

STATEMENT

By Assoc. Prof. Anna Ganeva, PhD

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Member of a scientific jury for the holding of a competition for the academic position "Associate Professor" by professional direction 4.3. Biological sciences, scientific specialty "Plant Physiology" for the needs of the laboratory "Experimental and Applied Algology" of the Institute of Plant Physiology and Genetics, BAS

1. General data on the candidate's career and thematic development

In the competition for the academic position "Associate Professor", announced in State Gazette 44 of 19.05.2023. a candidate is Dr. Yuliana Georgieva Ivanova from the Laboratory "Experimental and Applied Algology" of the Institute of Plant Physiology and Genetics, BAS.

Dr. Ivanova graduated with a Master's degree in biotechnology with a specialization in "Microbiological processes" in 1992. In 2002, she obtained the PhD at IFRG-BAS and currently holds the academic position of "Chief Assistant". .

The scientific activity of the candidate is reflected in the published 49 scientific works, cited at the time of the competition 193 times. From 2007 until now, Dr. Ivanova has participated in 8 research projects, in 6 of which she had scientific management functions, as well as in 12 international scientific forums (5 of which abroad). The thematic directions in Dr. Ivanova's work are related to:

- ✓ Optimizing the physiological-biochemical parameters in the cultivation of micro-algae;
- ✓ Analysis of the biologically active substances synthesized by red and green micro-algae and the conditions for synthesis;
- ✓ Study of polysaccharides, secondary metabolites with pharmacological effect and anti-tumor, anti-inflammatory, antioxidant effect, and potential as food additives;
- ✓ Use of microalgae for absorption of heavy metal ions;
- ✓ Studies focused on the possibilities of using cultivated microalgae for wastewater treatment;
- ✓ Studies on a combined approach of microalgae cultivation and biogas production by decomposing agricultural waste

2. Evaluation of the submitted reference for compliance with the requirements of Art. 26, para. 1 of the ZRASRB and the specific requirements for occupying the academic position "Associate Professor", according to the Regulations of the IFRG on the specific conditions and procedure for acquiring scientific degrees and occupying academic positions

The reference presented by Dr. Ivanova shows that the specific requirements for the occupation of the academic position "Associate Professor" have been met, according to the ZRASBR and the Rules of the IFRG-BAS.

19 scientific publications, all in quartile journals (Q1: 2 articles, Q2: 4 articles, Q3: 8 articles, Q4: 5 articles) are submitted for the competition. Seven of the publications are included in indicator group B, and 12 publications in indicator group D. In both indicator groups, the collected points are more than the minimum required, according to the normative documents. The reference for citations (indicator D) as of 10.07.2023 shows that 13 publications were cited 56 times, respectively, the points for this indicator that the candidate collects are 112, also above the specified minimum of 100 points. With a minimum of 70 points in indicator E, the candidate collects 120 related to participation and management of national scientific or educational projects and attracted funds.

Dr. Ivanova also presented a certificate of utility model registration from the Patent Office of the Republic of Bulgaria. The utility model relates to a means for treating waste biosludge from biogas plants.

All submitted references in connection with covering the scientometric indicators, according to ZRASBR and the Regulations of IFRG-BAS, are comprehensive, clearly recorded and arranged.

3. Main topics and most important results in the candidate's research work

The above-mentioned thematic areas can be summarized in three main ones: study of biologically active substances (metabolites) isolated from algae, optimization of the physiological-biochemical parameters of algae cultivation, the role of microalgae in water purification. In the references of contributions, Dr. Ivanova presented the results of her work and the contribution in these main areas.

Part of the publications submitted for participation in the current competition discuss the antitumor, antiviral and antioxidant activity of some of the metabolites (extracellular heteropolysaccharides from red microalgae) and the possibilities of use in food supplements alongside traditional chemopharmaceutical products. The obtained results (inhibition of tumor growth, change in the morphology of cancer cells under the influence of extracellular polysaccharides) show good prospects for future even more detailed studies and the application of the tested metabolites in pharmacology are needed.

The work on searching for opportunities to optimize the conditions for biotechnological cultivation of microalgae is closely related to the above main areas in the studies of Dr. Ivanova, since the provision of algae culture in large quantities is a prerequisite for extracting of metabolites with proven pharmacological value and scaling up the processes in the future. This topic is mainly covered in the publications from section D of the reference on scientometric indicators. The positive effect of humic acids and thiamine in the medium on the growth of microalgae was established. The optimal light and temperature conditions for the growth of microalgae, the interactions with the accompanying microflora in the cultivation process have been established. A method for long-term storage of microalgae strains in laboratory conditions has also been developed.

Microalgae have been found to have a great potential for assimilating nutrients, especially complex nitrogen and phosphorus compounds from wastewater..

Cultivation of red and green microalgae in fermentation products obtained from the anaerobic biodegradation of wheat straw for biogas production was also carried out, and it was concluded that microalgae cultivation with biogas production has great potential.

Everywhere in the report on the contributions, Dr. Ivanova noted the personal contribution in the conducted studies.

4. Organizational and training activity

Dr. Ivanova has not submitted a certificate of educational activity. From the reference on the participation in scientific projects and what is recorded in the scientific CV, it can be concluded that she has organizational experience, as she was the coordinator of the partner organization in 2 projects financed by the Scientific Research Fund, as well as the head of other 4 projects.

5. Critical notes and recommendations

I have no critical comments on the documents presented for the competition and Dr. Ivanova's research work.

CONCLUSION

In conclusion, as a member of the scientific jury, proclaimed by order of the Director of IFRG-BAN No. RD-01-44/17.07.2023. I express the opinion that the candidate Ch. Assistant Professor Yuliana Georgieva Ivanova, PhD., participating in a competition for the academic position "Associate Professor", announced in State Gazette no. 44 of 19.05.2023 meets the mandatory and specific conditions and scientometric criteria for the academic position "Associate Professor".

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Statement written by: Assoc. Prof. Anna Ganeva, PhD