REVIEW

concerning the competition for the academic position of Professor in the field of higher education 4. Natural Sciences, Mathematics and Informatics; professional field 4.2 Chemical Sciences; scientific specialty "Organic Chemistry", announced in State Gazette No. 48 of 26 May 2026, with Assoc. Prof. Dr. Marin Neykov Marinov from the Department of Chemistry, Phytopharmacy, Ecology and Environmental Protection, Agricultural University – Plovdiv, as a candidate, appointed as a member of the scientific jury pursuant to Order No. RD 16-769/22 June 2026 of the Rector of the Agricultural University – Plovdiv

Reviewer: *Prof. Pantelley Petrov Denev, DSc, University of Food Technologies – Plovdiv, field of higher education 4. Natural Sciences, Mathematics and Informatics; professional field 4.2 Chemical Sciences; scientific specialty "Organic Chemistry", appointed as a member of the scientific jury by Order No. RD-16-769/22 June 2026 of the Rector of the Agricultural University – Plovdiv.*

1. General information on the candidate's career and research development.

Marin Marinov graduated with a Master's degree in 1998 from Prof. Dr. Assen Zlatarov University – Burgas, after completing the five-year course of study in Biotechnology and successfully defending his diploma thesis entitled "Modification of Amino Acids Using Spirohydantoin Derivatives". The candidate continued his academic education at the University of Ruse "Angel Kanchev," Razgrad Branch, where, in 2004, he was awarded the educational and scientific degree "Doctor" (PhD) in the scientific specialty 01.05.10, Bioorganic Chemistry, Chemistry of Natural and Physiologically Active Substances, after successfully defending his doctoral dissertation entitled "Synthesis and Characterization of Sulfur Analogues of Spirohydantoins and Their Derivatives," under the supervision of Prof. Stoyan Stoyanov. Following a two-year period of professional experience at Balkanpharma – Razgrad AD, in 2006 Marinov successfully competed for and was appointed to the academic position of Chief Assistant Professor in the Department of Organic Chemistry at Plovdiv University "Paisii Hilendarski." In 2010, he moved to the Department of General Chemistry at the Agricultural University – Plovdiv. In 2013, he was appointed Associate Professor of Organic Chemistry in the Department of General Chemistry, subsequently renamed the Department of Chemistry and Phytopharmacy, and currently the Department of Chemistry, Phytopharmacy, Ecology and Environmental Protection, within the Faculty of Plant Protection and Agroecology at the Agricultural University – Plovdiv.

The overall career, thematic, and academic development of the candidate, Assoc. Prof. Dr. Marin Neykov Marinov, fully meets the requirements of the competition announced in the State Gazette, No. 48 of 26 May 2026.

2. General Description of the Submitted Materials.

The set of materials submitted by Assoc. Prof. Dr. Marin Neykov Marinov on electronic media complies with Article 90 of the Regulations for the Implementation of the Development of Academic Staff Act at the Agricultural University – Plovdiv and includes the following documents: *Application for admission to the competition: State Gazette No. 48/26 May 2026; Curriculum Vitae; Master's Degree Diploma; Doctoral Degree Diploma; Appointment Order and Associate Professor Diploma; Complete List of Publications; List of Publications Following the*

Award of the Doctoral and Associate Professor Degrees; Abstracts of Publications Following the Award of the Doctoral and Associate Professor Degrees; List of Citations; Statement on Q, SJR, and IF; Statement of Contributions to the Scientific Publications; Teaching Experience and Teaching Load; Project Activities; Statement on Fulfilment of the Minimum National Requirements; Declaration of Originality and Accuracy.

In the competition for the academic position of Professor, Assoc. Prof. Dr. Marin Neykov Marinov has submitted a total of 118 scientific works, grouped as follows:

- *Scientific publications in the relevant scientific specialty – 110:*

- Publications related to the doctoral dissertation – 2, which are not subject to consideration;

- Scientific works related to the academic position of Associate Professor – one monograph and 13 publications, which are not subject to consideration;

- Publications in peer-reviewed and refereed scientific journals – 51;

- Publications in journals with an impact rank – 49;

- Publications in journals with an impact factor – 34;

- Publications in conference proceedings – 40.

