

BRIEF REVIEW

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of a competition for the academic position of "Associate Professor" at the University of Plovdiv "Paisii Hilendarski" in the field of higher education 4. Natural Sciences, Mathematics and Informatics, professional field 4.3. Biological Sciences (*Molecular Biology*)

By order № P33-630/19.02.2021 of the Rector of Plovdiv University "Paisii Hilendarski" (PU) I was appointed a member of the scientific jury in a competition for the academic position "Associate Professor", announced for the needs of the Department of Plant Physiology and Molecular Biology" at the Faculty of Biology (BF) in SG no. 99/20.11.2020 and on the website of PU. The following candidates are participating in the competition:

1. Dr. Elena Dimitrova Apostolova-Kuzova

2. Dr. Tihomir Iliev Vachev

At the time of documents submission, both candidates hold the academic position "Assistant Professor" in the Department of Plant Physiology and Molecular Biology at BF of PU.

1. General presentation of the received materials

The documents of both candidates were provided to me electronically *via* the Google Drive application.

Dr. Apostolova-Kuzova has submitted a total of 27 scientific papers, 2 student's manuals and a list of 12 research projects. All papers have been published, except for one, the acceptance of which has been certified. An order of the Minister of Agriculture, Food and Forestry has been presented certifying the inclusion in the Official State Variety List of a new variety of beans at the request of a team with the participation of the candidate.

Dr. Vachev has presented a list of scientific papers for participation in the competition including 18 journal articles (4 of them are accepted for publication as certified by the publisher) and 7 book chapters. Presented in full-text are also 1 monograph, 2 books based on defended dissertations, 3 student's manuals and a list of 18 research projects (certified by official notes). Copies of publications **No.7 and No.8** are missing as well as a copy of the applicant's textbook "Molecular Medical Diagnostics". The missing papers and textbook are not accepted for review and excluded when assessing the implementation of the minimum national (according to LDASRB) and additional (BF of PU) requirements. The defended dissertation for obtaining DSc degree is also not taken into account, as the defense took place after the date of submission of the documents for this competition.

I have **formal remarks** to the two candidates, related to the distribution of the scientific papers by categories:

To Dr. Apostolova - article **No.12** of "Publications in journals with impact factor (IF)" as well as articles **№5-8** of "Publications in scientific journals without IF" should be referred to "Publications in conference proceedings".

To Dr. Vachev – the book chapters **Nos 1, 2, 3, 6 and 7**, as well as article **No.9** should be referred to the category "Publications in proceedings of conferences".

These publications (some of which possess IF and/or SJR) of the two candidates, are in full-text and on the subject matter of the current competition. Therefore, they will be a subject of review and their metrics will be taken into consideration in the final candidates' evaluation.

2. Brief biographical data of the candidates

Dr. Apostolova-Kuzova obtained MSc degree in Plant Biotechnology at PU in 2001 and in 2002 an additional qualification in Information Technology at the same University. In 2004 she specialized for 6 months in the Plant Biotechnology Laboratory at the University of

the Algarve (Portugal). She obtained a PhD degree in 2007 as a doctoral student at the Agricultural University - Plovdiv. Since 2007 she is an employee of the Department of Plant Physiology and Molecular Biology at BF of PU with over 13 years of teaching experience, including over 8 years as an Assistant Professor.

Dr. Vachev obtained a BSc degree in "Biology" at BF of PU in 2005, and in 2008 - MSc degree in "Molecular Biology and Biotechnology" at the same University. At the time of submission of the documents for participation in this competition, he holds two scientific degrees - PhD in "Molecular Biology" (2012, PU) and PhD in "Genetics (2016, MU-Plovdiv). Since the beginning of 2007, Dr. Vachev is a staff member of the Department of Plant Physiology and Molecular Biology at BF of PU with a total work experience of over 13 years, including over 7 years as an Assistant Professor.

