

## О P I N I O N

by

**Assoc. Prof. Svetlana Dimitrova Zheleva, PhD**

Prof. Dr. Asen Zlatarov University of Burgas,

Member of the Scientific Jury appointed by Order № ПД-36/09.02.2020

**Regarding** the application for the academic position of Associate Professor, announced in the State Gazette, issue 105/11.12.2020, Area of Higher Education 4. Natural Sciences, Mathematics and Informatics, **Professional Field 4.2 Chemical Sciences**, Scientific specialty "Analytical Chemistry" (Instrumental methods for analysis) for the needs of the Department of Chemistry, University "Prof. d-r Asen Zlatarov", Burgas

### 1. Brief Biographical Data

Chief assistant professor Lenia-Nazaet de Brito Gonsalvesh-Musakova, PhD is the sole applicant for the academic position of Associate Professor in the current competition. She was awarded a Master Degree in Chemistry in 2005 with a professional qualification "Modern Spectral and Chromatographic Analysis Techniques" by the Sofia University "St. Kliment Ohridski". Before graduating in 2005, she was started work as a chemist at the Institute of Organic Chemistry with Centre of Phytochemistry of the Bulgarian Academy of Science (IOCCP-BAS) with responsibilities related to technical and elemental analysis of coal and chromatographic analysis of coal product. One year later she held the academic position of "assistant" and in June 2009, she was appointed to the academic position of "Chief Assistant Professor".

Between 2008 – 2012, together with two scientific organizations – IOCCP-BAS and the University of Hasselt, Belgium the candidate developed and defended a PhD Thesis on "Study of sulfur and organic sulfur compounds in low-grade coal biodesulfurization".

Since 2015 she is part of the academic staff of the Central Research Laboratory of the University "Prof. D-r. Asen Zlatarov", where in addition to servicing the research activities at the university she began to lead practical exercises and seminars in some disciplines such as "Organic Analysis" and "Modern Methods of Analysis". In 2019 she is part of the academic staff of Department of Chemistry at the Faculty of Natural Sciences.

### 2. General Description of the Submitted Materials

The scientific production presented by chief assistant prof. Lenia Gonsalvesh, PhD consists of 43 articles, 21 of which have been published in IF (Web of Science) and SJR (Scopus) journals, 4 in proceedings of scientific conferences presented at Conference Proceedings in Thomson Reuters and/or Scopus and 23 in international or national peer-reviewed editions. More than 30 scientific reports have been reported at national and international scientific forums.

Under the competition, the candidate presents 18 scientific publications, all indexed in the databases Web of Science and Scopus, in the following journals:

*Bulgarian Chemical Communications* (SJR=0.156(0.168), IF=0.242(0.201), Q4) – [5, 6, 7, (13)]

*Oxidation Communication* (SJR=0.158, IF=0.123, Q3) – [16]

*Fuel* (SJR=1.736(1.634), IF=4.601(3.520), Q1) – [11, (14)]

*Fuel Processing Technology* (SJR=1.397(1.544), IF=3.752(2.945), Q1) – [9, (15)]

*International Multidisciplinary Scientific GeoConference Surveying Geology and Mining Ecology Management* (SJR=0.23) – [4]  
*Journal of Molecular Liquids* (SJR=0.88, IF=5.065, Q1) – [3]  
*Journal of Fuel Chemistry and Technology* (SJR=0.234, Q2) – [18]  
*Journal of Material Cycles and Waste Management* (SJR=0.600, IF=1.974, Q2) – [2]  
*Journal of Environmental Science and Health - Part A Toxic/Hazardous Substances and Environmental Engineering* (SJR=0.4, Q2) – [1]  
*Advances in Environmental Research-An International Journal* – [8]  
*Journal of Chemical Technology and Biotechnology* (SJR=0.854, IF=3.135, Q1) – [12]  
*Journal of Chemical Technology and Metallurgy* (SJR=0.200, Q3) – [10]  
*Thermochimica Acta* (SJR=0.570, IF=1.908, Q2) – [17]

The observed citations of the scientific publications at the time of submission of the documents is 166. Six of the publications have a  $\tau_1$ -index. A reference made in Scopus to current date shows 172 citations, and the productivity and relevance of the candidate's publications was assessed with *h*-index 8.

A reference for the additional indicators of the candidate, as well as a reference for the scientific contributions according to Art. 57a, § 2 stated in The Regulation on the Terms and Procedure for Acquisition of Academic Degrees are enclosed.

