

Scientific Opinion

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Subject: competition for "Professor" at Institute of Chemical Engineering - BAS, specialty "Processes and equipment in chemical and biochemical technology", 4.2. Chemical sciences, announced in SG no. 67 of 04/08/2023, with candidate Dr. Daniela Ilieva Batovska.

The candidate Dr. Daniela Ilieva Batovska was born in 1968. She completed her secondary education in 1986 at NPMG "Acad. L. Chakalov" as a chemist, and her higher education - in 1992 at the Chemistry Faculty of Sofia University "St. Kl. Ohridski", specializing in organic and analytical chemistry. She has been engaged in a scientific research since 1991 until now, from 1992 to 2017 she worked at The Institute of Organic Chemistry with a Center of Phytochemistry – BAS; 2017 to 2023 - in the private sector, as a chemist in the development of food and cosmetic products in the field of biotechnology, and from August 2023 – at The Institute of Chemical Engineering – BAS. In her academic career at IOCCP-BAS, she successively went through the positions of chemist, Assistant-Prof. (II and I degree), and Assoc. Professor. In 2001, she obtained a Ph.D. degree with Thesis on the topic "Synthesis and biological activity of sterol derivatives".

The research activity of Dr. Batovska, rather thematically, can be referred to two main areas: (i) synthesis of biologically active substances, analysis of their biological activity, and study of the connections between this activity and the structure of the compound; (ii) phytochemical studies. In the first area, research is focused on the synthesis, structure, and activity of compounds such as sterols, monoacylglycerols, chalcones, etc. compounds of applied importance, while in the second plant metabolites whose biosynthesis leads to resistance to pathogens or provides plant protection are investigated. In both cases, the subject of the research is scientifically relevant, and the methodology used for its implementation is modern and modern.

For the competition for the professorship, Dr. Batovska presented 24 scientific papers published from 2010 to 2023 – 22 publications, a book chapter, and a US patent.

Separately, the candidate presented 37 scientific publications (30 of them - referenced in Scopus/WoS), published in the period from 1994 to 2010, with which Dr. Batovska acquired the title of "Senior Research Associate II degree" in 2010. Since this title (corresponding to the current academic position "Associate Professor") was obtained by VAK, and not under the current law, I find this way of presenting the documents to be correct.

It can be seen from the reference that the presented materials fully fulfill the minimum national requirements of the current law (PPZRASRB of BAS). For example, according to the group of indicators A, B, G, and D, with a requirement of 50, 100, 220, and 60 items, publications are presented for 50, 160, 434, and 2062 items, respectively (at the same time, the presented list is incomplete – contains 32 publications, 5 less than the reference presented in 2010 with 37 publications).

Regarding the minimum national requirements for a professor (under PPZRASRB of the BAS) - they are overfilled with the submitted materials for the competition - a total of 22 publications, a chapter of a book published by Springer, and a US patent. According to indicator A, a doctoral dissertation is presented for 50 with a requirement of 50; according to indicators B - two publications with Q1, two with Q2 and two with Q3, giving a total of 120 points with a requirement of 100 points; according to indicators G - one publication with Q1, seven with Q2, three with Q3, two with Q4, a book chapter and a patent, giving a total of 274 points against a requirement of 220 points; according to indicator D, 383 citations are presented in Scopus/WoS, giving 766 items against a requirement of 120 items; by indicator E – 160 points (defended doctoral student, participation in two international projects and attracted funds) if required 150 points.

It should be noted that the actual number of citations of the applicant is significantly higher than presented. A Scopus reference (as of 31.10.2023) shows that the candidate Dr. Batovska has two profiles (as Batovska and as Todorova), and in the first profile the total number of citations is 1428, giving an h-factor of 14 (without self-citations), and in the second - 98 with an h-factor of 6 (without the self-citations). In her WoS profile, the candidate has 47 publications, 1428 citations, and a H-factor of 16. This extremely wide response shows the

significant scientific relevance of the topics under consideration and the significant contribution of the presented research to the future development of the respective topics. Regarding the fulfillment of the additional requirements of IHH-BAS for a professorship, Dr. Batovska has also presented materials that go beyond what is necessary.

A significant part of the publications presented to the "professor" competition are devoted to synthesizing chalcones (precursors of flavonoids with an open ring), studying their structure and their action as biologically active substances, depending on this structure. Synthesis methods were optimized, and the action of chalcones as antioxidants, and anticancer agents, against a number of pathogens such as *Staphylococcus aureus*, *Streptococcus pyogenes*, and the malaria-causing parasite *Plasmodium falciparum* was investigated. In another part of the publications, the content of plant extracts from gentian, lavender, etc. was investigated, and plant metabolites were identified with an effect against various diseases - conjunctivitis, skin wounds, as well as for phytochemical protection of plants.

I have almost no critical notes, unintentional mistakes were made in the journals regarding the requirements for fulfilling the minimum national requirements for an associate professor (file no. 8), and instead of the 220 points required by indicator G, 200 points are indicated in the table. In the same way, in the requirements for an associate professor under indicator D, 50 and not 60 points are specified. These errors (probably the general table from PPZRASRB was used, and not the one for BAS) do not change the fact that the candidate has fulfilled the relevant requirements (the difference in some cases is in times).

CONCLUSION

In conclusion, the documents and materials presented by Dr. Daniela Batovska meet all the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria (ZRASRB), the Regulations for the Implementation of the ZRASRB of the BAS, and the relevant Regulations of the Institute of Chemical Engineering to occupy the academic position "Professor". The candidate's works contain original scientific and applied contributions that have received international recognition, most of them published in

renowned scientific journals and collections. After getting acquainted with the materials and scientific works presented in the competition, analyzing their significance, and the scientific, scientific-applied, and applied contributions contained in them, I give my positive assessment and recommend to the Scientific Council of IEES to elect Dr. Daniela Ilieva Batovska for "Professor" by professional direction 4.2. Chemical sciences, scientific specialty "Processes and equipment in chemical and biochemical technology", at the Institute of Chemical Engineering - BAS.

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Signature:

(Prof. Kaloyan Petrov/DSc)