'.

Galina Alexieva Yaneva, assistant-in-chief in the same department is the only candidate in the competition. The inspection of the documents indicates that they are pedantically prepared and completely meet the requirements of the Law for development of the academic staff in the Republic of Bulgaria and the Regulations for its implementation.

2. Career profile of the applicant

Assistant-in-chief Galina Yaneva was born on November 26,1975 in the town of Beloslav. After completing her secondary school education, she enters the Medical College of the Medical University of Varna where in 1996, she acquires the educational qualification degree of 'professional bachelor' in the speciality of '*Medical laboratory assistant*'. In 1998-2004, she is student in Paisiy Hilendaski University of Plovdiv, Faculty of Biology, and acquires the educational qualification degree of 'master' in the speciality of '*Biology*'. In 2016, she acquires a speciality at the Ministry of Health in '*Medical Biology*', with diploma from the Medical University of Varna dated June 1, 2016. In 2015-2017, Galina Yaneva works on a dissertation work on the topic of '*Medico-dermatoglyphic study of fingerprints and palmar prints in women with breast cancer in North-Eastern Bulgaria*' that she defends at the Department of Biology of the Faculty of Pharmacy of the Medical University of Varna, and in 2018, she is awarded the educational and scientific degree of 'PhD' in the scientific speciality of *biology*. The dissertation

work of Galina Yaneva represents a profound, topical and significant scientific investigation by a non-standard approach in the field of oncology and with an international contribution.

Galina Yaneva starts her length of service following graduation from the Medical College of Varna and from 1997 to 2005, she works as medical laboratory assistant in the Laboratory of Serology in the Clinic of Dermatology and Venereology at St. Anna Multiprofile Hospital of Varna Ltd. After the acquisition of the educational qualification degree of 'master' in 2005, she is appointed as biologist in the Laboratory of Immunohistochemistry of the Clinic of General and Clinical Pathology at St. Marina University Hospital of Varna Ltd, where she works until 2009. G. Yaneva's academics's length of service begins in 2009 in the Department of Biology, Faculty of Pharmacy of the Medical University of Varna where she is appointed as full-time assistant professor in biology, and since 2019, she is assistant-in-chief in the same department. At the present moment, she executes the position of a chief administrative assistant professor of the department, while since 2016, she is also elected member of the Faculty Council of the Faculty of Pharmacy of the Medical University of Varna.

3. Teaching activity

Academic's length of service of assistant-in-chief Galina Yaneva amounts to more than 13 years at a total length of service in the speciality of approximately 17 years. Assistant-in-chief Galina Yaneva presents with a good language preparation and conducts teaching in biology and medical biology for the students masters in medicine and dental medicine, in Bulgarian and English language, and for the students in pharmacy and students in the specialities of the Medical College of the Medical University of Varna. Along with seminars and practical exercises, G. Yaneva delivers single lectures within the lecture courses in biology, too. Against an annual quota of 360 educational hours, Dr. G. Yaneva has a mean auditory teaching loading during the recent 5 years which considerably surpasses the requirements (by 36%).

G. Yaneva's participation in the candidate students' campaigns during the years deserves a particular attention. Since entrance into office in the department, she is member of the commissions for control and evaluation of the written works of the candidate students' competition examinations in biology for students' admission, in the Bulgarian-language and English-language programmes, and she is a co-author of three proceedings with multiple choice questions and tasks for the candidate students published by the department.

4. Scientific production submitted and scientometric data

According to the list of scientific works submitted, Dr. Yaneva participates in the competition with **16** articles in scientific editions abstracted and indexed in world-eminent data-

bases that provide to her **254** scores (indicator G-7) and considerably surpass the minimal requirements of the indicators G5-G10; a published monograph submitted as a research work qualifying for an academic degree (indicator B3) in English and entitled 'Recent advances in breast cancer immunohistochemistry research' - **100 scores,** and a dissertation work for the acquisition of the educational and scientific degree of 'PhD' - **50 scores** (indicator A1). In one third (in **5)** of the publications, the candidate Dr. Yaneva is the **first** author and in one third, she is second or last, **leading** author which demonstrates her active contribution in their elaboration and popularization. Not only the dissertation work but also Dr. Yaneva's publications are in the scientific field of the announced competition. In the list of G. Yaneva's works after the defence of the dissertation work submitted, which have not been peer reviewed in the preceding and outside the minimal scientometric requirements for tenure of the academic position of 'associate professor' in the field of No 4 Natural sciences, mathematics and computer science, in professional trend No 4.3 Biological sciences and the scientific speciality of 'Biology', some other (a total of **21**) full-text publications in scientific journals and collections are indicated.

The total number of citations in scientific editions (without any distinction between Bulgarian and foreign sources) abstracted and indexed in world-eminent data-bases (indicator D11) presented in the Academic check-up of Dr. Yaneva is **26** which provide **52 scores** against 50 eligible scores for the coverage of the minimal requirements for the academic position of 'associate professor' in the professional trend of the competition.

