

STATEMENT

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of the materials submitted for participation in the competition
for the Academic position "Associate Professor"
of Plovdiv University "Paisii Hilendarski"

in the field of higher education 4. Natural sciences, mathematics and informatics.
professional field 4.3. Biological sciences
scientific specialty: Molecular Biology

In the competition for 'Associate professor', announced in the State Journal, issue 99 of. 10.11.2020 and on the website of Plovdiv University "Paisii Hilendarski" for the needs of the Department of Plant Physiology and Molecular Biology at the Faculty of Biology, applicants who applied documents are **Head Assistant Professor Elena Dimitrova Apostolova-Kuzova, PhD** from the Department of Plant Physiology and Molecular Biology at the Faculty of Biology, University of Plovdiv "Paisii Hilendarski" and **Head Assistant Professor Tichomir Iliev Vachev, PhD** also from the Department of Plant Physiology and Molecular Biology at the Faculty of Biology, University of Plovdiv "Paisii Hilendarski".

1. General presentation of the procedure and the candidates

Subject

By order of the Rector of the University of Plovdiv "Paisii Hilendarski" (PU) I was appointed a member of the scientific jury in a competition for the Academic position of 'Associate professor' in Plovdiv University in the field of higher education 4. Natural Sciences, Mathematics and Informatics, Professional field 4.3 Biological Sciences (Molecular Biology), announced for the needs of the Department of Plant Physiology and Molecular Biology at the Faculty of Biology.

For participation in the announced competition, two applicants have submitted documents: **Head Assistant Professor Elena Dimitrova Apostolova-Kuzova, PhD** from the Department of Plant Physiology and Molecular Biology at the Faculty of Biology, University of Plovdiv "Paisii Hilendarski" and **Head Assistant Professor Tichomir Iliev Vachev, PhD** from the Department of Plant Physiology and Molecular Biology at the Faculty of Biology, University of Plovdiv "Paisii Hilendarski".

During the preliminary review of the materials of the two applicants, participants in the competition for "Associate Professor" in molecular biology in order to find out the compliance with the minimum national requirements for holding the Academic position "Associate Professor" in the professional field 4.3. Biological Sciences, I found that both applicants meet the minimum requirements defined by the Act for the Development of the Academic Staff in the Republic of Bulgaria (ADASRB) and the related Regulations for the Application.

Presented by **Head Ass. Prof. Elena Dimitrova Apostolova-Kuzova, PhD** set of materials on electronic media was thoroughly reviewed and I found that there is no separate document named "Habilitation extended reference", which is mandatory according to the Regulations for Application of the Act for the Development of the Academic Staff in the Republic of Bulgaria (ADASRB) (Note 12).

All other documents are well prepared and are in compliance with the Regulations for the development of the academic staff of PU.

The first applicant, Head Ass. Prof. Elena Dimitrova Apostolova-Kuzova presented a list of a total of 39 works, one of which is an abstract/autoreferree of the PhD thesis and 8 are related to the

PhD thesis and were included in the procedure for acquiring the previous academic position "Head Assistant Professor". Thus, in the competition procedure for Academic position "Associate Professor", Elena Apostolova presents a list of a total of 30 papers, of which:

- ✓ 14 are in journals with IF (Web of Science) and Q index,
- ✓ 8 are in journals without IF (5 of them are in journals with SJR (Scopus) and Q index),
- ✓ 2 are in proceedings of scientific forums in Bulgaria,
- ✓ 3 are chapters in scientific books (2 are published abroad)
- ✓ 2 are workbooks with ISBN
- ✓ 1 invention is a plant variety

The total IF of Elena Apostolova's publications included in the competition is 26.991, total SJR - 11,867, and the citations of her scientific publications are a total of 153, h-index-7.

The necessary copies of articles, textbooks, a document for the recognized invention (List B of the official variety list of the on New Bean Variety (*Phaseolus vulgaris L.*)); other evidence are presented. for the indicators for compliance of the additional requirements of the PU, as well as official notes with lists of the Scientific Projects in which the candidate has participated and / or managed.