### **3. Teaching Activities**

Since her appointment to the academic position “Assistant” at the University “Prof. D-r. Asen Zlatarov”-Burgas (2015) Chief assistant prof. Lenia Gonsalvesh, PhD leads teaching activities, expressed in lectures, seminars and laboratory exercises for students in the Bachelor's and Master's degrees in the specialties of the professional fields 4.2 Chemical Sciences, 5.10 Chemical Technologies, 5.11 Biotechnologies, 5.13 General Engineering. The presented reference shows the classroom employment in the courses, some of which in the disciplines “Inorganic and Analytical Chemistry”, “Analytical Chemistry”, “Applied Chemistry”, “Organic Analysis”, “Modern Methods of Analysis”. There is also an educational course on “Modern instrumental methods for water analysis” for PhD students. She has participated in the training of students from the Department of Chemistry at the Faculty of Natural Sciences, some of whom were awarded for excellent performance at the student research sessions.

Chief assistant prof. Lenia Gonsalvesh, PhD takes part in the updating of the documentation of specialty “Chemistry of cosmetics and surfactants” and develops in co-authorship new courses in the “Phytochemistry”, “Organic Analysis” and “Modern analytical methods in water chemistry”. In the academic year 2017/2018 she participated in the Erasmus+ program as a lecturer on “Characterization of the assertive structure of micro- and mesoporous materials” at the University of Hasselt, Belgium.

The organizational qualities of the candidate have been noticed by the management of the Faculty of Natural Sciences, as evidenced by its inclusion in the Commission for Evaluation and Maintenance of Quality of Education, as well as her commitments as technical secretary of the Faculty and the scientific colloquium in “Natural and Technical Sciences”. The administrative responsibilities in the activity of the Central Research Laboratory are expressed in her commitment as a materially responsible person.

### **4. Research and scientific contributions**

Given to the beginning of her scientific development and career at IOCCP-BAS, the project activity of Lenia Gonsalves, PhD is impressive. Participates as a researcher in 6 projects funded

by national fund “Scientific research”, 1 international research project and 6 projects under bilateral agreements of BAS, one of which is headed.

Starting to work at the University “Prof. D-r. Asen Zlatarov” the project activity of Lenia Gonsalvesh, PhD continues and consists in membership and management of research teams, respectively three and one university’s projects and management by the university of a national project with a beneficiary “National Institute of meteorology and hydrology”, Sofia. She is a member of the research team of national project “Clean technologies for sustainable environment - water, waste, energy for the circular economy”, in which the university is a partner of Sofia University “St. Kliment Ohridski”.

Lenia Gonsalvesh, PhD was gained valuable experience in the Laboratory of Applied and Analytical Chemistry at the University of Hasselt in Belgium, where she was specializes and conducts research on project “Greenland: Gentle remediation of trace elements contaminated land”, funded by the 7th Framework Program of the EU.

The scientific contributions are presented in three thematic areas:

*I. Study of the forms of organic sulfur and the composition of the organic matter of fossil solid fuels and other geological objects. Biodesulfurization.*

New data on the content of organic sulfur compounds in briquettes produced from different grades of coal and biomass, which will contribute to a real environmental assessment have been obtained. The changes in different grades of coal, which occur with the sulfur functionalities and fuel characteristics in biodesulfurization with different microorganisms have been studied in detail. The knowledge is a contribution to the clarification of the mechanisms by which coal biodesulfurization takes place. A Reduction pyrolysis to characterize the organic forms of sulfur and humic acids was applied. There is confirmed that the AP-TPR/AP-TPO technique combined with different detection systems is an analytical approach with great potential for visualization and quantitative study of the coal and other materials.

The quality of the scientific contributions is seen from number of registered citations of declared publications in this thematic area – 67 citations.

*II. Utilization by pyrolysis and activation of industrial and municipal waste to obtain “value-added products”. Characterization and application of coal.*

There is proved that the “slow” pyrolysis is an effective approach to utilization a variety of technological and household wastes by turning them into products with potential for uses as adsorbents. New data on the influence of the precursors properties, the mineral mass content, the conditions of carbonization and activation on the yield and characteristics of the solid products were obtained. Biocarbon and activity carbons obtained in the conditions of pyrolysis and subsequent activation have been studied in detail in view of their potential application as soil improvers and adsorbents. The mechanisms of adsorption of Cr(VI) and Ni(II) ions with the studied carbons are clarified.

The publications, which indicated the scientific results in this thematic area receive a wide international scientific response – 45 citations for 4 years.

