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REVIEW

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of the materials submitted for participation in the competition
for occupying the academic position "**associate professor**" at the "Biology and Ecology of the Sea" section at the Institute of Oceanology - BAS - Varna in: field of higher education 4. Natural sciences, mathematics and informatics; professional direction 4.3. Biological Sciences; scientific specialty "Ecology and protection of ecosystems", scientific direction: "Ecology and molecular taxonomy of marine organisms"

In the competition for associate professor in ecology and ecosystem protection, announced in the State Gazette, no. 1/02.01.2024 and in the informational website of the Institute of Oceanology - BAS - Varna for the needs of the "Biology and Ecology of the Sea" section, as a candidate Ch. Asst. Prof. Nina Stoycheva Dzhembekova, PhD.

1. General presentation of the materials received for reviewing

By Order No. 58/01. 03. 2024 of the Director of the Institute of Oceanology - BAS - Varna, I have been appointed as a member of the scientific jury to ensure a procedure for filling the academic position "associate professor" in the field of higher education 4. Natural sciences, mathematics and informatics; professional direction 4.3. Biological Sciences; scientific specialty "Ecology and protection of ecosystems", scientific direction: "Ecology and molecular taxonomy of marine organisms".

For participation in the announced competition, documents have been received from Dr. Nina Stoycheva Dzhembekova - chief asst. prof. at the "Biology and Ecology of the Sea" section at the Institute of Oceanology - BAS - Varna.

The set of materials presented by Dr. Dzhembekova in paper and electronic version is in accordance with the Law on the Development of Academic Staff in Republic of Bulgaria (LDASRB), the Regulations for its application and the Regulations of the IO-BAS and includes the following documents: application for participation in the competition; inventory of documents; resume in European format; notarized copies of diplomas for higher education and for obtaining the educational and scientific degree "doctor"; a certificate of internship in the specialty in the relevant scientific field; list of scientific publications; scientific works (copies of publications); summaries of peer-reviewed publications in Bulgarian and English; a reference to the original scientific contributions; a reference to citations in scientific publications; list of participations in scientific research projects and participations in scientific forums; evidence for compliance with the national minimum requirements according to the LDASRB, the Rules for its application and the Rules of the IO-BAS (Appendix to Art. 1a).

For her participation in the current competition, Dr. Nina Dzhembekova has submitted a list of 35 scientific articles (including 2 reports and analyses), of which 4 were for the PhD acquisition, 4 - submitted for the acquisition of the academic position "chief assistant professor", 7 - grouped by indicator B4 - 132 items), 15 - by indicator G7 (indicated 267 items, calculated by me - 272 items), 3 - in journals that are not indexed in the required global databases and other 2, representing reports and analyses.

The presented scientific works according to indicators B4 and G7 are a total of 22, and essentially all of them are scientific publications in journals, referenced and indexed in world

databases with scientific information (Web of Science and Scopus). Their subject matter corresponds to the essence of the announced competition.

When forming the final assessment, one should take into account Dr. Dzhembekova's participation in numerous international (13) and national (7) research projects, the significant number of citations (264 sources - 528 items), as well as participations in many international and national (specified 14) scientific forums, the membership of the International Society for the Study of Harmful Algae (ISSHA), the participations in training courses, practices and seminars, the received awards and international scholarship, the digital competences, etc., for which the necessary confirming documents are presented or which are reported in the professional CV.

2. Brief biographical data about the candidate

Nina Dzhembekova was born in 1980. She obtained a bachelor's degree and a master's degree in Ecology and Environmental Protection from the Technical University of Varna in 2003 and 2004, respectively.

In 2018, she obtained a PhD in hydrobiology, certified by a diploma from the Institute of Oceanology - Bulgarian Academy of Sciences.

As could be seen from the CV and the presented documentation, her scientific interests are in the field of ecology and molecular methods for the study of marine organisms with a main focus on phytoplankton biodiversity and taxonomy, phytoplankton blooms, monitoring of potentially toxic species.

Dr. N. Dzhembekova has participated in the implementation of numerous research projects dedicated to studies in the indicated fields of scientific knowledge.

Regarding her personal skills and competences, it is important to note that she has a good enough command of English (C1) and Russian (B1, B2, A2). She has excellent computer skills, specialized equipment and software with application in the field of genetics.

The available information in the professional biography of Dr. N. Dzhembekova, as well as in the documentation presented by her, shows that she possesses undeniable qualities of a biologist-researcher and that she has already gathered significant experience in her work as such at IO - BAS - Varna, acquired on the basis of her specific responsibilities as chief assistant and researcher and as a result of the carried out specializations and training courses in: work with a CytoSense flow cytometer to determine the quantitative and qualitative composition of phytoplankton (Netherlands); molecular techniques for monitoring toxic phytoplankton species (Japan); molecular methods for phytoplankton species identification (Agrobioinstitut - Sofia); use of microarray for monitoring of toxic phytoplankton species (Italy); work with new generation sequencers (ELTA 90 company); Project "Increasing scientific potential and opportunities for career development in the field of medicine, healthcare and biotechnology", Operational program "Development of human resources" (Medical University - Varna); "Methodology of scientific research and development of a dissertation" (TU - Varna).

Dr. Dzhembekova has received first prize in the BAS "Best Publication" competition on the dissertation topic, announced in connection with the 150th anniversary of the Bulgarian Academy of Sciences, as well as the Badge of Honor "45 years of IO-BAS" for the development of direction "Molecular taxonomy of phytoplankton" in IO-BAS and on the occasion of the anniversary of the institute. She won the 2015 International Fellowship of the Japan Association of University Women (JAUW FY2015 International Fellowship).

The professional autobiography of Nina Dzhembekova shows details of her professional and academic development - from the ecologist position at "Albena" JSC and IO - BAS to chief professor at the same institute.

As could be seen from the above, Dr. Dzhembekova is characterized by initiative, good communicative skills, openness to experience and teamwork skills.

3. General characteristics of the applicant's activity

Evaluation of the candidate's scientific and scientific-applied activity

The publications submitted for participation in the current competition (22 indicated by indicators B4 and G7) are in accordance with the required indicators. To indicator B4: Scientific publications in editions that are referenced and indexed in world-renowned scientific information databases (Web of Science and Scopus) included 7 publications forming 132 points: one in a journal without a quartile, but with SJR (10 points); three – in journals with quartile Q1 (75 items); one - in journal with Q2 (20 items), one - in a journal with Q3 (15 items) and one - in a journal with Q4 (12 items). In six of these publications, Dr. Dzhembekova is the first author and in one of them she is the second author. Indicator G7, including scientific publications in editions that are referenced and indexed in world-famous databases with scientific information (Web of Science and Scopus) is presented in the documentation of Nina Dzhembekova by 15 publications, three of which are in journals with Q1 (75 items), 6 (according to my calculations) – with Q2 (140 items), 3 – with Q3 (45 items) and one – with Q4 (12 points) forming totally 272 points. A publication with the number 6.3.2-15 was also published in a journal with Q1, but due to the larger number of authors (more than 30) it did not participate in the summation of the points, but it had its significant scientific contribution as a collective international study. In 14 of these publications, Dr. N. Dzhembekova is the third and subsequent author, and in one of them she is the second author.

The complete list of publications includes 3 more publications (N. Dzhembekova is the first or second author) in journals not referenced in the world databases and two reports - analyzes for which, according to the criteria for academic growth in a professional direction 4.3 Biological Sciences, no points are counted, but whose subject matter corresponds to the essence of the announced competition and the same have scientific contributions, as they are dedicated to significant aspects of marine ecology.

A separate document presents summaries in English and Bulgarian of the peer-reviewed publications. They are properly structured and address the essence and scientific contributions of the candidate's main researches.

When reviewing the documents for this competition, I do not consider coincidences or overlaps with and in the publications presented in the procedure for the PhD and the chief assistant acquisition, as well as data on plagiarism. All publications presented in the author reference for compliance with the minimum national requirements for indicators B and G are scientific-research in nature and have been published in refereed international journals with quartiles from Q1 to Q4.

According to indicator G, evidence is presented for 264 sources of citations of 20 articles in which Dr. N. Dzhembekova is an author. All citations listed are in journals referenced in the Web of Science and Scopus databases and carry a total of 528 points for the applicant's documentation.

Dr. Dzhembekova has presented a list of participations in scientific forums - international and national, from which her significant activity in popularizing the results of her and the work teams' scientific research activity is visible enough.

The presented data on the project activity of Dr. Nina Dzhembekova is significant - she is part of the teams of 13 international and national research projects and is the coordinator of one of them from the IO - BAS - Varna. This, as well as her many participations in international and national scientific forums, is proof for her personal participation in the conduct and promotion of the variously reported scientific research activities.

Assessment of the candidate's educational and teaching activities

There is no data on the applicant's reported educational and teaching activities, but the nature of work and responsibilities at the scientific institute does not make it mandatory.

Contributions (scientific, scientific-applied, methodical) and citations

I accept what was done by Chief Asst. Prof. Nina Dzhembekova systematization of the contributions as scientific and scientific-applied.

Scientific contributions include:

- 1) Contributions related to: phytoplankton biodiversity in the Black Sea, taxonomy and ecology of potentially toxic and blooming species; application of an integrated approach combining molecular techniques with classic morphological methods, refinement of taxonomic affiliation, including the determination of new species for the basin; investigation of phycotoxins and evaluation of the toxigenic potential of the Black Sea isolates; study of the distribution of potentially toxic and bloom species and bloom phenomena, including the biogeographical distribution and benthic-pelagic interactions. For the first time, a study of the Black Sea microbiome was carried out using metagenomic methods; applying a variety of approaches (flow cytometry, whole-genome sequencing, metagenomics and qPCR) to study the distribution and ecology of *Synechococcus* cyanobacteria in different areas in the Black Sea, including anoxic ones;
- 2) Contributions aimed at evaluating the population genetic structure of economically valuable fish species, with significance for conservation and effective management of their stocks in the region;
- 3) Contributions to the knowledge of the biodiversity of Antarctic diatom communities, including the identification of species new to science, obtaining the first Black Sea data on the presence of antibiotic resistance genes and metal resistance genes, as well as the assessment of invasive and alien species.

Scientific and applied contributions include:

- 1) Assessment of the applicability of various innovative methods for monitoring the marine environment, including the potential of metabarcoding to study phytoplankton biodiversity, including potentially toxic species, in the Black Sea;
- 2) Contribution to the development of strategic documents for the development of scientific research and innovation in the Black Sea.

An extended information to the scientific and scientific-applied contributions of the candidate's results and the research teams to which she has worked visible in the scientific publications are presented in detail, indicating the specific publications with their corresponding numbering and their correspondence to the specific original scientific or scientific-applied contributions.

In my opinion, **as a methodological contribution**, one could accept (and add) the complex approach in the implementation of a significant part of the conducted research, in which the candidate could clearly indicate the achieved scientific efficiency from the application of the specific interdisciplinary toolkit.

I accept the analysis of the provided documentation, the publication and project activities of Dr. Nina Dzhembekova, as well as the evidence for her communication skills as a reliable indicator for her personal participation in the organization and implementation of the activities reported through the presented materials.

The indisputable significance of the contributions and published results of Dr. Dzhembekova's researches (and the groups in which she works) are reflected and recognized in the large number of citations in the works of many other authors. In a submitted reference, it is reported that the candidate's publications (and her co-authors) have been cited (without self-citations) in a total of 264 sources (Web of Science and Scopus databases).

The summary review of the certificate submitted by the participant in the competition for compliance with the minimum national and additional (of the Institute of Oceanology) requirements for participation in the competition for the academic position "associated professor" by field of higher education: 4. Natural sciences, mathematics and informatics and professional field : 4.3 Biological Sciences (Ecology and Ecosystem Protection) shows that for each group of indicators there is compliance or exceeding of the minimum required points, as follows: Indicator A – 50 points; Group of indicators B – 132 points (required 100 points); Group of indicators G – 272 items (required 220 items); Group of indicators D – 528 points (required 50 points).

