

## REVIEW

by **Assoc. Prof. Dr. Stela Mironova Statkova-Abeghe**  
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on the materials submitted for participation in the competition for the academic position of  
"Professor" at the Plovdiv University "Paisii Hilendarski",  
in: field of higher education **4.** Natural sciences, mathematics and informatics,  
professional management **4.2.** Chemical sciences (Organic chemistry, Bioorganic chemistry)

In the competition for the position of "Professor", announced in the State Gazette, issue 96 of  
11.11.2025, and on the website of Plovdiv University "Paisii Hilendarski", for the needs of  
the Department of Organic Chemistry at the Faculty of Chemistry, Assoc. Prof. Dr. Stoyanka  
Nikolova Atanasova from this department participates as a candidate

### **1. General presentation of the received materials**

By order No. RD-22-53 of 09.01.2026 of the rector of Plovdiv University "Paisiy  
Hilendarski", I have been appointed as a member of the scientific jury in a competition for the  
academic position of "Professor" at the Plovdiv University in the field of higher education **4.**  
Natural Sciences, Mathematics and Informatics, professional field **4.2.** Chemical Sciences  
(Organic Chemistry, Bioorganic Chemistry), announced for the needs of the Department of  
Organic Chemistry at the Faculty of Chemistry.

One candidate has been admitted to participate in the announced competition –  
Assoc.Prof. Dr. Stoyanka Nikolova Atanasova from Plovdiv University "P. Hilendarski",  
Faculty of Chemistry.

The set of materials on paper submitted by the Assoc. Prof. Dr. Stoyanka Nikolova  
Atanasova is in accordance with the Regulations for the Development of the Academic Staff  
of Plovdiv University and includes the following documents: Application form to the rector  
for admission to participate in the competition; CV in European format; Higher education  
diplom with acquired educational and qualification degree "Master"; Diplom for educational  
and scientific degree "Doctor"; Certificate for academic position "Associate Professor"; List  
of scientific works and scientific papers; Certificate of compliance with the minimum national

and additional faculty requirements; Declaration of originality and authenticity of the attached documents; Annotations of the materials under Art. 76. of the PRASPU in Bulgarian and English; Self-assessment of contributions; List of citations; Document of work experience and academic work; Certificate of scientific research activity;

The candidate Assoc. Prof. Atanasova has attached a list with a total of 50 scientific publications. A total of 22 publications are included in the PhD thesis and the competition for the academic position of "Associate Professor". She participated in a competition for the academic position of "Professor" with 28 scientific publications in journals referenced in Web of Science and Scopus from the period 2022 - 2026, after habilitation as an associate professor, and three teaching books. All 28 scientific papers with a total IF of 106.4, which are outside the dissertation and after a competition for an "Associate Professor", are accepted for review and are taken into account in the final grade; one book - a textbook in English for students of medicine, dentistry and pharmacy in a preparatory course, published in 2019 by Laxbook Publishing House; four research projects, one of which Assoc. Prof. Atanasova is the supervisor. The following are not reviewed: two books - textbooks in English on inorganic chemistry, which are outside the scope of the competition; four internal research projects for Plovdiv University and Medical University-Plovdiv.

The distribution according to the rank of scientific journals, expressed in quartiles of the publications included in the competition is as follows: 22 publications with Q1 and 6 publications with Q2. The attached reference for fulfilling the minimum requirements of the competition includes:

**Indicator A** - PhD dissertation, 2003, topic: "Synthesis of nitrogen-containing derivatives of 2-aryl and 2-heteroaryl-1,3-indanediones", **50 points**;

**Indicator B** - A total of eight publications are presented as equivalent to a habilitation thesis. 7 articles with quartile Q1 and one with quartile Q2, published in journals referenced in Web of Science and Scopus - **195 points**;

**Indicator C** - A total of 20 papers, 15 articles with quartile Q1 and 5 with quartile Q2, published in journals referenced in Web of Science and Scopus - **425 points**.

**Indicator D** - Citations in publications referenced by Web of Science and Scopus for **the last five years** 204 citations - **408 points**.

