Statement

by Assoc. Prof. Dr Maya Hristova Guncheva, Institute of Organic Chemistry with Centre of Phytochemistry, BAS

of the documents submitted for the participation in the competition for the position "Associate Professor" at the Institute of Microbiology, BAS

in the Field of higher education 4.0 Natural sciences, mathematics and informatics", Professional field 4.3 Biological Sciences

Senior Assist. Prof. Dr. Nadya Radchenkova from the Institute of Microbiology–BAS is the only candidate in the competition for the position "Associate Professor" announced in the State Gazette, issue 29/09.04.2021 and on the Internet-site of the Institute of Microbiology-BAS.

1. General presentation of the submitted materials

The full set of documents requested for participation in the competition for the position of "Associate Professor" has been submitted before the deadline by Senior Assist. Prof. Dr. Nadya Radchenkova. The documents are following the requirements of the Act for the Development of the Academic Staff in the Republic of Bulgaria (ADASRB) and the IOCCP Regulations of the implementation of ADASRB.

From the application is seen that the Applicant fully meets the criteria of the ADASRB and IOCCP for the occupation of the academic position "Associate professor" in the professional field 4.3"Biological Sciences".

Senior Assist. Prof. Dr. Nadya Radchenkova has completed her high education at the University of Chemical Technology and Metallurgy–Sofia, Bulgaria in 1999 as M. Sci. in "Information and managing technologies". Since 1995 she has been employed at the Institute of Microbiology–BAS, where she successively held the positions of laboratory assistant (1995–1999), a specialist with high education (1999–2008), assistant professor (2008–2014). In 2014, after successfully defending her doctoral dissertation entitled "Production and characteristics of exopolysaccharide (s) synthesized from the thermophilic strain Aeribacillus pallidus 418" Assistant Nadia Radchenkova acquired the scientific and educational degree "Doctor of Philosophy". Since 2014, after a competition, Dr. Nadia Radchenkova has been appointed the academic position of "Senior Assistant Professor" at the Institute of Microbiology–BAS.

2. General characterization of the activities of the candidate

The total number of publications of Dr. Radchenkova is 31. She participates in the competition with 23 publications, 10 are the publications substitute the habilitation work (Indicator C-4) and 13 are the publications on Indicator D (in Table 2 for the field of higher education 4. Natural sciences, mathematics and informatics in the Regulations for application of ADASRB and in the Regulations for Occupation of Academic Positions at IOCCP-BAS).

Dr. Radchenkova is the first author in 5 of of the papers in Indicator C. Fifteen of the articles that are considered for participation in the competition have been referenced and indexed in the world-renowned scientific databases Web of Science and/or Scopus and have been ranked as follows: 8 papers have been published in journals with rank Q1; 3 ─ in Q2, 4–in Q3. Dr. Radchenkova is co-author also of two book chapters and six articles published in Journals that are not referenced and indexed by Web of Science and/or Scopus.

The candidate has provided a list of 330 citations in Web of Science and/or Scopus not included in previous competitions.

Dr. Radchenkova has been in the team of three projects, funded by the National Science Fund of Bulgaria and six bilateral projects, funded by the National Science Fund of Bulgaria (2 projects) and the Bulgarian Academy of Sciences (4 projects).

A list certifying the participation of Dr. Radchenkova in 20 scientific conferences is presented.

The research activities of Senior Assist Prof. Dr. Nadya Radchenkova are in the field of microbiology, in particular studies on extremophiles.

The focus of the research interests of Senior Assist Prof. Dr. Nadya Radchenkova is covering hot topics related to green technologies, circle economics, and ecology. A part of Dr. Radchenkova's research is directed towards phylogenetic isolation and characterization of microorganisms originating from thermophilic and halophilic strains.

The contributions from her research are both scientific and applied. In summary, they can be summarized as follows:

With the participation of the candidate, was enriched the collection of the Institute of Microbiology-BAS of thermophilic and halophilic producers of exopolysaccharides. Phylogenetic analyses of two Bulgarian hot springs have been done and a large number of new sequences have been obtained, which contributes to enhancing the knowledge on this topic. It is noteworthy to be mentioned that for the first time form *Aeribacillus* genus has been isolated new exopolysaccharide producer. Dr. Radchenkova has isolated and purified for the first time a thermostable lipase from *Bacillus stearothermophilus MC 7.* She optimized the conditions for the production of biopolymers and structured lipids from thermophiles. Dr. Radchenkova reported for the first time in the literature the production of enzymes with xanthan-lyase, gelan lyase, arabinasis and phytasis activities at halophiles. For the first time has been isolated a halophilic bacteria *Chromohalobacter canadensis* 28, which is able to synthesize exopolysaccharide with

high content of γ-polyglutamic acid. Dr. Radchenkova optimized the biosynthesis of the novel exopolysaccharide. The product is obtained in high yield, fully characterized in respect to its physicochemical properties and cytotoxicity against human dermal fibroblast in view of its potential for application in cosmetics. Applying the genomic analysis approach, Dr. Radchenkova determined the genes responsible for the exopolysaccharide biosyntheses and suggested the mechanism of the process. The studies contributed to the elucidation of the biological mechanisms and whole genome organization of the thermophiles, producing exopolysaccharides on which bases could be developed rational strategies for genetic and metabolic optimization of the production of biopolymers. Dr. Radchenkova obtained new data and knowledge on the bacterial and archearic biodiversity in Bulgarian salty niches.

3. Critical comments and recommendations

I have no critical remarks on the preparation of the documents for the competition and the work of the candidate.

CONCLUSION

All documents and materials submitted by Senior Assist. Prof. Nadya Stoicheva Radchenkova for the participation of the competition for the position "Associate Professor" cover and exceed the requirements of the Act for the Development of the Academic Staff in the Republic of Bulgaria (ADASRB), and its Regulations, as well as the Regulation of the implementation of ADASRB of Bulgarian Academy of Sciences and Institute of microbiology–BAS.

Dr. Radchenkova has participated in the competition with a considerable number of scientific papers that have not been used in her Ph.D. and in the competition for the occupation of the academic position of "Senior Assistant Professor" at Institute of Microbiology-BAS. The papers contain original scientific contributions, and the leading role of Dr. Radchenkova in the research described in the peer-reviewed publications is clear.

Dr. Radchenkova is highly qualified scientists and her results and contributions to the biological science are indisputable and fully meet the specific requirements and criteria of the Regulation of the implementation of ADASRB of Institute of Microbiology-BAS.

After the analysis of the research output of Senior Assist. Prof. Dr. Nadya Radchenkova, its importance and the scientific contributions reflected therein, I give **my positive assessment** and recommend to the Scientific Jury to prepare a report-proposal to the Scientific Board of Institute of Microbiology-BAS for the selection of **Senior Assist. Prof. Dr. Nadya Radchenkova** at the academic position of **"Associate Professor"** at Institute of Microbiology-BAS in the professional field 4.3. Biological Sciences.

02.08.202021 Signature:

Sofia /Assoc. Prof. Dr. Maya Hristova Guncheva/