Three out of all the publications submitted are with a **total impact factor (IF)** of **10,316.**

The results from Dr. Yaneva's scientific investigations are presented to the scientific community of **8** international and national congresses and symposia, one half of which are related to her dissertation work. Although they are not peer reviewed, the participations are taken into consideration when elaborating the definite standpoint in the peer review.

Assistant-in-chief Galina Yaneva participates in one research project and presents with active scientific profiles in:

- Google Scholar: https://scholar.google.com/citations?user=NmYLqh0AAAAJ&hl=en&oi=ao
- ORCID: 0000-0002-6194-2902
- ResearchGate: https://www.researchgate.net/profile/Galina-Yaneva

5. Assessment of the research activity and scientific contributions

Dr. Galina Yaneva's research is characterized with clinical orientation as in the same time it covers mutually related trends in the field of the medical and biological sciences - biomarkers, tumorigenesis.

I would thematically differentiate the scientific works and the results from the research activity in the following main trends:

1. Diagnosis, epidemiology, and prognostication of breast cancer
2. Ethnobotany and ecology of medicinal plants and wild mushrooms
3. Assisted reproduction
4. Other.

The contributions of Dr. Yaneva's scientific publications submitted are mainly in the field of oncology. I accept all the contributions in their order according to significance and scientometric criteria:

1. ***Diagnosis, epidemiology, and prognostication of breast cancer:*** A1; B3; G7-No 3; G7-No1; G7-No15; addit. No8-12; addit. No15-18.

Not only the dissertation work for the acquisition of the educational and scientific degree of 'PhD' but also a considerable number of Dr. Yaneva's publications are devoted to the comparative analyses of the primary quantitative and qualitative dermatoglyphic parameters in women with breast cancer in comparison with those in healthy women. The prognostic significance not only of the fingerprint but also of the palmar dermatoglyphic traits as a trustworthy and cheap biomarker among the population with genetic predisposition to this disease is confirmed. The qualitative fingerprint papillary traits such as loops, arches and whorls, the fingerprints and palmar prints in monozygote and dizygote twins, thenar and hypothenar, finger and palmar ridge count, main palmar lines such as A, B, C, and D as well as the fluctuating asymmetry are analyzed. Statistically significant differences in terms of the dermatoglyphic dactyloscopic and palmoscopic traits between females with breast cancer and healthy women are established. The elaborated original algorithm for prognostication of the risk for the occurrence of the breast cancer is an original contribution for the Bulgarian population.

In the monograph published in English, the contemporary application of computed tomography, magnetic resonance imaging, ultrasonography, mammography, positron emission tomography in combination with computed tomography and digital breast tomosynthesis for breast cancer diagnosis are systematized. The diagnostic value of the conventional immunohistochemistry, *in situ* hybridization, fluorescence *in situ* hybridization, chromogenic *in situ* hybridization, double *in situ* hybridization, and multiple immunohistochemistry/ immunofluorescence is analyzed. In a specific study by means of the scientometric method, the structure and dynamics of science institutionalization on the problems of breast cancer

immunohistochemistry aiming at affiliating the Bulgarian scientific community to world approved models are analyzed.

The results from author's own investigation of a total of 128 randomly selected female breast cancer patients carried out during the period between 2010 and 2017 provoke a particularly great interest from theoretical and practical point of view. The peculiarities of the specific histological and molecular subtypes of the disease concerning the differentiation stage, the presence of positive or of negative receptor's expression, their combinations and the prognostic value in single patients are investigated.

An investigation in the field of the social epidemiology of breast cancer examines the modern prevention of the disease and its age-standardized incidence and mortality rates in six regions of North Eastern Bulgaria such as Varna, Ruse, Shumen, Razgrad, Dobrich, and Silistra during the period between 2010 and 2015. The unfavourable influence on the quality of life of breast cancer in 57 female patients by means of a specialized questionnaire for the patients with upper limb lymphedema containing 27 questions is analyzed for the first time in our country.

2. ***Ethnobotany and ecology of medicinal plants and wild mushrooms:*** **addit. No 2-5; addit. No 21; G7-No 4-6; G7-No8-9.**

Assistant-in-chief Galina Yaneva participates in several ethnobotanical investigations which examine the usage of medicinal plants and the attitude towards them of the population along the Northern Black Sea coast of Bulgaria in dependence on the demographic characteristics of the interviewed subjects. Another similar study focuses on wild edible mushrooms in the Region of Varna and the use and knowledge of the population about them which have been studied in two inquiry investigations in dependence on gender, educational level and main residence of the interviewed subjects.

In two articles co-authored by colleagues from Serbia, descriptive data about some new classified plant species in the countries in South-Eastern Europe, among which Bulgaria, too, and in adjacent regions are presented.

