

REVIEW

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Concerning: competition for the academic position "**PROFESSOR**"

The review was prepared on the basis of requirement of the Law for development of the academic staff in republic Bulgaria and its Regulations and the Regulations on the terms and conditions for acquiring scientific degrees and holding academic positions at the University "Prof. Dr. Asen Zlatarov "- Burgas

Candidate - Professor Dr Ganka Yordanova Bekyarova MD, PhD

I. Competition procedure

The competition for the academic position "**Professor**" in the field of Higher Education 7. "Health and Sports" in professional field 7.1 "Medicine" and scientific specialty "*Pathophysiology*" was announced for the needs of the Faculty of Medicine for the University "Prof. Dr. Assen Zlatarov "- Burgas and was published in the **State Gazette № 105/11.12.2020.**

In the announced competition for "Professor" in "Pathophysiology" for the needs of the Faculty of Medicine for the University "Prof. Dr. Asen Zlatarov" - Burgas were submitted documents by only one participant, **Professor Dr. Ganka Yordanova Bekyarova, MD, PhD.**

The Commission for Acceptance of the Necessary Documents finds them regular and admits Prof. Ganka Bekyarova to participate in the competition.

On the grounds of order **№ RD-9/20.01.2021 г.** of the Rector of University "Prof Dr Assen Zlatarov" Burgas , I was elected as member of scientific jury in a competition for the academic position ' Professor'.

I declare that I have no conflict of interest, co-authorship in the publications of the candidate with which she participates in this competition.

II. Brief biographical data

Prof. Ganka Bekyarova was born on July 24, 1952 in the town of Kotel. She graduated Medicine at the Medical University - Sofia in 1977.

The academic development passes consistently through all positions: assistant, senior and chief assistant. In 1984 he acquired the specialty "Pathophysiology".

In 1990 she defended her dissertation on the topic: "*Changes in the functional properties of erythrocytes associated with free radical oxidation in thermal trauma*" in the scientific specialty Pathophysiology. In 1999 she acquired the academic position of Associate Professor of Pathophysiology.

In 2014 she he defended a dissertation on Doctor of Science on the topic: "*Study of some possible mechanisms of liver damage associated with oxidative stress in experimental thermal trauma and the role of melatonin in hepatoprotection.*" In 2016 she was elected professor of pathophysiology at medical University-Varna.

Prof. Bekyarova is a member of scientific organizations: *Bulgarian Society of Physiological Sciences, Union of Scientists in Bulgaria, European Physiological Society (FEPS), Bulgarian Medical Union.*

Prof. Bekyarova has reviewed research projects, has been elected many times a member of scientific juries, has reviewed scientific papers articles in Bulgarian and Foreign journals.

Prof. Bekyarova is a member of a number of editorial boards of the following journals: *Journal of Biomedical & Clinical Research, Oxidants and Antioxidants in Medical Science* и *Scientific Journal.*

She is a member of the State Examination Commission for Recognition of the Specialty of "*Pathophysiology*". Prof Bekyarova is fluent in written and spoken English and Russian.

In this competition Prof. Bekyarova participates with scientific materials and documents that give me reason to characterize its activities in several directions .

Having in mind the requirements for complex presentation of the activity and qualities of a given candidate in a competition for "Professor", I present them in the sciecemetric analysis and briefly in the present review.

III. Scientific Activity

Scientific articles / publications

Prof. Bekyarova participates in the announced competition for professor of "Pathophysiology" at the University "Prof. Dr. Asen Zlatarov" - Burgas with scientific materials summarized in several sections: 1) articles/publications - **75** ; 2) **3** textbooks and **9** textbooks, 3) **1** monograph and 4) **62** reports.

For a clearer characterization of the research activity of Prof. Bekyarova, the scientometric analysis is made in the separate sections presented.

Scienmetric analysis. I accept that the presented works of Prof. G. Bekyarova correspond to the topic of the announced competition. Candidate has taken part with in the competition with scientific materials summarized in several sections: 1) articles / publications - **50** in number, of which **13** of the articles were published in journals with impact factor, **50** were referenced in foreign and Bulgarian journals, and **8** - in scientific collections; 2) **3** textbooks and **9** textbooks, 3) one monograph and 4) **62** reports.

After the last habilitation, the scientific publications are **50**, of which **10** are in journals with impact factor and **18** in international periodicals without impact factor, **32** are referred to in Bulgarian journals and collections.

Professor Ganka Bekyarova is the first author in 12 scientific articles (62%), the second author in 6 articles (24%), the third and fourth, respectively in 4 articles (6%).

She presents in the current competition and participation in congresses, symposia and conferences with published abstracts - a total of 62 titles, of which 22 at international forums.

The scientific publications of Prof. G. Bekyarova have been cited positively over 250 times in a scientific journals with impact factor such as Journal of Pineal Research, Molecular and Cellular Endocrinology, Cellular and Molecular, Life Sciences by Reiter RJ, editor of the Journal of Pineal Research.