The following scientific works are subject to analysis for the preparation of this review:

- *Publications (22 in total), in which the personal contribution of Assoc. Prof. Dr. Marin Neykov Marinov is demonstrated by the fact that he is the first author in 13 publications, the second author in 8, and the third author in 1 publication.*
- *Monograph – 1;*
- *Book based on a defended doctoral dissertation for the award of the educational and scientific degree "Doctor" (PhD) – 1;*
- *Textbook – 1;*
- *Teaching aids – 4;*

The candidate declares that the results and contributions presented as part of the procedure are original and have not been appropriated from research and publications in which he had no involvement. The submitted documents, publications, and statements are accurate and truthful. The scientific publications submitted in specialized scientific journals, as well as evidence of equivalent achievements, do not duplicate those submitted in previous procedures.

Assoc. Prof. Dr. Marin Neykov Marinov is registered with the National Centre for Information and Documentation (NACID) as an Associate Professor /https://ras.nacid.bg/dissertation-preview/29654/, within the group of habilitated academics with scientometric indicators. For the present competition, the candidate declares a total of 1,000 points based on the relevant scientometric indicators, which significantly exceeds the minimum number of points required under the Regulations of the Agricultural University – Plovdiv for the Implementation of the Development of Academic Staff in the Republic of Bulgaria Act.

Indicator Group	Contents	Minimum required points established by the Agricultural University – Plovdiv for appointment to the academic position of "Professor", Professional Field 4.2. Chemical Sciences	Declared points by Assoc. Prof. Dr. Marin Marinov
A	Indicator 1	50	50
C	Indicators 3 or 4	100	100
D	Sum of Indicators 5 to 10	200	310

E	Total points for Indicator 11	100	150
F	Sum of Indicators 12 to the end	150	390
	Total points		1000

The candidate, Assoc. Prof. Dr. Marin Marinov, meets the national minimum scientometric requirements for appointment to the academic position of "Professor" in Professional Field 4.2. Chemical Sciences, as set forth in the Regulations for the Implementation of the Development of Academic Staff in the Republic of Bulgaria Act (PPZRASRB), as well as all additional requirements specified in the Regulations of the Agricultural University – Plovdiv for the Implementation of the Development of Academic Staff in the Republic of Bulgaria Act. I declare that I have found no evidence of plagiarism or improper interpretation of the results presented in the submitted scientific publications.

3. Main Areas of the Candidate's Research Work. Demonstrated Skills and Potential for Leading Scientific Research (Project Leadership, Attracted External Funding, etc.)

A major focus of his research activities is the development of efficient methods for the synthesis of novel heterocyclic organic compounds, as well as their structural characterization using various spectroscopic analytical techniques. An additional area of research concerns the investigation of the biological activity of a number of representatives of this class of compounds, with a view to their further development as potential pharmaceutical agents for future applications in medical practice.

The candidate's scientific research, publication, and administrative activities are summarized under the following topics:

1. Synthesis of heterocyclic organic compounds and their structural characterization using physicochemical and spectroscopic methods.
2. Synthesis, structural characterization, and investigation of the biological activity of heterocyclic organic compounds.
3. Synthesis, structural characterization, and investigation of the biological activity of organometallic coordination compounds.

The relevance of the research topic is underscored by the fact that many heterocyclic compounds exhibit pronounced biological activity. Their broad range of applications includes, among others, antiepileptic and anticonvulsant, antiemetic, antitumor, anthelmintic, anticoagulant, neuroleptic, antibacterial, antiviral, fungicidal, insecticidal, analgesic, diuretic, antidepressant, antiparkinsonian, tranquilizing, tuberculostatic, antipyretic, antihistaminic, anti-inflammatory, and anesthetic agents.