In one review article, the newest data concerning the ecology, phytogenetics and biology of some lichens from the viewpoint of the toxin-producing cyanoprokaryotes related to them, in different habitats in the world are discussed. Emphasis is made on two types of most commonly occurring toxins, microcystin and nodularin, produced mainly by the species of *Nostoc* genus. The effective application of a series of contemporary research methods of lichen toxicity that is due to the cyanophotobionthic symbiotic partner is analyzed.

*3. **Assisted reproduction:*** G7-No 10-12; addit. No 7.

Four publications consider the specificities and advantages of the new technology of assisted reproduction - *in vitro* fertilization. The influence of infertility and fertilization on the frequency preterm birth and their association with the low birth weight in singleton pregnancies; with Caesarean section frequency, frequency of operative vaginal delivery, delivery induction, manual placenta removal during the vaginal deliveries, severe postpartum haemorrhage and the necessity of blood transfusion after delivery is investigated. The frequency of the small for gestational age neonates between two kinds of pregnancies such as spontaneous and after *in vitro* fertilization is compared. Several key factors such as age, hormonal female patient's status, protocol for controlled ovarian stimulation applied, oocyte quality, and insemination method for the number and percentage of the preimplantation embryos are retrospectively and prospectively analyzed. A statistically significantly smaller number and percentage of these embryos in the female patients with a low ovarian reserve in comparison with those with a normal one is established.

4. Other

In the last years, a widening of candidate's interest in new scientific fields is observed. On the one hand, she applies dermatoglyphics in terms of other diseases by investigating the dermatoglyphic peculiarities of the fingerprints in patients with psychic diseases, too (G7-No 2).

It is understandable that having in mind the actual epidemic situation in the world caused by COVID-19 dissemination, Dr. Yaneva's emphasis moves away in this direction, too. Two review articles on the peculiarities of ozone and its importance for the struggle against coronavirus while, on the other hand, as a factor favouring its dissemination because of ozone property as air pollutant, are undoubtedly extraordinarily topical and suggest issues for discussion with practical application in a situation of COVID-19 pandemic. Ozone chemistry as air pollutant and powerful antioxidant (G7-No 11) and ozone as disinfection and therapeutic means thanks to its outlined antiviral activity (it inhibits virus replication and directly inactivates the viruses by attacking the capsid proteins, G7-No 16) is considered.

In one review article (G7-No 7), the characteristic peculiarities of RNA alternative splicing in most common neoplasms, including the malignant diseases of the lung, mammary gland, prostate, head and neck, glioma, colon, and blood as well as the molecular mechanisms developed by the cancer cells for stimulation of oncogenesis and for avoiding the treatment with anticancer drugs and the subsequent chemotherapy failure as well are discussed.

Among this group of contributions I also reckon the analysis of the existing classifications of the platelet-enriched plasma concentrations and the clinical application of platelet-rich plasma

in the orthopaedic outpatient practice for the treatment of the diseases of the tendons which are considered in two review articles (addit. No 1 and addit. No 6).

Interesting results of contributory nature are comprised in the elaborations devoted to the analysis of bone anatomy: the variations of the brachial plexus in a total of 40 left and 40 right upper extremities (addit. No 3); ossification centres in cranial bones, the origin of the additional structures such as sutures and bones, their genesis and the influence of the environmental factors are analyzed in a review article (addit. No 14).

In every of these trends, the works demonstrate candidate's professional competence and maturity, including in terms of the transfer of scientific results in an applied context. The elaborations are characterized with a complex approach, critical and clinically oriented thinking and striving for effective collaboration within interdisciplinary collectives with the participation of botanists, oncologists, obstetricians and gynaecologists, and anatomists. In the competition, Dr. Yaneva presents with a scientific production that characterizes her as a modern researcher with original scientific ideas and methodical preparation for their implementation. Her scientific contributions are of original nature and expand not only into fundamental research but also into the applied fields of medical biology. She should define her own main field of scientific interest which she should develop in future.

6. Conclusion

Assistant-in-chief Galina Yaneva is a very well-prepared specialist and lecturer in biology, with a considerable professional contribution for the Department of Biology of the Medical University of Varna. Following a complete analysis of Dr. Yaneva's scientific production, her academic and professional career, of her lecturer's experience and her experience as participant in scientific teams, I find that she meets all the requirements of the Law for development of the academic staff in the Republic of Bulgaria, of the Regulations for its application, and of the Regulations for development of the academic staff in the Medical University of Varna for tenure of the academic position of 'associate professor' and I convincingly recommend to the honoured Scientific jury to award Galina Alexieva Yaneva, PhD, the academic title of 'Associate Professor' the field of higher education No 4 ***Natural sciences, mathematics and computer science***, professional trend No 4.3 ***Biological sciences*** **and** in the scientific speciality of '***Biology***' for the needs of the Department of Biology, Faculty of Pharmacy, in the Medical University of Varna.

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/Prof. Diana Ivanova, DSc in Biology/