

RECENSION

from

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regarding

Selection competition for the academic position "ASSOCIATE PROFESSOR", Field of higher education 7. Health care and sports, professional direction 7.1. Medicine, by scientific specialty CLINICAL LABORATORY, announced for the needs of Faculty of Medicine at Burgas University "Prof. Asen Zlatarov" published in the State Gazette, no. 45 of 17.06.2022

By order No. 274/15.09.2022 of the Rector of Burgas University "Prof. Asen Zlatarov" I have been designated as an official reviewer. For participation in the competition, documents were submitted by Mariyana Georgieva Yordanova-Vasileva, MD - Head of the Clinical Laboratory at the Military Medical Academy -Varna. Criteria for awarding scientific degrees and titles and occupying academic positions at Burgas University "Prof. Asen Zlatarov", which are in accordance with the minimum national requirements of the National Center for Information and Documentation (NACID). The tender documentation is complete and contains the necessary data according to the existing requirements.

Professional Development

Dr. Yordanova graduated in medicine in 1987 at the Higher Medical Institute in the city of Varna. From 1987 to 1998, she worked as a shop doctor and a resident in the Internal Department of the Workers' Hospital in Shumen. In the period 1998 - 2004, she worked at the Hygienic and epidemiological inspection, Varna, in the Radiation Hygiene Department as a radiobiologist. From 2004 to the present, Dr. Yordanova worked at the Military Medical Academy -Varna, as the head of the Department of Clinical Laboratory and Immunology. In the periods 2007 - until now, Dr. Yordanova was the head of a number of laboratories in pre-hospital care: 2007-2011. DCC "St. Ivan Rilski" - Asparuhovo quarter, 2011-2013. DCC "Chaika" - Varna, 2013-2018. DCC "St. Marina" - Varna, 2018. until now "Stealt2013" - Dobrich. In 2002, Dr. Yordanova was appointed as a part-time lecturer in Radiobiology at Varna Medical College. Since 2011 until 2013 is a part-time assistant, and since 2013 until now he holds the position of assistant at the "Clinical Laboratory" Department at the University of Varna. Dr. Yordanova has two acquired medical specialties - internal medicine in 1995. and Clinical Laboratory in 2004. In 2017 is enrolled as a doctoral student in an independent form of study at Medical University-Varna. In 2021 successfully defends PhD thesis in the Clinical Laboratory specialty. In her many years of practice, Dr. Yordanova specializes in various fields of medical science – rectoscopy, fibro-gastroscopy, radiobiology and radiation protection. She has conducted numerous specializations in clinical laboratory, clinical immunology and virology. She went through a qualification course to acquire a pedagogical qualification and scientific teaching experience at the Military Academy - Sofia. The candidate completed a one-year specialization in health management at the University of Economics - Varna. She is fluent in English and Russian. Has computer literacy for Word, Excel, Power Point, Photoshop programs. .

Research activity

Dr. Yordanova's scientific activity includes over 35 scientific articles in medical journals at home and abroad. She has over 30 participations in international and national medical congresses and conferences. She has published one monograph. Dr. Yordanova's research studies include the following scientific directions:

Salivary biomarkers for diagnosis and monitoring of gastroenterological diseases

The chemical and cellular composition of saliva has been extensively studied in a number of articles and in the candidate's dissertation. Numerous biochemical indicators, cellular elements and markers of oxidative stress were monitored in unstimulated saliva. Their biological variation was determined depending on gender, age and smoking in a representative group of healthy persons of Bulgarian origin. A unique study has been conducted in which the reference limits of the investigated parameters in saliva were determined in a representative group of the Bulgarian population. The data provides laboratory professionals with the opportunity for better interpretation and comparability of results. It is proven that the composition of saliva is closely related to a number of physiological and pathological conditions of the individual. The influence of exogenous factors - smoking, diet, occupational hazards - related to the cellular and chemical composition of saliva was monitored. The main focus of Dr. Yordanova's research is the changes that occur in saliva in inflammatory diseases of the gastro-intestinal tract. The features and importance of saliva as an additional biological material supporting the diagnosis, follow-up and treatment of gastro-intestinal diseases are clarified. I consider as a major contribution the fact that these non-routine saliva testing methods have been optimized and validated for use in laboratory practice. This enables them to be used in future scientific and applied research.

Oxidative stress and the body's antioxidant protection in normal and various pathological processes

In numerous studies by Dr. Yordanova, the indicators of oxidative stress (ROS - reactive oxygen radicals and AOS - antioxidant capacity) as well as nitrites in saliva have been quantitatively determined. For the first time in Bulgaria, indicators of oxidative stress in saliva and serum in chronic gastro-intestinal diseases are investigated. The role of oxidative stress in the pathogenesis of the chronic inflammatory process has been proven. A relationship between *Helicobacter pylori* infection and antioxidant status in patients with gastroduodenitis was sought. Attention is drawn to iron levels as they relate to free radical production. The relationship between divers' fruit and vegetable-poor diets and changes in their antioxidant status was tracked. The changes are relevant to this occupational group working in a specific work environment.