Presented by **Head Assistant Professor Tichomir Iliev Vachev, PhD** set of materials on electronic media were also thoroughly reviewed and I found that they generally include the required information, but are presented very chaotically, without clear indications of the huge number of files; there are no clear and complete lists of required indicators, and there are many repetitions of information that is not subject to review; there is an incorrect qualification and evaluation of some of the submitted scientific papers (reports from scientific forums published in proceedings are qualified as chapters of books/monographs and are awarded by the applicant with points to which they are not correspondent for.); lacks the necessary specificity in presenting the annual workload and the actual academic hours held, etc. The conclusion which has risen is that either the applicant has approached to the preparation of the required documentation too superficially or he lacks organizational experience.

For participation in the competition Head Ass. Prof. Tichomir Iliev Vachev, has submitted a total of 43 works: 3 are abstracts/autoreferrees, one is a dissertation for "Doctor of Science"; 26 are articles, 7 are chapters from books, 2 are books based on dissertations, one is a monograph with the value of a habilitation thesis and 3 are workbooks. Of these, the abstracts, the dissertation and 8 publications are related to his dissertations and are included in the procedure for acquiring the previous academic position of "head assistant".

After getting acquainted with the presented materials and re-evaluating their category, in the procedure of the competition for Academic position "Associate Professor", I accept that Tcihomir Vachev participates with a total of 29 works:

- ✓ 9 publications with IF (Web of Science) and with Q indexes (as for 2 of them there are certificates for acceptance for publication and full text manuscript). For the other 2 there are only certificates, but the full text manuscripts are not presented, therefore they will not be considered as applicant's activity. .
- ✓ 5 are in journals without IF, but with SJR (Scopus) and Q indexes,
- ✓ 2 are in journals , which are not reviewed in Web of Science or Scopus,
- ✓ 5 are full text reports in proceedings of scientific events in Bulgaria (evaluated by the applicant as chapters of books)
- ✓ 2 are chapters of scientific books published in Bulgaria
- ✓ 2 are books on the basis of previous PhD thesis
- ✓ 1 is a monograph with the value of habilitation work
- ✓ 3 workbooks with ISBN.

The total IF of Tichomir Vacher's publications included in the competition is 7.602, total SJR - 4.272, and the citations of his scientific publications are a total of 61, h-index-4.

2. General characteristics of the activity of the candidates

HEAD ASS. PROF. ELENA DIMITROVA APOSTOLOVA-KUZOVA, PHD *Assessment of educational and teaching activity*

Elena Apostolova-Kuzova obtained a master's degree in "Plant Biotechnology" in 2001 at the University of Plovdiv "Paisii Hilendarski", in 2002 she received a second master's degree in "Information Technology", and in 2007 she defended a dissertation and obtained PhD degree at the Agricultural University - Plovdiv in the doctoral program "Selection and seed production". As a PhD student (2004), Elena Apostolova conducted a 6-month specialization in the Plant Biotechnology Laboratory, University of the Algarve, Portugal.

Teaching experience of Elena Apostolova-Kuzova began in 2007, when she was appointed as an assistant professor, and since 2012 she has been a head assistant professor in Molecular Biology at the Department of Plant Physiology and Molecular Biology, University of Plovdiv "Paisii Hilendarski". Until January 2021, Elena Apostolova has a total of 17 years and 10 months of work experience, **13 years and 10 months** of which are **teaching experience** entirely at the University of Plovdiv "Paisii Hilendarski" (8 years and 2 months as a senior assistant).

In the documents I did not find an official certificate from the Educational Department of Faculty of Biology for the classroom workload of Elena Apostolova for the last years. Despite the presented detailed personal report of the candidate, it is not clear what is the actual annual study load of Elena and it is not clear whether she covers the required 360 study hours per year.

According to the presented personal report on the teaching activity, Elena Apostolova has extensive teaching experience, including conducting practical laboratory exercises and developing and conducting various lecture courses on compulsory and elective subjects. As an assistant professor, Elena Apostolova has conducted laboratory exercises in "Molecular Biology" and "Bioinformatics Analysis" of students, bachelor's degree in various specialties of Faculty of Biology.

After the appointing Elena Apostolova as head assistant professor, she was tasked with creating and conducting a lecture course and practical exercises in "Molecular Ecology" for students in "Molecular Biology", which she has been leading them until now. The same course is elective for students from two other bachelor's degree specialties. In 2017 she created a lecture course and for two academic years she conducted lectures and exercises in "Genetic Engineering" for undergraduate students from 4 specialties of Faculty of Biology. She has developed and conducted a compulsory lecture course on "Molecular Methods in Forensics" for students in master's degree and two other elective subject courses: "DNA markers and genotyping" and "Molecular markers". Within one academic year, Head Ass. Prof. Apostolova has conducted 75 academic hours of practical exercises in "Molecular genetic methods in plant protection" and in "Plant genetic resources and pest resistance" for the International Master's Course in Plant Protection (Plant medicine) at the Agricultural University, Plovdiv.

Thus, I can summarize that Elena Apostolova has developed **4 lecture courses** for students in bachelor's degree programs, **one for students** in Master's degree programs, and **another course** for students from the Agricultural University, Plovdiv.

For the successful preparation of the students, Elena Apostolova has participated in teams that have developed two textbooks/workbooks issued by the publishing department of University of Plovdiv.

The teaching activity of Head Ass. Prof. Apostolova is also realized through the supervision of undergraduate students in the development of their theses and through participation as an academic mentor of 17 students in the National Program "Student Internships". Since 2015, Elena Apostolova has been the scientific supervisor of 5 successfully graduated students.

With the activities presented above, Elena Apostolova fully covers the first three indicators of the **Additional Requirements** in the regulations of the Plovdiv University for professional field 4.3. Biological sciences.

Evaluation of the scientific and scientific-applied activity of the applicant

In the current competition, Head Ass. Prof. Elena Apostolova participates with a total of 30 scientific works.

For the indicators in group C of the National Minimum Scientometric Requirements, Elena Apostolova has included 4 publications with the equivalent of habilitation work, which have impact factors (IF) and Q1, which are assessed with a total of 100 points (minimum requirements of 100). These publications (without one) are thematically related, but Elena Apostolova has not prepared a separate document of the mandatory Extended Habilitation Report, which should have contained the contributions of these publications. The results of the articles with equivalent of habilitation work are presented in another document "Annotation with self-assessment of contributions", as each individual article is considered separately, and the contributions from the results are hinted at, but not defined specifically and clearly.

The main results of a contributory nature are 1) the established changes in the expression of miR156/157 and miR399 in the survival of the endemic relict species *Haberlea rhodopensis* in severe droughts; 2) the characterization of the genes encoding mRNA molecules of 7 isoforms of SOD in *Haberlea rhodopensis*; 3) the established relationship between high levels of SOD transcripts in fully dehydrated *H. rhodopensis* leaves and the plant's ability to resurrect on rehydration; 4) the comparative analysis of chloroplast genomes of closely related species of *H. rhodopensis* and the detection of codon substitutions in 17 genes, associated with photosynthesis, which are thought to be a consequence of molecular adaptation to drought and provide an evolutionary advantage of the species; 5) the established variety-specific response of microRNAs associated with infection in pepper with PSTVd (Potato Spindle Tuber Viroid), which proves the functional role of microRNAs in the regulatory networks in PSTVd - pepper pathosystem.

For the indicators in group D, Head Ass. Prof. Apostolova has included 3 publications with IF and Q3 (3x25=75), 4 with IF and Q2 (4x20=80), 3 with IF and Q3 (3x15=45) and 5 publications without IF, but referred to in Scopus and having quartiles in Scimago. For these articles 10 points are awarded (5x10=50). To indicator D, Elena Apostolova has presented 3 more chapters of scientific books/monograph (3x15=45) and a recognized invention (25 points). Thus, the total number of points on indicator D (after adjusting the points for publications without IF) is **320 points**, which is significantly more than the minimum required 200.

In addition to the articles described above, Head Ass. Prof. Apostolova has presented 3 more publications that are not referred to in Web of Knowledge or Scopus and two publications in proceedings of conferences and congresses in Bulgaria.

All research papers submitted for review (27 publications) are co-authored, and in 13 (48%) Elena Apostolova is the leading author.

For the indicator E, Elena Apostolova has presented 153 independent citations from the Web of Knowledge and Scopus, which evaluates this activity with **306 points**, which are significantly more (**6 times**) above the minimum required 50 points.