**Indicator E** - The candidate is a co-supervisor of two PhD students who have defended their thesis - 50 points; a team member in one international and four national projects - 60 points, a leader of one national project - 20 points and attracted funds for projects 38.08 points, co-author of one textbook - 10 points. Total **178.08 points**.

Notes and comments on the documents: The documents have been prepared diligently. They contain evidence of all the indicated activities, corresponding to the National requirements. The documents clearly present the scientific activity and achievements of the candidate, Assoc. Prof. Dr. Atanasova to date and fully comply with the requirements.

## **2. Brief biographical data of the candidate.**

Assoc. Prof. Dr. Stoyanka Atanasova graduated from the University of Shumen in 1996 with a degree in Chemistry. In the period 1999-2003 she was a PhD student at the University of Economics-Varna, defending her PhD thesis to the Higher Testimonial Committee in Organic Chemistry and Chemical Technology at the Institute of Chemistry and Chemical Technology, Bulgarian Academy of Sciences – Sofia under the supervision of Prof. Minchev. Since January 2004 she has been working at the Department of Organic Chemistry at the Paisii Hilendarski University of Plovdiv, successively as a Chief Assistant Professor, and since 2012 until now as an Associate Professor. Assoc. Prof. Dr. Atanasova was the Head of the Department of Organic Chemistry in the period 2016-2020. She is also a guest editor of the special issue "Drug Discovery and Biochemical Mechanisms", "Drug Discovery and Delivery in Medicinal Chemistry" and "Syntheses and Applications in Medicinal Chemistry" for the journal *Applied Sciences* 2023, 2024 and 2025, of the special issue "Pharmacological Activities and Therapeutic Potential of Novel Drug Derivatives" for the journal *Pharmaceuticals*, 2025, and of the special issue "Therapeutic Approaches of Natural Products in Health and Disease" for the journal *Life*, 2025, all published by MDPI. She is also a member of the Union of Scientists in Bulgaria - Plovdiv branch and a member of the association "Scientific and Technical Unions with the House of Science and Technology - Plovdiv".

## **3. General characteristics of the candidate's activities**

The teaching and pedagogical activity of Assoc. Prof. Atanasova at the Plovdiv University started in 2004 in the Department of Organic Chemistry, with 22 years of teaching experience. For the period 2019-2025, the total number of lecture hours held is 1970 hours,

and the average number of lecture hours for the last six years is 325 hours (with her being on unpaid leave during the 2020/2021 academic year). The teaching activity covers the following main disciplines:

1. Lecture course and laboratory exercises in the mandatory discipline "**Bioorganic Chemistry**" with a timetable of 45/0/60 for 3rd year BsC students in Chemistry, Medicinal Chemistry, Analysis and Control, and for 3<sup>rd</sup> year BsC in Chemistry with Marketing, with a timetable of 30/0/45, as well as for the part-time students in Chemistry - with a timetable of 25/0/30;
2. Lecture course and seminar exercises in the mandatory discipline "**Organic Chemistry Part I**" with a timetable of 45/15/45 for 2nd year BsC students in Biology and Chemistry, Chemistry and English, and Natural Science Education in the Junior High School Course;
3. Lecture course and seminars on the mandatory discipline "**Organic Chemistry - Part II**" with a timetable of 45/15/45 for 2nd year BsC students in Biology and Chemistry, Chemistry and English, and Natural Science Education in the lower secondary school course.
4. Lecture course and laboratory exercises on the mandatory discipline "Organic Analysis" with a timetable of 30/0/45 for 4th year BsC students in Analysis and Control.

According to the attached report, in this period alone, Assoc. Prof. Atanasova has conducted a total of **409** hours of lectures on the discipline "Bioorganic Chemistry". This exceeds the additional requirements of the Faculty of Chemistry by 213%. Assoc. Prof. Atanasova is a co-author of three textbooks (published in English) for students of the Medical University of Plovdiv, two of which are in inorganic chemistry. The candidate has administrative experience in the field of higher education and a qualification as a certified internal auditor. Assoc. Prof. Atanasova works actively with both undergraduate and graduate students and young scientists. She is the scientific co-supervisor of two PhD students who defended their PhD thesis in 2024 and 2025, as well as the supervisor of three full-time PhD students.

