



## EXPERT OPINION

**By:** Assoc. Prof. Dr. Trayana Spassova Nedeva, Faculty of Biology, Sofia University “St. Kliment Ohridski”, member of the scientific jury appointed by order No ПД 38-570 / 03.12.2020 of the Rector of Sofia University “St. Kliment Ohridski”, Prof. Anastas Gerdjikov, Dr.

**Re:** The materials submitted for participation in a competition for the academic position Professor of Sofia University “St. Kliment Ohridski” in Higher Education area 4. Natural sciences, mathematics and informatics; Professional area 4.3. Biological sciences, General and food microbiology

The competition for the academic position Professor in HE area 4. Natural sciences, mathematics and informatics, Professional area 4.3. Biological Sciences, General and Food Microbiology has been launched for the needs of the Department of General and Industrial Microbiology at the Faculty of Biology of Sofia University “St. Kliment Ohridski” in SG no. 88/13.10.2020. Assoc. Prof. Dr. PETYA KOYCHEVA HRISTOVA is the only applicant that has submitted documents for this competition within the deadline regulated by the law. She currently works on a permanent position at the same department.

### 1. General presentation of the procedure and the applicant

The presented materials, available online on the website of Faculty of Biology, Sofia University are in compliance with the requirements of the Act for the Development of the Academic Staff in the Republic of Bulgaria, the Regulations for its implementation, and the Regulations for the conditions and the order for acquiring scientific degrees and holding academic positions in Sofia University “St. Kl. Ohridski”. They also meet the recommended criteria for holding the academic position of Professor in Professional area 4.3. Biological sciences. The documentation for the competition is structured in a way that fully reflects the educational/pedagogical, scientific, applied research, and administrative activity of the applicant in both qualitative and quantitative aspects.

Assoc. Prof. Dr. Petya Hristova graduated from Sofia University "St. Kl. Ohridski", Faculty of Biology in 1987 and was awarded a Master degree in Molecular and Functional Biology, with specialization in General and Industrial Microbiology. She defended her PhD thesis “Study of the collagenolytic activity of some soil streptomycetes” in 1995 at Department of General and Industrial Microbiology, Faculty of Biology, Sofia University. She began her academic career at the same department in 1997, successively holding the positions of Assistant, Senior Assistant (2000-2002) and Chief Assistant Professor (2002-2012), and since 2012 she has been an Associate Professor. During the period 1994-2005 she conducted 7 short- and medium-term specializations abroad - Robert Gordon Technical University - Aberdeen, Scotland; INRA and ENITIAA - Nantes, France performing research and teaching activities. Assoc. Prof. Dr. Petya Hristova is an active member of the academic community of Sofia University (see details in the section "Assessment of administrative activity"). As a specialist in the field of Microbiology, Assoc. Prof. Dr. Petya Hristova executed expert activity reviewing scientific publications and projects and participating in scientific juries for awarding scientific degrees and holding academic positions.

Assoc. Prof. Dr. Petya Hristova has presented 65 papers as a scientific production in peer-reviewed and indexed journals, in proceedings of international and national conferences, and in popular science journals. This scientific production has a total IF of 30.712, h-index 9

and distribution as follows: 1 chapter in a book published by a foreign publishing house, 1 monograph, 39 research papers in peer-reviewed and indexed journals, 15 research and educational papers in peer-reviewed journals without IF and SJR, 3 oral presentations published in conference proceedings, 3 papers in popular science journals, 2 textbooks and a PhD thesis. According to Scopus/Web of science research databases, the presented papers are cited 262 times, and in other databases - 267 times.

Twenty-two publications are presented in the competition for the academic position of Professor. Among them, a monograph, 14 research papers in international peer-reviewed and indexed journals, distributed by quartiles as follows: Q1 - 1 pc., Q2 - 1 pc., Q3 - 6 pcs., and Q4 - 6 pcs.; 5 research and educational papers in peer-reviewed journals without IF and SJR, 2 Textbooks. The reference in Scopus/Web of science and other databases shows that these works were cited 127 and 156 times, respectively.

The results of the research activity were reported at 33 international and national scientific forums with posters and oral presentations. Among them, 19 are presented for participation in the competition.

The intensive scientific, applied research, and educational activity of Assoc. Prof. Dr. Petya Hristova and her professional skills in the field are reflected in her participation in 32 projects. Twelve of them are presented for participation in the competition (9 national research projects, 3 international educational projects; she is a coordinator of 4 of the research projects). According to Art. 2b of the Act for the Development of the Academic Staff in the Republic of Bulgaria (indicators of group F), this activity is evaluated as 110 points.

## **2. General assessment of the applicant activity**

### **2.1. Assessment of educational and pedagogical activity**

As a tutor at the Faculty of Biology of Sofia University, Assoc. Prof. Dr. Petya Hristova performs noteworthy teaching and pedagogical activities in Bachelor, Master and PhD degree programmes. On average, her total and auditorium workload over the last 5 years is 711 and 448 hours, respectively. This activity comprises the development and conduct of lecture courses at the BSc programmes in Molecular Biology (Microbiology; Pathogenic Microorganisms), Pharmacy (Microbiology and Virology); MSc programmes Microbiology and Microbiological Control (Molecular Biology of Prokaryotes and Eukaryotes; Food Microbiology), Food Quality and Safety (Microbiological Control of Food and Food Products; Biological Hazards in Food), Cell Biology and Pathology (Cellular Pathogens); PhD programme Microbiology (Biology of Lactic Acid Bacteria; Food Microbiology). Assoc. Prof. Dr. Petya Hristova is the author of the curriculum for full-time and part-time education, founder and head of MSc programme Food Quality and Safety. She conducts training under 7 programmes for postgraduate qualifications, according to approved curricula in the field of microbiology and microbiological control of food and pharmaceutical products. She has participated in the joint supervision of 2 PhD students that have already defended their thesis, and currently is supervising 3 PhD students at full-time education (1 of them in joint supervision). Thirty-five graduates have successfully defended their BSc and MSc thesis under her supervision (22 of them during the competition period). She is the author of 2 textbooks for students from all specialities in Faculty of Biology.

According to Art. 2b of the Act for the Development of the Academic Staff in the Republic of Bulgaria (indicators of group F), her teaching/pedagogical activity is evaluated as 110 points out of the total 220 points (with a minimum of 150 points). I appreciate this contribution as significant not only for the personal teaching career of the applicant, but also for the promotion of the teaching capacity of the Faculty of Biology.

### **2.2. Assessment of scientific and applied research activities**

#### ***Scientific papers***

The reference for compliance with the minimal state requirements in accordance with Art. 2b of the Act for the Development of the Academic Staff in the Republic of Bulgaria for HE area 4.

Natural Sciences, Mathematics and Informatics, Professional area 4.3. Biological Sciences, indicates that the applicant research achievements fully fit the stipulated criteria, as follows:

- ✓ Indicators of group A: PhD thesis - **50 p.**
- ✓ Indicators of group C: monograph - **100 p.**
- ✓ Indicators of group D: research articles in international peer-reviewed and indexed journals - **207 т.** (min 200 p.)
- ✓ Indicators of group E: cited papers – **566 p.** (min 100 p.)

#### ***Scientific and applied research contribution***

The applicant's research contribution is in the field of molecular taxonomy of microorganisms, microbiology and microbiological control of food, production of biologically active substances with antimicrobial activity. These contributions can be grouped as achievements of scientific, applied research, and methodological significance. That is how they are commented.