Head Ass. Prof. Apostolova has presented a list of **12** Research Projects, of which she has been the **principal investigator of a national one**, funded by the Ministry of Education. Of the other 11 projects in which Elena Apostolova has participated as a member of the research teams, **2 are international, 5 national**, funded by the Ministry of Education, **2 internal** university projects at the Agricultural University - Plovdiv; and **2 others** are internal university projects at the University of Plovdiv "Paisii Hilendarski".

Head Ass. Prof. Apostolova also has carried out a number of organizational and expert activities. She is a member of the Faculty Committee of the Faculty of Biology, of three commissions at the BF of the PU and in the organizing committee of **6 scientific** events at the BF of the PU, one of

which under the auspices of FEBS. Elena Apostolova is Deputy Editor-in-Chief of the Journal of BioScience and Biotechnology, published by University of Plovdiv "Paisii Helendarski".

With the above presented activities, Elena Apostolova fully covers the 4th and 5th indicators of **Additional** Requirements in the rules of the PU for Division 4.3. Biological sciences

The main fields in which are the scientific interests and works of Head Ass. Prof. Apostolova include the regulation of gene expression in plants by altering the expression of miRNAs, plant molecular ecology, and molecular taxonomy. The results of research in these areas lead to contributions of a theoretical but mostly scientifically applied nature and have a high scientific value, as evidenced by the large number of citations: article 7 - 48 times, article 10 - 37 times, article 11 - 23 times, etc. (a total of 163 citations and h-index - 7).

Critical remarks and recommendations

My main critical remarks are 2 and do not refer to the teaching, publishing or expert activities of Head Ass. Prof. Elena Apostolova, but concerns the completeness of the submitted documents:

1. As noted above, Head Ass. Prof. Elena Apostolova has not presented as a separate document the Extended Habilitation Report, which is required by the procedures for "Associate Professor" and "Professor", although in the "Annotation of Materials", she has tried to present the main results and contributions.

2. I also consider that in the "Annotation of the materials" Elena Apostolova failed to define clearly and precisely the contributions from the research conducted, which is actually the main requirements of this document.

HEAD ASS. PROF. TICHOMIR ILIEV VACHEV

Assessment of educational and teaching activity

Tichomir Vachev acquired a Bachelor's degree in Biology, a Master's degree in Molecular Biology and Biotechnology, and in 2012 a PhD in Molecular Biology at the University of Plovdiv "Paisii Helendarski". In 2013 he was enrolled and in 2016 he defended his PhD thesis and received a second PhD degree in "Genetics" at Medical University of Plovdiv. Since 2007, Tichomir Vachev has been working at the Department of Plant Physiology and Molecular Biology at the Faculty of Biology of the University of Plovdiv, where he has had the positions of biologist, assistant and head assistant professor. Until January 2021, the total work experience is **13 years and 11 months**, which is also pedagogical experience (7 years and 2 months as head assistant professor).

In January 2020, Head Ass. Prof. Vachev defended his thesis and obtained the degree of Doctor of Sciences.

According to the Personal Report for the educational activity, Head Ass. Prof. Vachev has conducted exercises on "Regulation of gene expression" and "Molecular genetics" of students from 2 bachelor's degrees; exercises in "Molecular Virology" for students from 3 bachelor's degrees; and Elective subject "Experimental Principles and Approaches in Molecular Biology". Tichomir Vachev has been appointed and has conducted the lecture course "Introduction to Molecular Biology" for bachelor students in one specialty and lectures and exercises in 4 disciplines in master's programs at Faculty of Biology. It is not clear which of these courses and their curricula have been developed by the applicant.

In the set of documents of Tichomir Vacher, I did not find an official certificate from the Educational Department of the Faculty of Biology about his classroom workload for the last years and I cannot assess the annual workload and whether he covers the required 360 study hours per year.

Head Ass. Prof. Vachev is the only author of one workbook and co-authored in the preparation of two other workbooks. In the reference for the additional requirements of Plovdiv University, Head Ass. Prof. Vachev has cited a textbook on "Molecular Medical Diagnostics", but since no evidence has been presented, this work will not be taken into account..

