

## **OPINION**

after the competition for the acquisition of the scientific title "Associate Professor" in the field of higher education 5. Technical sciences, professional field 5.11. Biotechnology (specialty: Biotechnology), published in the State Gazette, issue 21 of 14.03.2025 for the needs of the Laboratory "Bioremediation and Biofuels" -

Institute of Microbiology - BAS.

Member of the scientific jury: Prof. Maya Ignatova, PhD – IR-BAS

### **1. General information and biographical data**

The only candidate in the competition is Chief Assistant Professor Elena Yordanova Chorukova, PhD. She graduated from the Technical University of Sofia in 1994. In 2009, she defended her educational and scientific degree "PhD" at the Institute of Microbiology "Stefan Angelov" - Bulgarian Academy of Sciences (BAS). Until 2000, she worked as a specialist - engineer, first for several months at the Central Laboratory of Bioautomation - BAS, and then at the Institute of Microbiology "Stefan Angelov" - BAS. Until the end of 2010, she successively passed through the positions of Research Associate III, II, I degree and from the beginning of 2011 until now she has been a Chief Assistant Professor in the Department of Biotechnology, Laboratory "Bioremediation and Biofuels" - IMicB - BAS.

### **2. General description of the submitted materials**

The candidate Chief Asst. Prof. Elena Chorukova participates in the competition for the academic position of "Associate Professor" with a list of 33 publications. Of these, 12 with IF and 8 with SJR, distributed by quartiles as follows: 2 are in issues from quartile Q1; 6 from quartile Q2; 5 from quartile Q3 and 7 from quartile Q4. 10 of the publications are combined in group B - Habilitation thesis - scientific publications (not less than 10) in publications that are referenced and indexed in world-renowned databases of scientific information and 23 by indicator D, of which 10 are (in group D) - Scientific publications in publications that are referenced and indexed in world-renowned databases of scientific information; 12 are (in group D) - Scientific publications in non-refereed journals with scientific review or in edited collective volumes. In 12 of the articles submitted for the competition, Chief Asst. Prof. Chorukova is the first author, and in 9 - the second. The publications do not repeat those submitted for the acquisition of the educational and scientific degree "PhD".

A list of 122 citations of 29 works is presented. One of Chief Asst. Prof. Chorukova's articles (No. 20) is cited 16 times. All these citations are in publications that are referenced and indexed in world-renowned databases of scientific information.

Summary of the Minimum National Requirements and the Requirements of the IMicB - BAS by groups of indicators for the academic position "Associate Professor" field of higher education 5. Technical Sciences, professional field 5.11. Biotechnologies (specialty: Biotechnology) and the evidentiary material presented by the candidate is shown in two tables as follows:

Table 1

Indicator group	Minimum National Requirements	BAS Requirements	Declared points by indicator groups by the candidate
A	50	50	50
B	-	-	-
B	100	100	142,57
Г	200	220	250,86
Д	50	60	1001
E	-	-	-

Table 2 Minimum required points by indicator groups in the IMikB – BAS

Indicators	Requirements in IMicB	Candidate details
Number of publications in IF/SGR journals, monographs, monograph chapters, proceedings of international forums published in full text, patents	20 (after "PhD") in 5 of them 1st author or corresponding	33 (in 12 of them first author)
Quotes about the entire scientific career	100	122
<i>IF</i> for the entire scientific career	20	30,82
H-factor for the entire scientific career	5	5
Additional Requirements – participation in projects	3	14 issues 11 national 3 international 3 personal participations

The analysis of the data in the tables shows that in all groups of indicators, Chief Asst. Prof. Chorukova exceeds the Minimum National Requirements of the

Law on the State of the Republic of Bulgaria, as well as the Regulations on the Specific Conditions for Acquiring Scientific Degrees and for Holding Academic Positions at the Institute of Microbiology - Bulgarian Academy of Sciences.

The works submitted for participation in the competition are in topical thematic areas for science and practice. Upon closer examination of the works, it is clear that the candidate uses modern methods and tools to solve scientific problems and achieve the relevant goals.

### **3. Scientific and scientific-applied contributions**

Candidate Chief Asst. Prof. Chorukova has formulated 12 contributions, which she titled "original scientific contributions". The candidate has not noted which of the contributions are scientific and which of them are scientific-applied. There is no citation of publications in support of each of the contributions. It gives the impression that some of the contributions are copied directly from the contributions in her PhD these. This gives me reason not to accept them. I believe that the contributions related to the application of Metaheuristic Genetic Algorithms, InterCriteria Analysis Approach, the developed Biofilm Reactor with submerged fixed packing, as well as those related to the developed Pilot Plant with an implemented LabVIEW system can be considered original scientific and applied contributions.

### **4. The significance of the contributions to science and practice**

I believe that the contributions of the candidate listed in item 3 are relevant and significant for the enrichment and development of scientific research in the thematic area in which she works. This is due to her remarkable research activity, described in detail in the materials provided for the competition. In addition to the publications analyzed in item 2, PhD Chorukova has presented a list of her participation in 33 scientific forums with 48 presentations (22 reports and 26 posters), of which 28 were at the forum with international participation.

PhD Chorukova has participated in 14 research projects, of which 10 national projects (9 funded by the National Science Fund and 1 by the National Innovation Fund) and 3 international projects funded by the European Union. Personal participation in projects external to the unit - 3 individual grants.

PhD Chorukova is a co-author of one patent: "Biofilm Reactor with Submerged Fixed Filling for Biogas Production", No. 66587, 5.07.2010 and has participated in the development of one utility model: "Composition for Biogas Production", No. 1814, 22.01.2014.

PhD Chorukova's research work is generally in the field of biotechnological processes related to the anaerobic digestion of various types of organic waste. The focus is on the application of various deterministic and artificial intelligence methods for the mathematical modeling, control and optimization of the studied processes.

All of this convincingly shows that the candidate's work has received the necessary fame and recognition from scientific communities in our country and abroad.

### **5. Concluding remarks and recommendations**

From the scientific production presented for participation in this competition and the impressive research activity of the candidate, I believe that Chief Asst. Prof. Chorukova, PhD is a highly qualified and erudite scientist with a broad general culture, who enjoys well-deserved authority among specialists in our country and abroad.

I would like to make the following remark regarding the preparation of the materials submitted for the competition. According to the Law on the Protection of Scientific and Technical Research of the Republic of Bulgaria, publications used in the defense of previous degrees or positions are not allowed to be used in subsequent competitions. This is clearly discussed in the previous point 3.

I recommend that PhD Chorukova activate her participation as a supervisor of PhD students. She has proven her professional competence and it is right for her to pass on her accumulated experience and knowledge to young scientists.

### **CONCLUSION**

Based on my familiarization with the materials of the competition, the relevance and significance of the contributions made, as well as my positive assessment of the overall activity of the candidate, I propose to the Scientific Council of the Institute of Microbiology – Bulgarian Academy of Sciences to select

Chief Assistant Professor Elena Yordanova Chorukova, PhD in the academic position of "Associate Professor" in the field of higher education 5. Technical Sciences, professional field 5.11. Biotechnologies (specialty: Biotechnology), for the needs of the Laboratory "Bioremediation and Biofuels" - IMicB - BAS.

12.06.2025  
Sofia

Member of the scientific jury: