

To

The Chairperson of Scientific Jury determined by
order № I – 134/27.09.2022 of the Director of
Institute of Microbiology "Stefan Angelov" - BAS

REVIEW

By: Prof. Radostina Ivaylova Alexandrova, MSc, PhD, Leader of a work group in Pathology Department, Institute of Experimental Morphology, Pathology and Anthropology with Museum – Bulgarian Academy of Sciences, Part time lecturer in Sofia University "St. Kliment Ohridski", Faculty of Biology; Lecturer in PhD School of Bulgarian Academy of Sciences; Member of the Scientific Jury determined by order № I – 134/27.09.2022 by the Director of the Institute of Microbiology "Stefan Angelov" – Bulgarian Academy of Sciences (IMICB-BAS).

Regarding: competition for the for the occupation of the Academic position "Associate Professor" in the Department of Virology, Institute of Microbiology "Stefan Angelov" - BAS, in the field of "Natural Sciences, Mathematics and Informatics", Professional field 4.3 "Biological sciences", specialty "Virology".

General presentation of the documents in the contest

In the competition announced in the State Gazette No. 60 of 29.07.2022 for the academic position of "Associate Professor" for the needs of the Department of Virology at IMICB-BAS, only one candidate submitted documents – Assistant Professor Neli Milenova Vilhelmova - Ilieva, MSc, PhD, from the same Department. The set of all necessary documents precisely prepared by the candidate was provided to me in electronic variant.

Biographical data about the candidate

Neli Vilhelmova graduated from the Faculty of Biology of the "St. Kliment Ohridski", where she successively acquired the Bachelor's degree in "Molecular Biology" in 2002 and the Master's degree in "Virology" in 2004.

In 2012, Neli Vilhelmova received the PhD in Virology from the Institute of Microbiology - BAS. The topic of her dissertation is: "Investigation of the anti-herpes activity of natural compounds and their combined action with ACV on the replication of herpes simplex viruses in vitro". From 06.03.2009 to 14.08.2011 she worked as a specialist, and in the period 15.06.2011 – 30.04.2017 Neli Vilhelmova was an assistant in the Department of Virology at the Institute of Microbiology - BAS. Since 01.01.2017 Neli Vilhelmova has been the Head of the laboratory "DNA viruses and oncolytic viruses", and since 01.05.2017 she has been working as Assistant Professor in the same department.

The candidate in the competition, Dr. Neli Vilhelmova, is a member of the Union of Scientists in Bulgaria.

Project activity

Dr. Neli Vilhelmova participated in the team of 4 research projects financed by the "National Science Fund" at the Ministry of Education and Science in Bulgaria, as well as in 4 contracts with Bulgarian companies (2 contracts) and international companies (2 contracts).

Teaching / Educational activity

During the academic year 2021/2022, Dr. Neli Vilhelmova was a part-time lecturer at the "Health Care" Department of the Faculty of Public Health, Health Care and Sport at the Southwest University "Neofit Rilski" in Blagoevgrad, where she led lectures and exercises on "Microbiology, parasitology and virology" of first-year students from the specialties "Nurse" and "Midwifery". The experience gained will help her in her future work as a supervisor of doctoral students.

Publishing activity

Dr. Neli Vilhelmova is the author of 32 publications (with a total IF = 46.154), including 24 publications presented in the competition for the academic position "Associate Professor", which do not repeat the ones presented for the acquisition of the PhD (3 publications). Of these, 18 are in international journals, referenced and indexed in the Scopus / Web of Science databases: 16 are with impact factor and quartile (8 are in Q1 journals, 3 are in Q2 journals, 2 are in Q3 journals and 3 are in

Q4 journals). Two of the publications are in proceedings of international scientific forums, and 4 are book chapters published by "IntechOpen" and "Farrago". The total number of citations is 120, H index = 6. Dr. Neli Vilhelmova has 32 participations in Bulgarian and international scientific forums.

Professional awards

In 2011, Dr. Neli Vilhelmova was awarded by the Foundation "Acad. Prof. Dr. Stefan Angelov" for the best work of a young microbiologist in the country, which illustrates her excellent professional training and the high level of her research activity.

Expert activity

Proof of the international recognition of Dr. Neli Vilhelmova's professional qualities is her involvement as an evaluator of articles submitted for publication in authoritative international journals. She prepared reviews on 10 publications, 7 of which were for journals indexed in Scopus / Web of Science databases (including MDPI journal "Plants" - ISSN: 2223-7747; "Journal of Fungi" - ISSN: 2309-608N; "Molecules" - ISSN: 1420-3049) and 3 in other international journals ("The International Journal of Biotechnology and Molecular Biology Research" - IJBMBR, ISSN: 2142-2154 and "African Journal of Microbiology Research" - AJMR, ISSN: 1996-0808).

Compliance of the candidate with the minimum national requirements as well as the increased criteria of BAS and additional criteria of the Institute of Microbiology – BAS for occupation of the academic position “Associate Professor”

The analysis of the materials submitted by the candidate Assistant Professor Dr Neli Vilhelmova shows that she not only covers but exceeds the national criteria for holding the academic position "Associate Professor", the increased criteria of Bulgarian Academy of Sciences, as well as specific requirements of the Stefan Angelov Institute of Microbiology - BAS. The data are summarized in Tables 1 and 2.

Table 1. Minimum national requirements and the increased criteria of Bulgarian Academy of Sciences for occupation of the academic position “Associate Professor”

Groups of indicators	Indicators	Required points	Results (Points) achieved by A. Chorbanov
A	1.PhD Thesis	50	50
B	-	-	-
C	Habilitation work - scientific publications in peer reviewed journals	100	100 (4 publications in Q1 journals)

	indexed in world-famous databases with scientific information (Web of Science and Scopus)		
D	Scientific publications	200 / 220*	286
	Indicator 7. Scientific publications in peer reviewed journals indexed in world-famous databases with scientific information (Web of Science and Scopus).		226 (12 publications: 4 in Q1 journals, 3 in Q2 journals, 2 in Q3 journals and 3 in Q4 journals)
	Indicator 8. Published book chapter or collective monograph		60 (4 Book chapters of "IntechOpen" and "Farrago" publishers)
E	11. Citations in scientific publications, monographs, collective volumes and patents, referenced and indexed in world-famous databases with scientific information (Web of Science and Scopus).	50 / 60*	240 (List of 120 citations in journals indexed in the Web of Science and / or Scopus)

*According to the increased criteria of Bulgarian Academy of Sciences

**Table. 2. Additional requirements / criteria for occupation of scientific position
"Associate Professor" at the Institute of Microbiology "Stefan Angelov" – BAS**

Scientific degree or academic position	Number of publications in journals with IF, monographs, chapters of monographs, proceedings of international forums, full-	Citations*	IF*	H-factor*	Additional requirements /criteria

	text publications, patents.				
Requirements for Associate Professor	20 - excluding those associated with the PhD thesis, in 5 of them 1 st or corresponding author	100	20	5	Participation in 3 projects
Indicators of Assist. Prof. Neli Vilhelmova	23 articles (first author and/or corresponding author in 6 of them	120	46.154 (36,295 of the publications specified in the competition for Associate Professor)	6 (According to a reference in Scopus)	Participation in 8 projects, 4 funded by FNI and 4 supported by Bulgarian and international companies

***for the entire scientific career**

Main scientific directions and contributions

Dr. Neli Vilhelmova's professional interests are in the field of virology and experimental pharmacology - chemotherapy of viral infections. The contributions of the scientific research activity are related to the study of the antiviral (mainly antiherpesvirus) activity and the mechanisms of action of natural products, including essential oils, products obtained during their production; extracts of medicinal plants used in traditional medicine (for example, *Tanacetum vulgare* L.), propolis, postmetabolites of lactic acid bacteria, etc.