3. General presentation of the candidates' activity

3.1. Teaching activity

Dr. Apostolova-Kuzova: After her appointment as Assistant Professor she developed 4 lecture courses (Molecular Ecology, Genetic Engineering, Molecular Markers, and Molecular Biological Design and Analysis) for BSc degree and 2 (DNA Markers and Genotyping, and Molecular Methods in Forensics) for MSc degree. Currently, she is teaching Molecular Ecology, Molecular Biological Design and Analysis, and Molecular Markers for Bachelor's Degree (150 hours *per year*) and Molecular Methods in Forensics, and DNA Markers and Genotyping for Master's degree (55 hours *per year*). In addition, she has mentored the practical training of 17 students in an EC-funded project. She was also a supervisor of 5 successfully defended student's theses and a co-author of 2 students' manuals.

Dr. Vachev: With students from 3 BSc courses he conducts exercises in Regulation of gene expression, Molecular Virology, Molecular Genetics, and Experimental Principles and Approaches in Molecular Biology. He is lecturing a basic course on Introduction into Molecular Biology for students in Molecular Biology (I course). With students from 3 MSc courses he conducts both lectures and exercises in Molecular Medical Diagnostics and Human Virology, and for MSc students in Medical Biology he gives lectures on Human Virology and conducts a workshop on Methods of Molecular Biology in Medicine. The candidate is the author of 1 manual and co-author of 2 other students' manuals. He actively trains BSc/MSc and PhD students with whom he has joint projects and publications. He was the supervisor of a total of 9 successfully defended diplomas.

3.2. Scientometric indicators

Dr. Apostolova-Kuzova: She has published 17 articles in scientific journals, 3 book chapters and 7 conference contributions. Of the articles, 14 have both IF and SJR, and 5 - only SJR with total **IF - 26.991** and total **SJR - 11.867**. According to my reference, 22 of all 27 publications, *i. e.* over 80% are referenced in the world-famous WoS database and over 60% of the articles are in the field of Molecular Biology. According to this prestigious database, the total number of citations of the candidate's works (without self-citations) is **155 citations**.

Dr. Vachev: His peer-reviewed scientific papers include 15 articles, 2 book chapters and 6 conference contributions. Of the articles, **9 (Nos1-6, 9-11)** are in journals that are referenced in WoS (including **No.10**, which is in a conference proceedings) and 5 - in Scopus (**No.12-16**). According to my reference, the total JCR IF of all journal articles is **IF - 7.602**, and the total **SJR - 4.113**. According to a reference by Dr. Vachev and my personal reference in WoS and Scopus, the total number of citations of the publications, with which he participates in the competition, is **43 citations**.

3.3. Contributions of the candidates

Dr. Apostolova-Kuzova: Most of her publications are in the field of Plant Molecular Genetics and Ecology and have been conducted with classical (*Arabidopsis thaliana*) (Nos.10,11) and local (*Haberlea rhodopensis*) (Nos.4,7,14,20) plant species, including important for our country varieties of beans, peppers, beets and onions (Nos.1,7,15,19,21-24). These works contain original scientific and practical contributions. Scientific contributions can be characterized as adding to the current knowledge in the field of Plant Molecular Biology and Genetics significant new data and a research model (dwarf-like phenotype *Paulownia tomentosa* (No.18)). The identity and phylogeny of *Prunus dulcis* (almond) (No.12), as well as of native plant species of medical importance from the *Iridaceae* (Iris) family (No.3) and the genus *Mentha* (Nos.8,9) were studied by applying molecular genetic approaches. The contributions of scientific and applied nature expand the possibilities for genotyping and biomonitoring (Nos.2,6) through the generation of new genetic markers and are a source of valuable information for the Bulgarian agriculture (sensitivity to pathogens and pesticides of local plant varieties). The created new Bulgarian variety of beans, which was officially recognized by the Bulgarian regulatory authorities, is of purely practical importance.

