REVIEW

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

1. General presentation of the procedure

By order No. PD-22-81 of 17.01.2025. of the Rector of Plovdiv University (PU) "Paisii Hilendarski" I have been appointed as a member of the scientific jury in a competition for the academic position of Associate Professor in the field of higher education 4. Natural Sciences, Mathematics and Informatics, professional field 4.2. Chemical Sciences (Organic Chemistry, Organic Analysis), announced in the State Gazette No. 98/19.11.2024 for the needs of the Department of Organic Chemistry of the Faculty of Chemistry (FC). Chief Assistant Professor **Stanimir Petrov Manolov**, PhD, from the same department, is the sole candidate who submitted documents for participation in the announced competition. At the first meeting of the scientific jury, held on 29.01.2025, I was assigned to prepare a review of the materials submitted in electronic form by the candidate, which are in accordance with the Regulations for the Development of the Academic Staff of PU "Paisii Hilendarski". The candidate has attached a declaration of originality and authenticity of the materials submitted.

Brief candidate's biographical data

Dr. Stanimir Manolov is a graduate of the PU "Paisii Hilendarski", where in 2008 he received a bachelor's degree in computer chemistry, and in 2009 he completed a master's degree in organic chemistry. Since 2012 he has been an Assistant Professor in the Department of Organic Chemistry of the Faculty of Chemistry of the University, and since 2016 he has been a Chief Assistant Professor. Since March 2010 he has been a doctoral student in the Department of Organic Chemistry, where in 2014 he defended his PhD thesis entitled "Alternative methods for the synthesis of derivatives of the alkaloid Cherylline". For two academic years he led practical exercises in bioorganic chemistry for students of medicine and dentistry at the Medical University of Plovdiv. He also worked as a specialist in the creation of new products, analysis, and validation of control methods in two UK companies.

Dr. Stanimir Manolov is the Erasmus+ Coordinator for the Faculty of Chemistry and the Scientific Secretary for International Cooperation and Work with PhD students, students and prospective students for the Faculty. As a student, he participated in mobilities under this program at the University of Alicante, Spain and the University of Helsinki, Finland.

2. General characteristics of the candidate's activities

Dr. Stanimir Manolov's educational and pedagogical activities include conducting lectures, seminars, practical exercises, and teaching practices with students from various specialties of the FC. He leads lecture courses in organic chemistry and organic analysis, leads practical exercises in organic chemistry, chemistry of medicinal substances, bioorganic chemistry, and chemistry of narcotic substances, supervises teaching practice in the specialty Medicinal Chemistry. He conducts specialized lecture courses for master's programs on the chemistry of steroids, stability of drugs, drug design, methods and approaches for studying biological activity. Under his supervision, 11 diploma theses of graduates for obtaining the educational and qualification degree "bachelor" and 2 of graduates of the educational and qualification degree "master" were defended.

He is the author of 12 curricula in bachelor's and master's degree subjects.

The annual classroom workload of Dr. Stanimir Manolov for the last 10 academic years is 3203.4 hours for bachelor's education, which meets the additional requirement for acquiring academic positions at the FC, according to which candidates must have conducted no less than 1080 hours of classroom classes with students. In master's programs, 597 hours of lectures and exercises were conducted. For two academic years, the candidate leads practical exercises in English for students of medicine and dentistry at the Medical University of Plovdiv with a total of 184 hours.

The candidate's scientific and applied scientific activities

Dr. Stanimir Manolov is the author of 36 scientific papers, and for participation in the announced competition for Associate Professor he presents 20 of them, all of which are referenced in Scopus and/or Web of Science. The topics of the scientific papers are in the field of synthesis of new compounds with potential biological activity and analysis of plant extracts. The areas of scientific interests fully correspond to the specialty for which the competition was announced: Organic Chemistry and Organic Analysis.

Dr. Stanimir Manolov's scientific achievements have been presented to the scientific community at several national and international forums through 67 reports and 80 poster participations.

He is a guest editor of 3 special issues of the journal *Processes*, which has an impact factor of 2.8 and is placed in the second quartile. According to the ORCID database, Dr. Stanimir Manolov has reviewed 28 articles for 12 scientific journals; a fact that is indicative of his competence and scientific authority.

Over the past 12 years, Dr. Stanimir Manolov has participated in 10 scientific projects, 6 of which were funded by the Research Fund of the PU Paisii Hilendarski, 3 were funded by the National Research Fund of the Ministry of Education and Science and one was funded by the EU Operational Program. He has completed 17 courses to improve his qualifications.

3. Compliance of the submitted materials with the quantitative indicators of the Regulations for the Implementation of the Development of the Academic Staff in the Republic of Bulgaria Act (DASRBA)

Dr. Stanimir Manolov's presented materials for participation in the competition for the position of Associate Professor were not used in the procedure for acquiring his PhD degree and for occupying the academic position of Chief Assistant Professor.

Indicator A

Dr. Stanimir Manolov has submitted a copy of the diploma for PhD degree and an abstract of the dissertation to fulfill indicator A, which covers the required 50 points of the quantitative indicators.

Indicator B

Not applicable.

Indicator C

To meet the requirements for this indicator, the candidate submits five scientific publications in journals that are indexed in world-renowned databases of scientific information (Web of Science and Scopus). Their subject matter is targeted synthesis of new compounds with potential anti-inflammatory effects.

Four of the publications are in the first quartile and one in the third, which makes the number of points for this indicator 115 out of the required 100 points.

Indicator D

Under this indicator, Dr. Stanimir Manolov presents 15 of his scientific articles that follow the already outlined scientific areas of interest. New compounds with a potential anti-inflammatory effect have been obtained, the composition of extracts from plant species has been clarified using chromatographic methods, and a number of *in vitro* tests have been conducted to study their biological activity. Two of the articles have been published in journals from the first quartile, one in the second, three in the third, and two in the fourth quartile. Seven of the presented articles have been published in journals referenced only by Scopus.

In fulfillment of the requirements under this indicator, the candidate for Associate Professor also presents a book based on his PhD thesis, published by an international publishing house. With a total number of points of 229, Dr. Stanimir Manolov fully covers indicator D.

Indicator E

In total, Scopus database references 36 scientific papers by Dr. Stanimir Manolov, 16 of which have been cited 38 times (excluding self-citations), which determines his Hirsch index of 4. Through this good citation of his scientific papers, Dr. Stanimir Manolov covers the 50 points required by the Regulations for the implementation of DASRBA under indicator E.

The fulfillment of the minimum national requirements for holding the position of Associate Professor by the candidate is summarized in the following table:

№	Indicator group	Minimum score of points according to the Regulations in field 4.2. Chemical Sciences	Score of points completed by Dr. Stanimir Manolov
1	A (А)	50	50
2	C (В)	100	115
3	D (Г)	200	229
4	E (Д)	50	76

As already mentioned above, the candidate also meets the specific minimum requirements of the FC for conducting no less than 1080 hours of classroom classes.

4. Scientific and applied scientific contributions of the candidate, response among the scientific community

Dr. Stanimir Manolov has been working in the Department of Organic Chemistry of the FC, of which he is a graduate, and his research work is an extension of the long-standing traditional topics developed by this department – synthesis of new heterocyclic compounds with potential biological activity and analysis of secondary plant metabolites isolated from various natural sources using instrumental chromatographic methods. I would outline the following main contributions of Dr. Stanimir Manolov's scientific works (in brackets are the numbers of the articles according to the list # 6 submitted by the candidate):

- Targeted synthesis of new synthetic products, analogues of nonsteroidal anti-inflammatory drugs:

A series of new compounds were synthesized by combining 2-aminobenzothiazole with various profens (No. 1), five derivatives of flurbiprofen (No. 2), derivatives of edaravone (No. 3) and naproxen (No. 16), novel hybrid molecules of amphetamine with various profens (No. 4), sulfonamide derivatives (No. 8), etc. All new compounds obtained were reliably characterized by ^{1}H-, ^{13}C-NMR, mass spectral analysis, ultraviolet and infrared spectroscopy.