In the course of the studies carried out by Dr. Neli Vilhelmova, the following original scientific contributions were obtained:

Data on the anti-herpesviral activity of tannins (ellagitannins and galotannins) against sensitive and resistant to acyclovir (ACV) strains HSV-1 and HSV-2, the synergistic effect of their most active representatives in simultaneous administration with ACV has been proven.

For the first time, the influence of Canadian propolis extract and rose essential oils and products of their production on the replication and viability of extracellular HSV-1 virions has been determined. Information has been obtained on the effect of rose essential oils and the products of their production on the adsorption of the virus to the host cell and their protective effect on healthy cells; their synergistic effect with ACV was proven.

Comparative data on the influence of postmetabolites isolated from different strains of lactic acid bacteria on the replicative cycle and viability of extracellular virions of fish (KHV) and human (HSV-1) herpes viruses have been obtained, their influence on the attachment of the virus to sensitive cells has been determined as well as their ability to protect healthy cells before infection occurs.

Original information on the antiviral effect of hemocyanin from *Rapana thomasiana* against bovine rotavirus as well as 3-bromo-4-dimethylamino-1.8 naphthalimides, designed as antibacterial photodynamic therapy agents, in HSV-1 has been disclosed. Some of the publications examined changes in oxidative stress parameters of cells (from bovine kidney – the permanent cell line MDBK) infected with HSV-1. Dr. Vilhelmova is also a co-author of a review article focused on viral pathogens of economic importance to aquatic cultures.

Some of the original results obtained are of direct application. These are the contributions revealing the influence of extracts from Bulgarian medicinal plants on the replication and viability of the extracellular virions of HSV-1 and the common cold-causing human coronavirus HCoV-229E. These extracts are a component of commercially available products.

The data on the virucidal activity of disinfecting gel and lotion, as well as of air disinfecting systems, are also of practical importance.

Personal impressions from the candidate

I have known Nellie since the time when she was a MSc student in virology at the Faculty of Biology of SU "St. Kliment Ohridski", the fact that we work in neighboring institutes also contributes to our contacts. Dr. Vilhelmova is an excellently prepared specialist, with a high sense of responsibility, good organizational skills, proven ability to work independently and willingness to accept new challenges and share knowledge and experience. These impressions of mine were fully confirmed by the documents prepared in connection with the competition, which convincingly present the image of a hard-working and goal-oriented scientist, an established specialist in the field of virology, with a won authority at home and abroad. I do believe that the academic growth of Dr. Neli Vilhelmova will open up new horizons for her, will allow her to develop and reveal her full potential.

Conclusion

The materials presented by Assistant Professor Dr. Neli Vilhelmova in connection with the competition show that she fully meets and exceeds the mandatory and specific conditions and scientometric criteria for holding the academic position "Associate Professor".

With her proven professionalism, with her good organizational skills and ability to work in a team, with her excellent biomedical training, with her hard work, persistence and desire to fulfill the set goals and tasks in the best possible way, with her willingness to look for a solution to any challenge, Dr. Neli Vilhelmova has built a name as a respected specialist at home and abroad. The past 3 years have convincingly shown us that the preparation and availability of experts in the field of virology is not only prestigious for every country, but also a matter of national security. Dr. Neli Vilhelmova is undoubtedly one of them. I do believe that her rise up the professional ladder will be an inspiration, encouragement and support for future generations of virological scientists.

This gives me reason to convincingly propose to the Scientific Jury and the esteemed Scientific Council of the Institute of Microbiology "Stefan Angelov" at BAS to choose Assistant Professor Neli Milenova Vilhelmova - Ilieva, MSc, PhD, as ASSOCIATE PROFESSOR in the professional field 4.3 Biological Sciences (specialty "Virology"), announced for the needs of the Department of Virology at the same Institute.

12.012.2022

Sofia

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