Dr. Vachev: Dr. Vachev's contributions are in two main fields: 1) Plant Molecular Genetics with main subjects of investigation *A. thaliana* and the parasitic plants *Phelipanche* and *Orobanche ramosa* (Nos.1,2,5,9,10) and 2) Medical genetics and cytogenetics with a focus on autism spectrum disorders (ASD) (Nos.3,4,6,11-18). An original scientific contribution is the finding that the nature of the temperature stress in *A. thaliana* determines completely different expression profiles of small RNAs. Potential diagnostic markers are the viroid small RNAs detected in *P. ramosa* after PSTVd infection. The observation that *O. ramosa* supports the operation of RNA-silencing mechanism is of a confirmatory nature. Significant diagnostic potential of miRNAs and retroviral elements has been established in blood samples from patients with ASD. The prenatal sex determination, demonstrated by analysis of fetal DNA from the mother's blood circulation, is of a confirmatory nature. Of importance for the medical genetic practice is the demonstrated (by analysis of fetal trisomy with a paternal origin) importance of ultrasound screening in pregnancy and the need for prenatal cytogenetic analysis of any fetus with abnormalities, as well as the reported rare case of an chromosomal aberration type ring chromosome 22.

3.4. Compliance with regulatory requirements

The table below presents the compliance of the activities of the two candidates with the minimum national requirements according to the Regulations for LDASRB application (amended/supplemented, SG No. 15/19.02.2019).

Indicator	Minimum points	Dr. Apostolova-Kuzova	D-r Vachev
A	50	50	100
B	100	100	100
Г	200	320*	284*
Д	50	306	86
Total	400	776	570

* The points of indicator Г are reduced:

For Dr. Apostolova-Kuzova: due to deduction of points for articles having SJR but no IF.

For Dr. Vachev: a) due to lack of articles No.7, No.8 in full text; b) recognized are 2 instead of 7 book chapters; (c) for articles with SJR without IF, 10 points are awarded regardless of the quartiles.

It can be seen that in all indicators both candidates meet the minimum national requirements. They also cover, and in some respects significantly exceed, the additional

requirements of the BF at PU for holding the academic position of "Associate Professor". For example, **Dr. Apostolova-Kuzova** took part in 12 projects (in one as PI), and **Dr. Vachev** - in 18 projects at a required minimum of 2 projects. The administrative experience of both candidates significantly exceeds the required minimum.

4. Evaluation of the personal contribution of the candidates

All publications of **Dr. Apostolova-Kuzova** are co-authored and in 48% of them (13/27) she is a leading (first or last) author, and in 6 – a second author. **Dr. Vachev** is a leading author in 13 of the 23 peer-reviewed scientific papers, *i. e.* in more than a half (56%) of the publications. These data show that both candidates have an important role in the planning, implementation and publication of research, as well as a significant role in the reported contributions.

5. Critical remarks

To Dr. Apostolova-Kuzova:

1. The four publications designated as a habilitation work (**Nos.1,4,7,14**) are not presented separately from the other publications, *i. e.* there is no extended habilitation reference.
2. Contributions are not concisely, clearly and precisely defined but rather represent a retelling of the publications' abstracts.

To Dr. Vachev:

1. The documentation is not accurately organized. There is recurring information, *e. g.* lists of publications, some of which lack a complete bibliographic data (year of publication, pages).
2. In the reference for the educational activity there is no annual schedule, but instead 2 folders with 46 documents are attached without summary of the essential information.

6. Personal impressions

I do not know the two candidates personally and my opinion is based exclusively on the documents provided and on my personal inquiries on the Internet.

CONCLUSION

Both candidates meet the regulatory requirements for work experience and have significant teaching experience in the specialty of the announced competition "Molecular Biology". They cover, and in some indicators significantly exceed, the minimum national requirements according to the Regulations for LDASRB application and the additional requirements of BF at PU for holding the academic position "Associate Professor". Their scientific output is visible to the international scientific community and contains significant scientific, applied and methodological contributions. My conclusion is based solely on the scientometric indicators of the two candidates. The total JCR IF, SJR and number of citations of Dr. Apostolova-Kuzova is about three times higher than that of Dr. Vachev, which is also reflected in the higher total number of points (776 points), with which Dr. Apostolova-Kuzova covers the minimum national requirements in comparison with that of Dr. Vachev (570 points). This gives me a reason to recommend to the Scientific Jury to prepare a report-proposal to the Faculty Council of the Faculty of Biology for election of Assistant Professor **Dr. Elena Dimitrova Apostolova-Kuzova** for the academic position "Associate Professor" at the University of Plovdiv "P. Hilendarski" by professional field 4.3. Biological sciences (*Molecular biology*).

26/04/2021

Reviewer:
(Prof. Dr. Roumyana Mironova)