Attitude of Reviewer

Dr. Iren Hernani Tzibranska-Tzvetkova, professor in IChE-BAS

concerning the materials submitted to apply for the academic position of 'Associate Professor'

in the Institute of Organic Chemistry with Centre of Phytochemistry (IOCCP), Bulgarian Academy of Sciences

professional field 4.2. Chemical Sciences, scientific specialty 01.05.10 "Bio-organic chemistry, chemistry of natural and physiologically active substances".

In the competition for "Associate Professor" announced in the Newspaper of State, issue. 43, page 122 of May 31, 2019 and on the website of IOCCP, BAS, the only candidate is

Boryana S. Trusheva

Assistant professor in IOCCP-BAS, laboratory "Chemistry of natural products".

General presentation of the procedure and the applicant

The materials presented by Boryana Trusheva are in accordance with the Rules for the Development of the Academic Staff of IOCCP, and meets the criteria of the IOCCP-BAS for the academic position of "Associate Professor".

The candidate has applied a total of 35 scientific papers, seven of which have participated in the competition for assistant professor. The list of scientific publications equated to a habilitation thesis includes 7 (seven) articles. The total number of publications includes 4 book chapters published between the years 2007 and 2016. No other studios, or monographs, books or textbooks are presented.

A list of participations in 11 research project is presented – in the National Science Fund, the 7th Framework Programme and Horizon 2020 of the EU, as well as in 6 contracts with companies. The distribution of the scientific works according to the relevant Q factors is as follows: 9 publications in Q1, 11 issues. in Q2, 5 in Q3 and 2 in Q4. Publication number 34 has an excessive number of authors (23), among whom B. Trusheva is the 20th. Number 35 is a utility model registered in 2016.

General characteristics of the applicant's activities

The presented materials prove the high activity and quality of the scientific research performed by B. Trusheva. 27 publications are in Impact Factor journals, more than half of them being high IF (6 issues with IF between 1 and 2; 4 issues - from 2 to 3; 4 issues over 3 and 1 with IF over 4). In the presented general list of publications, Trusheva is the first author in 9 of them. What impresses is the large number of coauthors - an average of over 5 authors (excluding publication 34). In fact, with the exception of one publication, all the rest are authored by 3 or more persons. Concerning

the participation in the conference Membrane Applications in Agrofood, Italy 2009, Dr. Trusheva is probably referred as the lecturer and the investigation has probably two authors, as it is a result of a collaboration.

The educational and pedagogical activity of the applicant can be assessed as modest – Dr. Trusheva has supervised 1 MS thesis and was consultant of another two, as well as supervisor of 1 internship student.

Contributions (scientific, applied) and citations

B. Trusheva has an impressive number of citations - 1229 citations and a high h-index (15 by Scopus), thus significantly exceeding the requirements for the academic position of "Associate Professor". Her scientific research is almost entirely in the field of propolis - chemical composition and structure of the compounds determining its biological activity.

Propolis from different geographical regions of the world (Bulgaria, Malta, Java Island, Fiji Islands, Iran, Russia-Permian Region, Brazil, Pitcairn Islands) was studied regarding both the proportion of known and the isolation of new individual compounds; the latter have subsequently been tested for: antibacterial activity, antifungal activity, antitumor activity, radical scavenging activity (DPPH).

A number of new compounds have been identified in the propolis species from different geographical areas. The studies also include study of the plant species, carrying the main active ingredient of propolis. Particularly relevant to the environmental threats for the bee populations is the study of the activity of isolated propolis components (5 individual compounds of Bulgarian propolis) against bee pathogens (this is a joint project with the Slovak Academy of Sciences).

The research and applications on propolis has been the basis for a fruitful joint cooperation with other institutes of the Bulgarian Academy of Sciences - Institute of Biophysics and Biomedical Engineering, Institute of Polymers, Institute of Microbiology, as well as Universities - UCTM-Sofia, Rovira and Virgili University, Spain.

The significance of all the investigated by the candidate aspects of propolis is beyond doubt. This includes also the possibilities for treatment of the latter by membrane techniques. The publication in *J. of Membrane Sci.* was the first one about this product together with the results published by Brazilian scientists in the same month (February 2010).

The materials presented prove the consistent and thorough research performed by B. Trusheva over the years, the collective nature of which does not call into question the personal contribution and competence of the candidate.

Conclusion

The candidate covers the required criteria of the Law on the Development of the Academic Staff in the Republic of Bulgaria, the Rules for implementation of the latter in the Bulgarian Academy of Sciences and especially the ones for IOCCP-BAS concerning the academic position "Associate Professor", some of the criteria being exceeded.

After the publications presented for the Doctorate degree, the candidate has submitted a sufficient number of scientific papers, incl. published in high impact factor journals, with clear original scientific and applied contributions.

I appreciate her scientific development and find it reasonable to recommend to the Scientific Jury to propose Dr. **Boryana Stoykova Trusheva** to the Scientific Council of IOFCF-BAS for the academic position of Associate Professor in the professional field. 4.2. Chemical Sciences, specialty 01.05.10 "Organic Chemistry, Chemistry of Natural and Physiologically Active Substances".

09.09. 2019. .....

Prof. Dr Iren Tsibranska-Tzvetkova.