Laboratory markers for risk assessment in decompression sickness and diving activity

Dr. Yordanova's work shows a marked interest in the specific profession of divers. This is probably due to the fact that the working regime of this specific professional group is actively monitored in our maritime centers. Divers are known to work in extremely risky environments

and changes in their health can lead to life-threatening deviations. Changes in decompression sickness after breath-hold dives were investigated. A characterization of pulmonary ventilatory function and physique status in divers was made. The main safety priorities for diving descents are outlined. Changes in salivary and dental status in divers were investigated and recommendations for oral health screening were made. Determination of nitrite as a criterion for nitric oxide levels, their influence on diet and their association with decompression risk in divers was performed. A study of oxidative stress in divers, unique for Bulgaria, was carried out using biological material from saliva and serum. I believe that research in this direction has a high social significance and a significant contribution to the field of occupational medicine.

Laboratory markers for diagnosis and monitoring of cardiovascular diseases

In the works of Dr. Yordanova, the object of research are indicators for determining risk factors, diagnosis, monitoring and prognosis of a number of cardiovascular diseases. Smoking is defined as a significant risk factor in the development of CVD. Anthropometric, cardio-metabolic and inflammatory changes in smokers according to smoking duration and severity were investigated. Oxidative stress, obesity and reduced lung function in smokers without respiratory diseases were studied. Thiols were studied as a criterion for the antioxidant barrier in patients with cardiovascular and renal diseases. In patients with ventricular fibrillation, the levels of zinc, iron and magnesium were followed up and a relationship with the severity of the process was sought. The dynamics in the level of c-reactive protein in patients with ventricular fibrillation attacks was monitored. Oxidative stress and the level of thiols as a marker of the antioxidant barrier in patients with heart failure were investigated. High-sensitivity cardiac troponin I has been found to be an important biomarker in the course of Covid-19 infection in adult patients.

Toxicology and immunology

In studies the candidate thoroughly monitors the level of a number of laboratory indicators in acute poisoning with carbon monoxide, methane and hydrogen cyanide. Research on mucosal immunity of the gastro-intestinal tract is of particular interest. The study of secretory IgA in saliva in a number of diseases has both fundamental and applied importance. Monitoring of faecal calprotectin has been established as a reliable marker of the degree of inflammation in autoimmune intestinal diseases. In patients with Covid 19, the level of interleukin-6 was monitored and a relationship was sought with the loss of smell and the severity of the disease. Candidate's developments on the process of cold agglutination and the level of cold agglutinins draw attention to this serious clinical and laboratory problem.

Methods for the study of various biological materials

In a number of Dr. Yordanova's works, a comparative study of biochemical markers in various biological matrices in patients with diseases of the gastro-intestinal tract is carried out. Comparative studies of numerous indicators in various biological fluids - saliva, serum, urine, feces - are carried out. An analysis is made of the advantages and disadvantages of saliva as a biological material, which still cannot impose it in routine laboratory practice. The new

possibilities of salivary diagnostics, the new achievements in "salivomics" and the future perspectives are discussed. Dr. Yordanova's monograph "Salivary diagnostics past, present and future" confirms the opinion that saliva is a reliable biological material for research not only in dental but also in systemic diseases. I believe that Dr. Yordanova's dissertation and monograph are a useful aid for students, dentists and doctors.

The topic of the candidate's scientific works corresponds to the scientific specialty for which the competition has been announced. In the presented list for compliance with the minimum national requirements, Dr. Yordanova has grouped her scientific works as follows:

Indicators Group A

Dissertation for obtaining the scientific degree "doctor" in the scientific specialty Clinical Laboratory on the topic: COMPARATIVE STUDY OF BIOCHEMICAL MARKERS IN DIFFERENT BIOLOGICAL MATRICES IN PATIENTS WITH CHRONIC DISEASES OF THE GASTROINTESTINAL TRACT.

Indicators Group B

Monograph presented in connection with the habilitation procedure: "SALIVARY DIAGNOSTICS - PAST, PRESENT, FUTURE"

Indicators group D

Publications and reports in scientific publications, referenced and indexed in world-famous databases with scientific information (Scopus and Web of science) - 1 pc.

Publications and reports in non-refereed peer-reviewed journals or edited collective volumes. – 31 pcs.