In the present competition for the academic position of Professor, the candidate has submitted **22** publications in scientific journals indexed and abstracted in internationally recognized scientific databases (Web of Science and Scopus), distributed as follows: 1 publication in a Q2 journal, 8 publications in Q3 journals, 10 publications in Q4 journals, and 3 publications in journals with an SJR but without an Impact Factor (IF).

The scientific capacity of Assoc. Prof. Dr. Marin Marinov is well demonstrated by his successful acquisition and implementation of a number of research projects. He has served as the principal investigator of 7 national research projects and as a member of the research team in 9 national projects, as well as participating in one internationally funded project.

In the context of the contemporary development of science, this achievement clearly demonstrates Assoc. Prof. Dr. Marinov's skills and capabilities in building research teams capable of successfully developing competitive project proposals, which is an important prerequisite for

the continued successful work and professional development of the researchers who are part of the scientific school he is currently establishing.

4. Assessment of the Candidate's Teaching Qualifications and Activities. His Role in the Training of Young Researchers.

Assoc. Prof. Dr. Marinov's teaching and educational activities, as well as his contribution to the training of young researchers, are directly linked to the development of the Agricultural University – Plovdiv. These activities include:

- As of 27 September 2010, he was appointed to the position of Chief Assistant Professor in the Department of General Chemistry at the Agricultural University – Plovdiv.
- As of 19 December 2013, he has held the academic position of Associate Professor in the same department, subsequently renamed the Department of Chemistry and Phytopharmacy, and currently the Department of Chemistry, Phytopharmacy, Ecology and Environmental Protection.

As of 15 June 2026, the teaching experience of Assoc. Prof. Dr. M. Marinov can be summarized as follows:

- At the Agricultural University – Plovdiv, his teaching experience as of 15 June 2026 amounts to 15 years, 8 months, and 19 days (fifteen years, eight months, and nineteen days).
- At Plovdiv University "Paisii Hilendarski", he worked as an Assistant and Chief Assistant Professor from 26 September 2006 to 26 September 2010, with a total period of employment of 4 years and 3 months (four years and three months).

Total teaching experience: 19 years, 11 months, and 19 days.

According to the submitted statement, during the period from the 2021/2022 to the 2025/2026 academic year, a total of 2,750.1 teaching hours of lectures, practical classes, seminars, and examinations were conducted with students from various degree programmes at the Agricultural University – Plovdiv. His teaching load includes lectures and practical classes in Organic Chemistry, General Chemistry and Chemistry, Polymers in Plant Protection (currently Macromolecular Compounds in Agriculture), Polymers in Agroecosystems (currently Macromolecular Compounds in Ecology), Operating Materials in Agricultural Machinery (currently Operating Materials), Anticorrosion Coatings, and Organic Chemistry within the Erasmus+ programme.

Assoc. Prof. Marinov has served as the academic supervisor of two doctoral students who have successfully defended their dissertations, while three doctoral students are currently undergoing training, one of whom is an international student. The doctoral graduates currently hold the academic position of Chief Assistant Professor at higher education institutions in Plovdiv. This demonstrates Assoc. Prof. Marinov's commitment to establishing a scientific school not only in Bulgaria but also to fostering academic successors and collaborators abroad.

In collaboration with Prof. Neyko Stoyanov, Assoc. Prof. Marin Marinov co-authored the textbook Organic Chemistry for Students in Non-Chemical Degree Programmes, Academic Publishing House of the Agricultural University – Plovdiv, 2016.

He independently authored Questions and Answers in Organic Chemistry, Academic Publishing House of the Agricultural University – Plovdiv, 2024. The teaching aid is aligned with the curricula of the degree programmes at the Agricultural University – Plovdiv in which Organic Chemistry is taught and can be used by students as supplementary material to facilitate a better understanding and mastery of the course content.