4. Evaluation of the candidate's personal contribution

Given the analyzed documentation and its comparison with the required minimum of activities, as well as on the basis of the indicated achievements, as a reviewer, I have reasons to give my high assessment of the presented publication and project activity, within which Chief. Asst. Prof. Nina S. Dzhembekova has an undeniable personal contribution.

5. Critical remarks and recommendations

The scientific documentation provided to me for review is well structured and fully corresponds to the minimum national scientific and metric indicators for acquiring the academic position of "associate professor". Scientific fields are correctly categorized as original scientific and scientific-applied and the achievements are indicated in detail.

The review and assessment of the provided documentation gives me reasons to draw attention to some mainly technical omissions and inconsistencies, which do not detract from the merits of the participant in the current competition, but aim to stimulate greater precision in the technical preparation of documentation:

- Regarding the list of publications, the publication listed under number 6.3.2-2 in Environmental Microbiomes, 2021 is with Q2 and not with the reported Q3, which generates a difference of 5 points to the detriment of the candidate. The list itself, although it seems well structured, is quite complicated with the numbering by subcategories, which makes it difficult to accurately count the number of publications;

- In the list of participations in international and national scientific projects, the numbering would contribute to the clear consideration of the projects in both categories;

- In the report on the contributions, the numbering is broken when presenting them in one of the categories;

- I give an account of a discrepancy regarding the citation data in the report on compliance with the national minimum requirements – 60 citations were reported under indicator D, which carry 528 points, which does not correspond to the 264 citations actually reported in the list.

As a recommendation for the future activity of Dr. Nina Dzhembekova, I would say that the research experience she has gained can be shared with young researchers - schoolchildren, students with pronounced interests in the field of marine ecology, graduates, future doctoral students. This would be a contribution to the efforts of the academic community to teach and educate the young generation of researchers in an ethical attitude towards nature and the world in general.

The critical comments made do not change my final positive assessment of the overall activity of the participant in the current competition.

6. Personal impressions

I do not personally know Chief Asst. Prof. Nina Dzhembekova, but the analysis of her dynamic activity gives me reasons to believe that she is a motivated, highly competent and responsible research biologist. I wish success in her future endeavors and satisfaction with her scientific and academic achievements!

CONCLUSION

The documents and materials presented by Ch. Assistant Professor, Dr. Nina Stoycheva Dzhembekova, meet all the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria (LDASRB), the Regulations for its implementation and the Regulations of the Institute of Oceanology at the BAS - Varna.

For her participation in the competition, Dr. Nina Dzhembekova submitted a sufficient number of scientific works published after the PhD degree acquisition and evidence for participation in significant international and national projects and scientific forums. Her studies have original scientific and scientific-applied contributions. The scientific results of her activity have been published in prestigious international scientific publications and have been cited by hundreds of authors in a number of their articles, referenced and indexed in the global databases of Web of Science and Scopus.

After getting acquainted with the materials and scientific works submitted for participation in the competition, the analysis of their significance and the original scientific and scientific-applied contributions based on them, I find it reasonable to **give my positive assessment and recommend the Scientific Jury to prepare a report-proposal to the Scientific council at the Institute of Oceanology - BAS - Varna for the election of Chief Asst. Prof. Dr. Nina Stoycheva Dzhembekova, to the academic position of "associate professor" at the Institute of Oceanology - BAS - Varna, section "Biology and Ecology of the Sea" in: field of higher education 4. Natural sciences, mathematics and informatics; professional direction 4.3. Biological Sciences; scientific specialty "Ecology and protection of ecosystems", scientific direction: "Ecology and molecular taxonomy of marine organisms"**

15. 04. 2024

Plovdiv

Reviewer: ... **Заличен на основание**
ЗЗЛД

(Prof. Evgeniya N. Ivanova)