Head Ass. Prof. Vachev has intensive and fruitful work with students. He is the research supervisor of 8 bachelor students and one master student in the preparation and successful defense of dissertations. Under the supervision of Head Ass. Prof. Vachev with the participation of students

were prepared and presented 18 reports/posters at scientific events in Bulgaria, three of which received awards. In addition to undergraduate students, Vachev works together and supports the research work of 4 PhD students, and of one of them he was appointed official second supervisor (Danail Savov Minchev).

Evaluation of the scientific and scientific-applied activity of the applicant

For the indicators in group C of the National minimum scientometric requirements, Head Ass. Prof. Tichomir Vachev has presented a monograph "Autism spectrum disorders through the eyes of modern medicine, future therapeutic perspectives and molecular genetic aspects of research", published in 2021 by the University Press. It includes 174 pages, of which 88 pages are references.

The monograph is an extensive overview of various aspects in the development of autism spectrum disorder (ASD), the potential application of multipotent stem cells in research and therapy, the possibilities of modern molecular biological approaches for personalized diagnosis and therapy of ASD such as genomic and exomic sequencing, research of RNA degradome and metabolic studies, etc.

This monograph is interesting, contains large and versatile information on the problem, but is fully comprehensive review, there are no figures and diagrams to visualize the complex processes and most importantly there is no personal view/hypothesis to adhere to and personal results, although in the title pages there was a claim for presenting results of two research projects. All this disputes, to some extent, the qualities of the presented monograph as a habilitation work.

Despite the above remarks, I recognize this work as a monograph and evaluate it with 100 points, thus Head Ass. Prof. Vachev covers the minimum national requirements in indicator C.

For the indicators in group D, Head Ass. Prof. Vachev has included 2 books published on the basis of PhD theses ($2 \times 20 = 40$ points); 2 publications with IF and Q1 ($2 \times 25 = 50$), I recognize 3 publications with IF and Q2 ($3 \times 20 = 60$), 2 with IF and Q3 ($2 \times 15 = 30$), 2 with IF and Q4 ($2 \times 12 = 24$ points) and 5 publications without IF, but referred to in Scopus and having quartiles in Scimago.

For each of these articles, 10 points are awarded ($5 \times 10 = 50$ points). To indicator D, I admit 2 chapters from books (4 and 5 from the list) ($2 \times 15 = 30$). The other 5 chapters that the candidate has qualified as book chapters are publications in proceedings (1 and 2), books with conference papers (3, 6, 7), so I do not evaluate them with points. Thus, the total number of points on indicator D is **284**, which is more than the minimum required 200.

In addition to the articles described above, Head Ass. Prof. Vachev has presented 2 more publications that are not referenced in Web of Knowledge or Scopus and 18 files with evidence for participation in scientific forums abroad and in Bulgaria (no list attached).

Of all the scientific papers submitted for review (3 monographs and 23 publications), Head Ass. Prof. Vachev is the sole author of the books, and of the other works, he is a leading author (first or last) in 14 (17/26, 65%).

For the indicator E, Head Ass. Prof. Vachev has presented 43 independent citations from the Web of Knowledge and Scopus, which evaluates this activity with **86** points, with a minimum required of 50 points.

Head Ass. Prof. Vachev has presented evidence for participation in the research teams of 18 Research projects: 3 international; 7 national funded by Ministry of Education; 7 are funded by universities (MU-Plovdiv and PU) and one is business related.

Head Ass. Prof. Vachev is also charged with certain administrative activities: with decisions of the Faculty Committee, he was appointed to introduce the curricula and study schedules in the UNIS system; was elected as a course manager for bachelor students, as a member of the Ethics Committee for Research at the Faculty of Biology (2018); Commission for preparation of the admission student campaign (2017 and 2020) and Commission for attestation of teachers (2018)

With the activities presented above, Tichomir Vachev fully covers indicators 4 and 5 of the **Additional Requirements** in the regulations of the PU for professional field 4.3. Biological sciences

In my opinion, the scientific interests and research of Head Ass. Prof. Vachev can be defined in three main fields: 1) molecular biology of plants; 2) molecular aspects of mental illness with central focus autism and schizophrenia and 3) prenatal diagnosis and genetic abnormalities

In the first field, Head Ass. Prof. Vachev participated in studies investigating the role of small RNA molecules in temperature stress and viral infections in certain plant species, as well as the expression changes of some transcription factors. In relation to the second field, studies have been conducted, the results of which are included in the dissertation for "Doctor of Science" (not the subject of analysis) and some additional studies on the expression profile in blood of miRNAs (miRNA-486-3p, let-7b) and the expression of human endogenous retroviral elements (HERV) in patients with autism spectrum disorder (ASD).