In 2019, Assoc. Prof. Marin Marinov and Chief Assistant Professor Rumyana Prodanova-Kamalieva published Laboratory Manual for Practical Classes in Organic Chemistry, Academic Publishing House of the Agricultural University – Plovdiv. The manual is aligned with the

curricula of the degree programmes at the Agricultural University – Plovdiv in which Organic Chemistry is taught. It covers the major classes of organic compounds, with each section including theoretical exercises designed to facilitate students' acquisition and consolidation of knowledge. A variety of laboratory experiments are also presented, aimed at developing students' practical skills.

In Terminological Dictionary of Organic Chemistry, Academic Publishing House of the Agricultural University – Plovdiv, 2019, Assoc. Prof. Marinov provides supplementary material aimed at facilitating a more comprehensive understanding of organic chemistry. The principal terms and key reactions are arranged alphabetically. The teaching aid is based primarily on the classical university course in organic chemistry for students in non-chemical degree programmes offered at the Agricultural University – Plovdiv, the Razgrad Branch of the University of Ruse "Angel Kanchev," the University of Food Technologies – Plovdiv, and other higher education institutions. A major strength of the teaching aid is that it incorporates not only well-established terms that have stood the test of time, but also more recent terminology, accompanied by concise and logically structured explanations.

All of the above provides convincing evidence that, through his teaching and educational activities to date, Assoc. Prof. Dr. Marinov has established himself as a successful university lecturer and research supervisor in the field relevant to the present competition for the academic position of Professor of Organic Chemistry.

The candidate, Assoc. Prof. Dr. Marin Marinov, meets all the requirements for teaching activities set forth in the Regulations for the Implementation of the Development of Academic Staff in the Republic of Bulgaria Act, as well as in the Regulations of the Agricultural University – Plovdiv for the Implementation of the Development of Academic Staff in the Republic of Bulgaria Act, which specify the requirements for appointment to the academic position of "Professor".

5. Significance of the Results Obtained, as Demonstrated by Citations, Publications in Prestigious Journals, Awards, Membership in International and National Scientific Bodies, etc.

A review of the databases provided in the competition documents concerning the scientific publications of Assoc. Prof. Marinov shows that the 75 citations reported meet and even exceed the required number of points under the national minimum requirements, as well as those stipulated in the Regulations of the Agricultural University – Plovdiv for this criterion.

The citations are found in scientific publications indexed and abstracted in internationally recognized scientific databases (Web of Science and Scopus) under Indicator Group E, Indicator 11, as follows: 21 citations in Q1 journals, 19 in Q2 journals, 15 in Q3 journals, 7 in Q4 journals, 2 in publications with an SJR but without an Impact Factor (IF), and 11 in books.

The recognition of Assoc. Prof. Marinov within the scientific community is also evidenced by his registration in internationally recognized scientific databases:

Marin Marinov - Scopus Author ID: 24295358800 h-index 7;

Web of Science Researcher ID: AAN-1778-2020 h-index 9;

ORCID ID: 0000-0002-7998-2128;

Google Scholar h-index 11, i10-index 11.

Assoc. Prof. Marinov has served on scientific juries evaluating candidates for the award of the educational and scientific degree "Doctor" (PhD) and for appointment to the academic position of Associate Professor in Professional Field 4.2. Chemical Sciences at Plovdiv University "Paisii Hilendarski", the University of Food Technologies – Plovdiv, and the Institute of Organic Chemistry of the Bulgarian Academy of Sciences (BAS) in Sofia. He has also served as Deputy Chair of the Control Board of the Agricultural University – Plovdiv during the periods 2017–2022 and 2024–present.

6. Significance of the Contributions to Science and Practice. A Reasoned Assessment of the Extent to Which the Candidate Has a Clearly Defined Research Profile.

The candidate has submitted a sufficient number of scientific publications produced after the works included in the defense of his educational and scientific degree "Doctor" (PhD) and the acquisition of the academic position of Associate Professor. His publications contain original scientific and applied contributions that have received international recognition, with a representative proportion of them published in journals and scientific proceedings issued by international academic publishers. His theoretical studies have practical applicability. The scientific qualifications of Assoc. Prof. Dr. Marin Neykov Marinov are beyond doubt. The results achieved through his research activities fully meet the specific requirements of the announced competition. The following may be identified as major contributions of his work:

I. ORIGINAL SCIENTIFIC CONTRIBUTIONS

- A method for the synthesis of cycloalkanespirodithiohydantoin hydrazones has been developed. The starting spirodithiohydantoins were obtained by reacting cycloalkanespiro-5-hydantoins with P_4S_{10} and hexamethyldisiloxane. This method enables the target products to be obtained in higher yields compared with the previously reported methods described in the literature.
- A synthesis of novel heterocyclic compounds has been presented through the reaction of alrestatin with 3-aminocyclopentanespiro-5-hydantoin and 3-aminocyclohexanespiro-5-hydantoin. The structures of the obtained products were confirmed by IR, ^{1}H NMR, and ^{13}C NMR spectroscopy.
- A synthesis of N^3-acetyl derivatives of spirohydantoins has been presented. The unsubstituted starting spirohydantoins were prepared using the Bucherer–Lieb method (α-series) and the Strecker method (β-series), and were subsequently converted into the target compounds by acetylation with acetic anhydride in the presence of pyridine. The structures of the synthesized compounds were established on the basis of physicochemical parameters, elemental analysis, FTIR, ^{1}H NMR, ^{13}C NMR, and ^{13}C DEPT 135 spectroscopic data.
- A method for the synthesis of 3-methyl-9′-fluorenespiro-5-hydantoin has been developed. The structure of the compound was confirmed by UV–Vis, IR, Raman, ^{1}H NMR, ^{13}C NMR, ^{1}H–^{1}H COSY, HMQC, and HMBC spectroscopy.
- The reaction of nalidixic acid with various 3-aminospirohydantoins was investigated using the dicyclohexylcarbodiimide (DCC) method in tetrahydrofuran. The synthesized amides were structurally characterized on the basis of physicochemical parameters, elemental analysis, IR, ^{1}H NMR, ^{13}C NMR, and ^{13}C DEPT 135 spectroscopic data.
- The synthesis of platinum and ruthenium coordination compounds of 4-bromo-spiro-(fluorene-9,4′-imidazolidine)-2′,5′-dithione (L) has been presented. The complexes were obtained by reacting the ligand with $(NH_4)_2[PtCl_4]$ and $RuCl_3 \cdot H_2O$. The structures of the isolated products were confirmed by elemental analysis, UV–Vis, IR, and ATR spectroscopy.
- The synthesis and characterization of eight novel Ni(II) complexes of 4- and 5-nitro-substituted heteroaryl cinnamoyl derivatives, obtained from $Ni(CH_3COO)_2 \cdot 4H_2O$, have been presented. The isolated complexes are neutral compounds, for which an octahedral geometry has been proposed.
- The synthesis of four novel Pt(IV) and Ru(III) complexes of (9′-fluorene)-spiro-5-hydantoin (HL1) and (9′-fluorene)-spiro-5-(2-thiohydantoin) (HL2) has been described. The structures of the synthesized complexes were confirmed by elemental analysis, UV–Vis, and IR

spectroscopy, while the structures of the ligands were characterized by UV–Vis, IR, ^{1}H NMR, ^{13}C NMR, and Raman spectroscopy.

