



REPORT

by

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Member of the Academic Jury set to render a decision
on the competition for filling the academic position of an Associate Professor
in the Professional Field **4.2.** Chemical Sciences according to the Classifier of the Areas of
Higher Education and the Professional Fields
Scientific Specialty “Analytical Chemistry (Instrumental methods of analysis)”
announced in SG, issue 105/ 11.12.2020

This Report is prepared in response to Order № RD-36/ 09.02.2021 issued by the Rector of “Prof. Dr. As. Zlatarov” University -Burgas. The Report is in compliance with Development of Academic Staff in the Republic of Bulgaria Act (DASRBA), the Rules for the Application of the Development of Academic Staff in the Republic of Bulgaria Act, the Rules of “Prof. Dr. Assen Zlatarov” University – Burgas, for applying the Act aforementioned.

1. Biographical information about the candidate

Chief Assistant Professor Dr. Lenia-Nezaet de Brito Gonsalves-Musakova graduated in 2003. as a bachelor in Chemistry, and later in 2005 she also acquired the educational qualification degree of Master Chemist in "Modern Spectral and Chromatographic Techniques for Analysis" at Sofia University "St. Kliment Ohridski ". During the period 2008-2012 he worked on his doctoral thesis at the Institute of Organic Chemistry with the Center for Phytochemistry, BAS and the University of Hasselt, Belgium and defended a dissertation for the acquisition of PhD degree. The candidate's academic career began in 2006 as a research chemist at the Institute of Organic Chemistry with the Center for Phytochemistry of the Bulgarian Academy of Sciences, successively holding the positions of assistant and chief assistant. From 01.06.2015 holds the position as chief assistant at "Prof. Dr. As. Zlatarov University-Burgas in the Central Scientific Research Laboratory. From 01.12.2019 until now she is a chief assistant in the Department of Chemistry at the Faculty of Natural Sciences and teaches students of Bachelor's and Master's degrees.

2. Assessment of the scientific and research accomplishments

The documents submitted by Dr. Lenia Musakova in the announced competition, define her as a researcher with clear scientific guidelines in the professional field of the competition procedure. The requirement under indicator A for possession of PhD degree is fulfilled and carries 50 points. Under indicator B (indicator 4) the candidate presents 4 publications and they are ranked Q1 with a total number of points 100, with a mandatory minimum of 100 points. In two of the

publications, the candidate is cited as a first author, in one publication as a second author and in the one publication as a third author.

Group G includes various indicators for which the contestant has submitted 14 scientific publications. The publications are distributed by rank of the journals as follows: 2 issues in Q1, 4 issues in Q2, 2 issue in Q3, 4 issues in Q4 and 2 issues without indexing. The sum of points according to the indicators of group G is 288.

The sum of the points under Indicator D is 144. According to indicators from group E, the candidates for the position of "Associate Professor", Dr. Lenia Musakova has 100 points and she has presented a list of 9 research and applied projects incl. current and completed. The projects are with both National and European funding, and three of them are in Operational Programs of the Structural Funds. References for 30 participations in scientific conferences, were presented for review. Dr. Lenia Gonsalvesh-Musakova fully satisfies the minimum requirements for the academic position "Associate Professor", specified in the Rules of "Prof. Dr. Assen Zlatarov" University – Burgas. The scientific works of the only candidate in the competition, Dr. Lenia Musakova, are very well reflected in the world scientific space - total number of citations 166 and $h=8$. The publications presented in the competition are different from those included in the dissertation of the candidate. The main scientific contributions of the submitted publications are in accordance with the professional field in which the competition was announced. Scientific publications show consistency in a topical and problematic interdisciplinary field, with the application of chemical and instrumental methods for solving problems of different nature, having a fundamental and ecological character.

Well-planned and targeted research, enriched with new methods and performed at a high methodological level, can be summarized in three important thematic areas and are related to

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

The main contributions in this area are published in papers numbered 7, 10, 11, 13, 14, 15, 16, 17, 18 and are related to obtaining new data on the content of organic sulfur compounds in household briquettes produced from different rank of coal and biomass. The acquired knowledge helps to specify the mechanisms by which coal bidesulfurization takes place and will help for its more efficient application, industrial realization and more rational utilization of biotreated coal. Reduction pyrolysis was applied for the first time to characterize the organic forms of sulfur and organic substance of humic acids and products from lignite leaching, located in close proximity to an endemic zone in Bulgaria, were studied. The publications in this field have been cited 67 times, which shows the importance of the research carried out in this scientific field.

- Recovery through pyrolysis and activation of industrial and household waste in order to obtain "value-added products". Characterization and application of coal

The results are published in scientific papers numbered 2, 3, 4, 5, 6, 8, 9 and 12. A contribution in this thematic area is the demonstration that "slow" pyrolysis is an effective approach to the recovery of various technological and household waste by their conversion into products with

application as adsorbents. New data were also obtained on the influence of the properties of the precursors, the mineral mass content, the conditions of carbonization and activation on the yield and the characteristics of the solid products. Biocarbons as soil improvers and adsorbents have been studied in detail, and the mechanisms of adsorption of Cr (VI) and Ni (II) ions have been elucidated. Research in this area has received an international response, reflected in 45 citations.

- Atmospheric air quality analysis. Atmospheric pollutants - fine dust particles, polycyclic aromatic hydrocarbons

The results are published in papers 1 and 4. As a contribution I consider the developed and validated routine methodology for qualitative and quantitative analysis of traces of 19 surfactants in the composition of fine dust particles in ambient air. For the first time in the Municipality of Burgas more than one surfactant compounds in atmospheric air were studied and their concentrations in fine dust particles were determined. Two citations have already been noticed in the publications in this new area.

3. Opinions, notes and recommendations

Dr. Lenia-Nezaet de Brito Gonsalves-Musakova has participated in the development of five curricula, has a certificate of specialized training, and has presented three positive recommendations from leading scientists in the professional field of the competition.

The presented documents are precisely arranged and structured, and fully meet the requirements set in the Rules of “Prof. Dr. Assen Zlatarov” University – Burgas. I have no critical comments on the publications submitted for participation in the competition. I have excellent personal impressions of the candidate as a scientist and university lecturer.

4. Conclusion

According to Art. 26(3) of the DASRBA, on the grounds of the documentation presented by the candidate, on her publications reviewed and the above assessment, I recommend to the Scientific Jury to support the election of Dr. Lenia Musakova at the Academic position of an Associate Professor in the professional field 4.2. Chemical Sciences “Analytical Chemistry (Instrumental methods of analysis)” at the “Prof. Dr. Assen Zlatarov” University - Burgas.

Date: 07/04/2021

Report prepared by: _____

Prof. Sevdalina Turmanova, PhD
Member of the Academic Jury