The total impact factor of the publications (**IF=10.401**) and the summaries (**IF=15.393**) is **25.794** according to Thomson Reuters/Web of Science.

Prof. Bekyarova publishes scientific articles in authoritative periodical **international** and national journals such as *Methods Find Experimental and Clinical Pharmacology*, *International Journal of Immunopathol Pharmacol*, *Burns*, *Artificial cells*, *Blood Substitutes Immobil and Biotechnology*, *Biomedica Biochimica Acta*, *Molecules*, *Farmatia*, *Oxidants and Antioxidants in Medical Science*, *Бюлл Эксперим Биол Медицина*, *Central European*

Journal of Medicine, Advances in Biotechnology and Bioscience, which are subject to mandatory evaluation by at least two reviewers for the originality of the data.

In summary, I would like to emphasize the originality and significance of the data obtained by Prof. G. Bekyarova, as well as their recognition from the international scientific community, as may be seen from the high index of citations, **Hirsch (h Google Scholar) index = 11**

Therefore, the scientometric indicators of Professor G. Bekyarova exceed the quantitative criteria for acquiring the academic position of "Professor" contained in ZRASRB, its Regulations and the Regulations on the terms and conditions for acquiring scientific degrees and holding academic positions at the University "Prof. Dr. Asen Zlatarov" - Burgas

The scientometric analysis carried out provides me with the opportunity to point out a noteworthy and high assessment of the scientific productivity of by Prof. G. Bekyarova. Some of her works have been published in highly prestigious international periodicals.

A leading factor here is the participation of Prof. G. Bekyarova in the presented scientific papers. The publication of her researches in prestigious international journals, as well as the citations of her works, shows the trust and respect of the national and international scientific community for her scientific achievements.

The scientific interests and scientific production of by Prof. G Bekyarova reflect her scientific and research activity, which may be summarized into the following fields by topics:

- Pathophysiology of cellular injuries during oxidative stress. Protective effect of antioxidants and probiotics.
- Cellular and Molecular Mechanisms of Liver Injury and Hepatoprotective Effects of Melatonin.
- Experimental Studies in Metabolic Syndrome.
- Contemporary Approaches in Teaching Pathophysiology.

I accept the achievements thus presented, which may be summarized as follows:

1. A literature review and an analysis are made of the role of the oxidative stress on the endothelial dysfunction and the need for a study of the early (plasma) markers in cases of diseases characterized with an increased cardiometabolic risk - diabetes mellitus, obesity, obstructive sleep apnea, arterial hypertension
“Endothelial Dysfunction, Vascular Oxidative Stress and Cardiometabolic

disorders: Pathophysiological Mechanisms and Clinical Application” (Varna, 2015)

2. A study has been performed of the cellular-molecular mechanisms of the liver damage in case of a thermal injury and hepatoprotection with melatonin (articles 2, 4, 6, 7, 8, 9, 10, 11, 12, 14, 17, 18, 28, 30, 31, 34, 39, 43). **The contributions are of a scientific and applied nature.**
 - An experimental model of liver damage is substantiated, with an study of the following: the balance between pro-and anti-oxidant, pro-and anti-inflammatory and pro-and anti-apoptotic factors; the expression of the transcription factors NF-κB and Nrf2, their inflammatory effects and their effect on the antioxidant capacity of the liver; the effect of melatonin on the markers of oxidative stress, inflammation and apoptosis of the liver.
 - A hypothesis has been developed about the role of inflammatory and oxidative mechanisms and their relation in the complex pathophysiological response in case of a thermal trauma.
 - It has been established for the very first time that melatonin protects the liver against damage by increasing the expression of the Nrf2 factor and the activity of the enzyme Hemeoxygenase 1 (HO-1), and inhibits the expression of the NF-κB-mediated inflammatory response in thermal trauma.
 - Therefore, the study of the transcription factors (TFs) NF-κB and Nrf2 are more reliable markers of a tissue damage than a study of just some individual markers of the oxidative stress, inflammation, and apoptosis.

3. The mechanisms of antioxidants and probiotics under conditions of oxidative stress have been studied. (articles № 2, 3, 4, 5, 6, 8, 9, 12, 14, 15, 18, 23, 24, 26, 34, 36, 39, 40, 42, 43, 49). **Scientific contributions are of an applied nature.**
 - A prove has been given of the redox-modulating action of melatonin, which activates the enzyme Heme-oxygenase 1 (HO-1), increases the antioxidant protection, limits an oxidative tissue damage and apoptosis in the gastric mucosa induced by a thermal trauma.
 - An increase was proven of the activity of the tissue Heme-oxygenase 1

(HO-1) in the brain and lungs under hypobaric conditions and under conditions of an oxidative stress

- An antioxidant activity of the probiotic “Biomilk” has been established for the first time in a model of liver toxicity and radiation.
- The gastro-protective effect of probiotics Biostim LBS and Biostim LBS + Panax in ethanol-induced ulcerogenesis has been proven.