*III. Analysis of the quality of the atmospheric air. Atmospheric pollutants - fine dust particles, polycyclic aromatic hydrocarbons.*

A station for sampling and monitoring of atmospheric aerosol has been built on the territory of the University “Prof. D-r. Asen Zlatarov”. A methodology for qualitative and quantitative analysis of 19 surfactant compounds in trace amounts in the composition of fine dust particles in air was developed and validated. The concentrations of more than one surfactant compound in the

fine dust particles were determined. A similar profile for the winter period of distribution of the studied surfactants in fine dust particles was found. The obtained results are useful not only for the scientific community, but would serve as a reliable basis for developing additional strategies and making management decisions to reduce emissions of pollutants that contribute to the accumulation of fine dust particles.

### 5. Compliance in requirements for the academic position “Associate Professor”

The presented documentation from the candidate Chief assistant prof. Leniya Gonsalvesh, PhD for participation in a competition for the academic position of “Associate Professor” is complete and meets the regulatory requirements and criteria of the Regulation on the Terms and Procedure for Acquisition of Academic Degrees and the Habilitation Procedure at University “Prof. D-r. Asen Zlatarov”-Burgas.

*Groupe A of indicators* – A1 PhD thesis

– PhD thesis “Sulfur and organic sulfur alterations in biodesulfurized low rank coal” in the scientific specialty “Technology of natural and synthetic fuels”, Diploma № 000235, 01.04.2013. **(50 points)**

*Groupe B of indicators* – B4 Habilitation thesis – scientific publications, referenced and indexed in databases Web of Science and Scopus

– 4 publications are presented [9, 11, 14 and 15], each of them in Q1 for the respectively years of publishing. **(100 points)**

*Groupe Γ of indicators* – Γ7 – scientific publications, referenced and indexed in databases Web of Science and Scopus

– 14 publications are presented, respectively in quartiles: Q1 – [3, 12]; Q2 – [1, 2, 17, 18]; Q3 – [10, 16]; Q4 – [5, 6, 7, 13]; with SJR without IF – [4, 8] **(228 points)**.

*Groupe Δ of indicators* – Δ11 – Citations in scientific journals, monographs, collective volumes and patents, referenced and indexed in databases Web of Science and Scopus

A reference with 77 citations of publications is presented. **(144 points)**

*Groupe E of indicators* – E14 and E15 – Participation in a national/international scientific or educational project

Participation in 8 national research projects **(80 points)** and one international research project has been declared **(20 points)**.

The completion of the minimum national requirements and the minimum requirements of the Regulation on the Terms and Procedure for Acquisition of Academic Degrees at University “Prof. D-r. Asen Zlatarov”-Burgas is as follow:

<i>Groupe of indicators</i>	Minimal National Requirements	Minimal Requirements according to the Regulations at University “Prof. D-r. Asen Zlatarov”-Burgas	Total points achieved by Chief assistant prof. Lenia Gonsalvesh
<i>A</i>	50	50	<b>50</b>
<i>B</i>	-	-	-
<i>B</i>	100	100	<b>100</b>
<i>Γ</i>	200	200	<b>228</b>
<i>Δ</i>	50	100	<b>144</b>
<i>E</i>	-	100	<b>100</b>
<i>Total Number of Points</i>	400	550	<b>622</b>

## 6. Conclusion

I know Chief assistant prof. Lenia Gonsalvesh, PhD from the moment of her appointment at the University “Prof. D-r. Asen Zlatarov”. I am familiar with her scientific growth and the development of academic career. On the one hand, my personal impressions from her are of an organized, consistent and effective scientist in his research, with a strong interest in modern instrumental methods of analysis, and on the other hand – of a highly motivated and dedicated university lecturer with success to manage and teaching the students. In support of my words I find the attached three recommendations with a positive testimonial by Prof. Iperman from University of Hasselt, Belgium, Assoc. Prof. Stefan Marinov from IOCCP-BAS and Prof. Lyubomir Vlaev from University “Prof. D-r. Asen Zlatarov”.

In this regard, and on the basis of all that has been said, I would like to conclude that I support the candidacy of Chief assistant prof. Lenia-Nezaet de Brito Gonsalvesh-Musakova, PhD and *I convincing give my positive assessment*. I propose to the Scientific Jury to recommend to the Faculty Council of the Faculty of Natural Sciences at the University “Prof. D-r. Asen Zlatarov” *to approve Chief assistant prof. Lenia-Nezaet de Brito Gonsalvesh-Musakova, PhD for the academic position of “Associate Professor”* in the scientific area 4. Natural Sciences, Mathematics and Informatics, professional field **4.2 Chemical Sciences**, scientific specialty **“Analytical Chemistry” (Instrumental methods of analysis)** for the needs of the Department of Chemistry.

01.04.2021.

Member of the Scientific Jury:(

(Assoc. Prof. Svetlana Zheleva, PhD)