II. APPLIED RESEARCH CONTRIBUTIONS

Among the applied research contributions, I would include the studies on the biological activity of the newly synthesized heterocyclic compounds and newly obtained organometallic coordination compounds. Extensive *in vitro* studies were conducted to evaluate the antiproliferative, antibacterial, and antitumor activities of the newly synthesized products. The antimicrobial activity of the obtained compounds was evaluated against the Gram-positive bacteria *Staphylococcus aureus* ATCC 6538 and *Bacillus subtilis* ATCC 6633; the Gram-negative bacteria *Escherichia coli* ATCC 8739, *Pseudomonas aeruginosa* ATCC 9027, and *Salmonella abony* NTCC 6017; the yeasts *Candida albicans* ATCC 10231 and *Saccharomyces cerevisiae* ATCC 9763; and the molds *Penicillium chrysogenum* and *Aspergillus niger*. The cytotoxic effects of the newly synthesized compounds were investigated using the human retinoblastoma cell line WERI-Rb-1 (ATCC HTB-169). Cell proliferation and viability were assessed using the commercially available Cell Proliferation Reagent WST-1 assay (Roche Applied Science).

III. METHODOLOGICAL CONTRIBUTIONS

Among Assoc. Prof. Marinov's methodological contributions, I would include some of his monographic works, in which he has collected, analyzed, and systematized methods, synthetic mechanisms, and applications of heterocyclic compounds that form the basis of his scientific and research activities.

In the monograph by Marin Marinov and Iliyana Nikolova, Phenothiazines: Synthesis and Antimicrobial Activity, Academic Publishing House of the University of Ruse, 2025, classical and modern methods for the synthesis of phenothiazines are reviewed. Phenothiazines and their derivatives are heterocyclic organic compounds exhibiting a broad range of biological properties. Representatives of this class of compounds are used as tranquilizers, antihistamines, diuretics, analgesics, neuroleptics (antipsychotics), sedatives, anthelmintics, antiemetics, antidepressants, antipyretics, antiparkinsonian agents, anti-inflammatory agents, antivirals, anesthetics, tuberculostatic agents, anticancer agents, antibacterial agents, antifungal agents, and others.

The monograph focuses on two main areas: classical and modern methods for the synthesis of phenothiazines are reviewed, and examples of phenothiazine derivatives exhibiting antimicrobial activity are presented.

In the book by Marin Marinov, Sulfur Analogues of Spirohydantoins, Academic Publishing House of the Agricultural University – Plovdiv, 2021, various synthetic methods, characteristic chemical reactions, and areas of application of thio analogues of hydantoins (spirohydantoins) and their derivatives are reviewed, namely 2,4-dithiohydantoins (imidazolidine-2,4-dithiones), 2-thiohydantoins (2-thioxoimidazolidin-4-ones), and 4-thiohydantoins (4-thioxoimidazolidin-2-ones).

A good methodological example is Marin Marinov's publication of Terminological Dictionary of Organic Chemistry, Academic Publishing House of the Agricultural University – Plovdiv, 2019, which serves as supplementary material for a more comprehensive understanding of the subject, alongside lectures and textbooks in the discipline. The main terms and important reactions are arranged in alphabetical order. The advantage of this approach is that it enables the reader to quickly locate the required term and become acquainted with its meaning. Therefore, the book can also be used as a reference work that broadens the reader's knowledge, ranging from students to specialists in related chemical disciplines.

CONCLUSION

Based on the analysis of the candidate's pedagogical, scientific, and applied research activities, I consider that Assoc. Prof. Dr. Marin Neykov Marinov meets the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria (LDASRB), the Regulations for the Implementation of the LDASRB, and the Regulations of the Agricultural University – Plovdiv for their implementation. This provides grounds for me to give an OVERALL POSITIVE ASSESSMENT of his activities and to vote in favor of preparing a report to the Faculty Council of the Faculty of Plant Protection and Agroecology at the Agricultural University – Plovdiv, recommending that the Council elect Assoc. Prof. Dr. Marin Neykov Marinov to the academic position of Professor in the scientific specialty "Organic Chemistry", in the field of higher education 4. Natural Sciences, Mathematics and Informatics, Professional Field 4.2. Chemical Sciences, as announced in State Gazette No. 48 of 26 May 2026, for the needs of the Department of Chemistry, Phytopharmacy, Ecology and Environmental Protection, Agricultural University – Plovdiv.

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