Indicators group D

Citations or reviews in scientific publications, referenced and indexed in world-famous databases with scientific information (Scopus and Web of science) - 5 citations

Citations in monographs and peer-reviewed collective volumes – 10 citations

Indicators group E

Acquired medical specialty: "Internal diseases"

Acquired medical specialty: "Clinical laboratory"

Participation in scientific and educational projects: Joint project with Hepasist for screening tests for Hepatitis – HBV and HCV (2018-2020). Project of the Ministry of Education and Culture "Student practices" as an academic mentor and mentor (2016 – 2023) Investigation of the influence of fresh Aronia melanocarpa fruit juice intake on carbohydrate metabolism and oxidative stress in patients with type 2 diabetes mellitus at different ages (2014-2016) Evaluation of predictors and prognostic indices for the clinical course and healing effect in patients with rheumatoid arthritis (2014-2018) Complex oral diagnosis of children and adolescents with diabetes mellitus obesity (2015-2017)

Published Study Guide - The Monograph Dr. Yordanova's monograph on salivary diagnostics is a useful aid for students, dentists and doctors.

Training of interns, specialists - 2 doctors.

The compliance of Dr. Yordanova's scientific output with the quantitative and qualitative criteria for awarding scientific degrees and titles and holding academic positions at the University of Cambridge "Prof. Asen Zlatarov" and their comparison with the minimum requirements of the National Center for Information and Documentation (NACID) is presented in Table 1.

A group of indicators	Contents	Associate professor (number of points)	Candidate Points
A	Indicator 1	50	50
B	Indicators 3 or 4	100	100
C	Sum of indicators 5 to 9	220	514
D	Sum of indicators from 10 to 12	60	125
E	Sum of the indicators from 13 to the end	-	220
			Total: 1009 points

It is clear from the attached table that the scientific production of the candidate meets all qualitative and quantitative criteria. The analysis of the works shows sufficient volume and quality of scientific production. 33 scientific works, which were published after PhD thesis were submitted for review in the competition. In 57.6% of these scientific publications, Dr. Yordanova is an independent or first author, and if we add those in which she is in second place (15.2%), it becomes clear that she is in the leading position in the majority (72.8%) from the publications. The candidate's submitted list of 30 printed abstracts of scientific communications from participation in congresses confirms her scientific research activity (in 63.3% of these works she is the first author). Dr. Yordanova's scientific works have been cited 2 times by Bulgarian authors and 15 times in foreign scientific sources. Dr. Marijana Yordanova is a member of the Bulgarian Clinical Laboratory Society. She is a member of the management board of the company's Northeast branch. Dr. Yordanova is a member of the Bulgarian Association of Aviation, Marine and Space Medicine. She is a member of the editorial board of the journals "MedCrave/Geriatrics Journal" and "Online Journal of Cardiology Research & Repo

Teaching and learning activity

The educational and teaching activity of Dr. Mariyana Yordanova is related to the educational process at the MU "Prof. Paraskev Stoyanov" - Varna. In 2002 was a part-time lecturer in Radiobiology at the Medical College - Varna for the specialty X-ray laboratory technician, and since 2011 until 2013 part-time clinical laboratory assistant. Since 2013 until now she holds the position of assistant at the "Clinical Laboratory" Department at the MU-Varna. As an assistant at MU-Varna, she taught (lectures, exercises and SID) to students from the following specialties: Medicine, Nursing, Midwifery, Medical Laboratory Assistant and Master Pharmacist. She developed curricula and programs, a lecture course and exercises. In addition, since 2007, her teaching activity has been related to annual courses (2 courses) for postgraduate qualification (SDO) for doctors and medical specialists from the Schedule of courses at the Academy of Medical Sciences. In the period 2011-2015 conducts a lecture course on Radiobiology in courses for renewal of permission to work in an environment of ionizing radiation at Higher Naval School "Nikola Vaptsarov" - Varna. For the last academic year, the total and classroom employment 330 study hours. Dr. Marijana Yordanova was the supervisor of

two clinical laboratory specialists. She actively participated as an academic tutor and mentor in the general education Project of the Ministry of Education and Culture "Student practices".

Conclusion

Based on an analysis and assessment of the attached documentation, I consider that Dr. Yordanova fully meets the requirements of the law on the development of the academic staff in the Republic of Bulgaria and the qualitative and quantitative criteria for the development of the academic staff specified in the regulations of the University of Burgas "Prof. „Asen Zlatarov", according to the criteria of NACID, for acquiring the academic position of "associate professor".

The complex evaluation of the candidate's qualities gives me reason to recommend to the members of the respected scientific jury to choose Dr. Mariyana Georgieva Yordanova – Vasileva, PhD for ASSOCIATE PROFESSOR of clinical laboratory at Burgas University "Prof. Asen Zlatarov".

21.10.2022

Reviewer:

Prof. Krasimira Ikonomova, MD, PhD