#### **Major scientific contribution:**

- ✓ Clarification of the molecular mechanisms of cross-pathogenicity as a biological hazard in foods of plant origin, proving the programmed link between the infectious process and the immune response in cross-kingdoms and revealing the main causes of new cross-pathogens emergence.
- ✓ Study of the antibiotic resistance of opportunistic pathogens to different antibiotics and its quantitative assessment.
- ✓ Isolation, molecular identification and typing of LAB belonging to *g. Lactobacillus* from various complex biocenoses (fermented dairy foods and GIT of *Cornu aspersum* and *Apis mellifera*) and monitoring the dynamics of their development as a function of biotic and abiotic environmental factors.
- ✓ Assessment of the genetic diversity of phytopathogenic bacteria belonging to *g Xanthomonas*, identification of Bulgarian haplotypes and endemic pathogens.
- ✓ Establishment of a relationship between the functionally differentiated antibacterial properties and the chemical structure of hemocyanin from *Eriphia verrucosa*.

#### **Major applied research and methodological contribution:**

- ✓ Raising environmental awareness of the society by clarifying the effect of cross-microbial pathogens on plants.
- ✓ Development and application of a combined approach for establishment of lactic acid microbiota biodiversity and functional activity, and the factors that determine them in rye dough and in the GIT of snails and bees.
- ✓ Establishment of a methodological procedure - a general diagnostic algorithm for fast and precise identification of microorganisms in dynamic microbial communities. The procedure is validated in a food matrix.
- ✓ Development of an algorithm for determining the structure of phytopathogenic bacteria depending on their pathotypes.
- ✓ Elaboration and implementation of an express and reliable procedure for quality control of probiotic food supplements based on molecular identification of LAB species.

A contribution to academic education is the presentation of two textbooks for students of all biological specialties.

#### **2.3. Assessment of administrative activity**

Assoc. Prof. Dr. Petya Hristova has a long-term effective administrative commitment: Chairman of the Quality Committee at Biological Faculty, member of the working group of the Molecular Biology Speciality; member of the General Assembly of Sofia University, member of the mandate commission of the General Assembly of Sofia University. Since 2016, Assoc. Prof. Dr. Petya Hristova has been holding the senior positions of a Vice-Dean of Faculty of Biology (2016-2019) and Head of the Department of General and Industrial Microbiology (2016-present).

### **3. Assessment of the applicant's personal contributions**

The thorough review of the presented by Assoc. Prof. Dr. Petya Hristova research papers and accompanying documentation allows me to assume that her personal contribution to the experimental development, analysis, interpretation and publication of the scientific achievements does not raise any doubts. The author's reference for the scientific contribution summarizes the correctly performed scientific and applied research activities and reflect logically the achieved results. In addition, the positive assessment of the educational and pedagogical work must be pointed out. Assoc. Prof. Dr. Petya Hristova successfully balances and integrates this work with the research aspects of her professional development. To that balance, the responsible and multifaceted administrative obligations must be added as well. I have known Assoc. Prof. Dr. Petya Hristova for 29 years. I have witnessed her professional commencement, development and achievements. I am fully convinced that as an applicant for the academic position Professor of Sofia University "St. Kl. Ohridski", she has all the professional qualities: scientific erudition, teaching approaches and responsibility, collegiality and commitment to held this position.

### **4. Critical remarks and recommendations**

I have no remarks or recommendations to the presented materials and documentation, research and teaching activity.

### **5. Conclusion**

All formal requirements specified in the Act for the Development of the Academic Staff in the Republic of Bulgaria, the Regulations for its implementation, and the Regulations for the conditions and the order for acquiring scientific degrees and holding academic positions in Sofia University "St. Kl. Ohridski" have been fulfilled. Convincing evidence for scientific, applied research, and educational/pedagogical activity of high quality are presented. The analysis of their significance allows me to confirm the positive assessment, presented above and to strongly recommend to the esteemed scientific jury, appointed by order No ПД 38-570 / 03.12.2020 of the Rector of Sofia University "St. Kl. Ohridski" to issue a report-proposal to the Faculty Council of the Faculty of Biology at Sofia University "St. Kl. Ohridski" for the election of Assoc. Prof. Dr. PETYA KOYCHEVA HRISTOVA for the academic position Professor in HE area 4. Natural sciences, mathematics and informatics, Professional area 4.3. Biological sciences, General and food microbiology.

21.01.2021  
Sofia

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