4. The mechanisms of a non-alcoholic fatty liver, a component of the metabolic syndrome upon chronic fructose burden, have been studied. (articles № 5, 19, 20, 21, 22, 30, 31, 32, 50). **The scientific contributions are of an applied nature.**

- The key role of the oxidative stress and the low-grade inflammation has been proven for the progressive liver damage upon chronic fructose burden.
- It has been found for the first time that S-Adenosyl methionine (*SAM-e*) (precursor of glutathione) and allopurinol (xanthine oxidase inhibitor) prevent fructose-induced damages by suppressing the oxidative processes, systemic inflammatory response and fatty degeneration in the liver.
- It has been found that *SAM-e* prevents oxidative stress, fructose-induced hypertriglyceridemia and memory impairments.

5. Contemporary Approaches in Teaching Pathophysiology (articles № 19, 23). **Contributions are of an applied nature.**

- For the first time, an overview and analysis of the results of our own research was made, showing the advantages of problem-based training in pathophysiology over the traditional method of teaching

IV. Academic and teaching activity

The teaching activity of Prof G.Bekyarova started in 1980.

1. Pedagogical activity

The teaching and pedagogical activity of Prof. Bekyarova at the Department of Physiology and Pathophysiology in the last three years consisted of a teaching load of 258 to 317 hours per year of lectures on Pathophysiology with medical students (in Bulgarian and English), dental physicians, pharmacists, as well as students from the Medical College, and the Public Health Faculty.

Prof. Bekyarova takes an active part in the publication of textbooks and teaching aids that secure the teaching of pathophysiology intended for students in medicine, dental medicine and pharmacy (physics and pharmacy), dentistry and pharmacy, in pathophysiology intended for students in medicine (in Bulgarian and English), dental physicians, pharmacists, as well as students from the Medical College, and the Public Health Faculty.

Prof. Bekyarova has developed curricula and lecture courses for lectured disciplines by introducing modern approaches in the teaching of pathophysiology.

Based on the auditorium load, I may surely give an excellent assessment of the academic and teaching activity of Prof. Bekyarova, which shows beyond any doubt both her qualification and professional training, and her realization as an excellent university lecturer.

2. Work with PhD students

Prof G. Bekyarova is the scientific head of two PhD students who have successfully defended their dissertation papers.

3. Extracurricular activities

Prof G. Bekyarova has a noteworthy extracurricular activity. She has been taking an active part in the development and update of curricula, as she is the author of **a monograph** entitled "Endothelial Dysfunction, Vascular Oxidative Stress and Cardiometabolic disorders: Pathophysiological Mechanisms and Clinical Application", the co-author of chapters in **3** textbooks and **9** teaching aids.

She has led in two scientific projects financed by the "Science" Fund of the Medical University-Varna. She has participated in three educational projects: Project BG051PO001-3-3.06-0028 "Increasing the scientific potential and career development opportunities in the field of medicine, healthcare and biotechnology"; Project BG051PO001-3-3.07-0002 "Student internships" – she participates as an academic mentor of students, and Project BG 0513D001-3.109-0013 "Creating a modern system for career development of lecturers at the Medical University of Varna"

V. Personal impressions

I know Prof. Ganka Bekyarova as an excellent lecturer and an established scientist. Over the past years I have had the opportunity to gain immediate personal impressions from her scientific work, as well as from her presentations at scientific forums with Bulgarian and international participation. I have had an excellent impression of her presentations of the dissertation papers of her PhD students showing excellent knowledge in the scientific field of their work, which have been definitely greatly impacted by their scientific head.

Prof. Bekyarova is characterized by high diligence, perseverance, modesty, precision in her experimental work, and objectivity upon interpretation of scientific results.

Prof. Bekyarova has a wide range of routine and modern methods. She shares her experience and knowledge with young colleagues - PhD students and students. She skillfully combines her teaching and research activities.

VI. Conclusion

I strongly recommend to the esteemed scientific jury to award **Prof. Dr. Ganka Bekyarova** the title "**PROFESSOR**" for the needs of the University "Prof. Dr. Asen Zlatarov" - Burgas, as it fully meets all the requirements contained in the ZRASRB, the Regulations and the Regulations on the terms and conditions for acquiring the scientific title "PROFESSOR".

Motives:

1. Prof G.Bekyarova is an experienced scientist and an erudite lecturer with original ideas, with personal broad and competent participation in the organization, systematic and logical conduct of experimental work and lecture work.
2. Prof G.Bekyarova has studies that have been published in authoritative international journals with significant contributions recognized by the Bulgarian and international scientific community. Her research results have been cited in Bulgaria and abroad.

3. Prof G.Bekyarova has a diverse and effective teaching activity, and research and educational activities with PhD students and students, which deserves respect and the highest appreciation.

16.04.2021

Sofia

Signature

by Prof A. Bocheva