More, but relatively diverse are the studies of the third field: a methodology has been developed for non-invasive identification of the sex of the fetus between 11 and 13 weeks; the frequency of chromosomal aberrations detected by amniocentesis was studied; chromosomal abnormalities in women with primary amenorrhea have been studied, etc. The contributions are of scientific-theoretical and methodological nature.

Critical remarks and recommendations

I would like to share a long list of critical remarks concerning the organization of the documents, the lack of precision in the preparation and submission of the required documentation, the huge disorder in the presented evidence, which made the evaluation extremely difficult and which shows either his inexperience or his disrespect to the competition and in particular to the members of the scientific jury.

I will note again the uncritical attitude of Head Ass. Prof. Vachev to the publications presented by him and the overestimation of some of them in determining their category.

Last but not least, my critical remarks on the "Annotation of Materials and Self-Assessment of Contributions" are the most important. The submitted material has nothing to do with the required document.

The prepared by the candidate "Annotation" is a retelling of the abstracts of the publications and there is not a single derived contribution, described clearly and precisely and defined in value as original, confirmatory, scientifically applied, or theoretical. In fact, only the developed methodology for non-invasive identification of the sex of the fetus is categorized precisely as a methodological contribution.

CONCLUSION

Group of indicators	Minimal points	Elena Apostolova		Tichomir Vachev	
		Presented materials	Points	Presented materials	Points
Group A	50		50		100
Group C	100	(4 papers with Q1)	100	monograph	100
Group D Indicators 5 to 10	200	3 with Q1; 4 with Q2; 3 with Q3; 5 with SJR (without IF); 3 chapters of books; 1 invention	320	2 books based on PhD theses; 2 with Q1, 3 with Q2, 2 with Q3, 2 with Q4; 5 with SJR (without IF); 2 chapters of books.	284
Group E	50	153 citations	306	43 citations	86
Total points	400		776		570
IF of papers		26.991		7.602	
SJR		11.867		4.272	
h-index		7		4	

Group of indica-	Minimal	Elena Apostolova		Tichomir Vachev	
Workbooks		2		3	
Successful graduated students		5		9	
Training experience		13 years 10 months		13 years 11 months	
Scientific projects		Principal investigator – of 1 national; Member of 11 (2 international; 5 national, 4 university)		Member of 18 (3 international; 7 national; 7 university, 1 related with business)	

When considering the main scientometric indicators, publication activity, all described teaching, scientific-expert and administrative activities, I can confidently state that in the competition of academic position "Associate Professor" in "Molecular Biology" participate two very active, ambitious, purposeful and with accumulated teaching experience candidates. Both candidates cover, and in some of the indicators exceed the minimum national and additional requirements of the University of Plovdiv

However, having in mind the reasons for the above remarks regarding the organization of the documents and the content of the "Annotation" of Head Ass. Prof. Vachev, I conclude that he still lacks the maturity of a scientist capable of critically analyzing the results and drawing and defining precisely and clearly the conclusions and contributions from them. These are skills and experience that are absolutely necessary for a habilitated teacher who will train more inexperienced colleagues and will be their mentor and teacher.

Therefore, as well as comparing all scientific-metric indicators, as well as comparing the manner and correctness of preparation of the submitted documents, which is an indicator of organizational experience, I support the application of Head Ass. Prof. Elena Dimitrova Apostolova-Kuzova, PhD and I propose to the esteemed members of Scientific Jury to propose to the Faculty Committee of Faculty of Biology, University of Plovdiv "Paisii Helendarski" to award the academic position of **"Associate Professor" in Molecular Biology to Head Ass. Prof. Elena Dimitrova Apostolova-Kuzova, PhD.**

28.04 2021. г.

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(Prof. Tatyana Vlaykova, PhD)