- Development and application of innovative approaches in organic synthesis:

Using microwave-assisted synthesis, environmentally friendly methods for the preparation of derivatives of 1,2,3,4-tetrahydroisoquinoline sulfonamides (No. 5) and of N-(2,2-diphenylethyl)-4-nitrobenzamide (No. 6) have been proposed; a new approach for the synthesis of analogues of Santacruzamate A (No. 15) has also been demonstrated.

- Separation and identification of compounds isolated from natural sources:

Chromatographic methods were used to determine the composition of essential oils of Roman Chamomile (No. 9), anise hyssop (No. 10) and Nepeta species (No. 13); the polyphenol fraction of Italian helichrysum (No. 11), Chenopodium botrys (No. 12) and lupine seeds (No. 18) was isolated and analyzed. These studies enrich the knowledge about the content of

bioactive compounds in plant extracts and on this basis reveal their potential application in medicine, nutrition, and cosmetics.

- Use of *in silico* and *in vitro* assays to predict biological activity of synthesized and isolated compounds:

Molecular docking and molecular dynamics simulations were used, which showed good binding of benzothiazole-profen hybrid amides to certain domains of human serum albumin, combined with good anti-inflammatory activity of the newly synthesized compounds (No. 1), a computer study of the obtained compounds was performed toward the enzyme tyrosinase, responsible for the synthesis of melanin (No. 3) and isolated natural compounds as potential ligands for binding to four domains of serum albumin (No. 11). Dr. Stanimir Manolov masters and applies several *in vitro* tests for biological activity; antioxidant, anti-inflammatory and anti-arthritic activity of synthesized ketoprofen hybrids (No. 6) and amphetamine analogues (No. 4). The pharmacological values of most of the plant extracts studied have been also evaluated.

The publication of the candidate's scientific works in worldwide recognized scientific journals has undoubtedly contributed to their high citation rate, although published in the last 2-3 years. The most significant interest has been aroused by studies on the composition of essential oils from two cultivated Nepeta species (published in 2023, but already with 6 citations), chromatographic analysis and biological activity of phenolic compounds isolated from Italian helichrysum (published in 2023 and 4 citations), etc.

5. Assessment of the candidate's personal contribution

Of the 20 scientific articles submitted for participation in the competition, the candidate is the first author of 8 of them and the second author of 7 articles, which is indicative of his significant personal contribution to the experimental and publication activities of the scientific teams in which he works. He has brought the responsibility of the corresponding author of 5 of the papers submitted in the competition.

6. Critical remarks and recommendations

I have no critical remarks regarding the materials presented in the competition. I am convinced that after his habilitation, Dr. Stanimir Manolov will be able to pass on his rich theoretical, experimental and organizational potential to the next generation of the FC of the PU Paisii Hilendarski graduates and will take on the training of not only graduate students, but also doctoral students in the field of organic chemistry and organic analysis.

CONCLUSION

The documents and materials submitted by Chief Assistant Professor Stanimir Petrov Manolov, PhD meet all the requirements of the DASRBA, the Regulations for its implementation and the corresponding Regulations of the PU Paisii Hilendarski.

The candidate in the competition has presented enough scientific works published after the defense of hid PhD thesis and holding the position of Chief Assistant Professor. His papers contain original scientific and applied scientific contributions that have received international recognition, all of which have been published in journals and scientific collections by international academic publishers. The professional and pedagogical qualifications of Dr. Stanimir Manolov are undoubted and his ambition and consistency define him as a promising researcher and respected teacher.

After reviewing the materials and scientific papers presented in the competition, analyzing their significance and their scientific and applied scientific contributions, I give my positive assessment and recommend to the respected scientific jury to prepare a report-proposal to the Faculty Council of the FC for the election of Chief Assistant Professor **Stanimir Petrov Manolov**, PhD to the academic position Associate Professor at the PU Paisii Hilendarski in the field of higher education 4. Natural Sciences, Mathematics and Informatics, professional field 4.2. Chemical Sciences (Organic Chemistry, Organic Analysis).

March 6, 2025, Reviewer:

Plovdiv Prof. Mariana Argirova, DSc