#### **Scientific and applied research activities of Assoc. Prof. Dr. Atanasova**

The candidate's scientific interests are in the following areas: Organic synthesis, Organic analysis and Bioorganic chemistry. Based on the submitted documents, the habilitation report outlines two main scientific directions developed in the last ten years - Design and synthesis of new compounds with antispasmodic, anti-inflammatory and

antimicrobial activity (publ. B2, B3, B4, B5) and Preparation of silver nanoparticles and study of their biological activity.

Assoc. Prof. Atanasova has extensive experimental experience in the following areas: Synthesis of bioactive heterocyclic compounds, their precursors, and the development of hybrid molecules combining different pharmacophoric elements in order to optimize biological activity and safety. The design and synthesis of new compounds acting in an alternative way for the treatment of irritable bowel syndrome is the main goal of the research, as well as Spectral methods for structural identification of new organic compounds, Interdisciplinary studies for pharmacological evaluation of the synthesized compounds, and Determination of antispasmodic activity *ex vivo*, anti-allergic, and antimicrobial activity *in vitro*. Assoc. Prof. Stoyanka Atanasova is a co-author of 59 scientific articles referenced by Web of Science and Scopus, 34 of which for the last five years. The total IF index of the works with which she participated in the competition for "professor" is 106.4. The Scopus reference shows a Hirsch index of 12 and a total number of independent citations in foreign publications (referenced by Scopus) for the last ten years of over 350, with 132 citations noted on the 28 publications proposed for participation in the competition alone. The candidate has attached a list of 16 participations in international scientific forums and 24 national ones. She participated in the competition with 28 articles, in 15 of which she is listed as a corresponding author, and in one of which she is also the first author. Four of the articles are reviews with a pharmacological focus.

The **main scientific contributions** in the works of Assoc. Prof. Atanasova are in the following areas: Focus of research on the synthesis and biological evaluation of new derivatives of anthranilic acid as potential drug candidates against inflammatory diseases, including gastrointestinal diseases. For the synthesis of the hybrid molecules, a known reaction for opening the ring of isatoic anhydride with differently substituted 2-phenylethylamines or 3-methyl-1-phenylbutan-2-amine and subsequent acylation was used.

The reference for original scientific contributions correctly summarizes the achievements and contributions presented in the articles equivalent to habilitation work - the selected eight publications published in renowned international journals, with rank Q1: (*Molecules* 2024; *Pharmaceuticals* 2023 and 2025- 2 issues; *Int. J. Mol. Sci.* 2023; *Biomedicine* 2024; *Nanomaterials* 2025). The remaining publication in a journal with rank Q2 - *Appl. Sci.* 2025.

**Main contributions:** The developments have scientific and scientific-applied contributions.

**Scientific contributions** can be summarized in enriching, expanding and deepening knowledge in the field of synthesis of compounds with antispasmodic, anti-inflammatory and antimicrobial activity. Small molecules as antispasmodics have been designed and synthetic approaches for their preparation have been found. The influence of various substituents on antispasmodic activity has been theoretically studied. Molecular structure-biological activity (SAR) relationships have been found for the synthesized compounds, which can serve as a basis for future rational design of biologically active compounds.

**Scientific-applied contributions** Twenty-eight mebeverine analogues have been synthesized. It has been established that the activity of mebeverine may have a side effect such as blocking a key neurotransmitter with a role in intercellular communication in the body, unlike all synthesized compounds that do not affect the acetylcholine response. This result is particularly valuable, as mebeverine has been used for years in clinical practice for the treatment of IBS as a direct smooth muscle relaxant. A quantitative approach was adapted to assess the inhibition of albumin denaturation. The method is an indicator for determining *in vitro* anti-inflammatory activity, which was confirmed by *ex vivo* evaluation, in silico calculations and molecular docking. The obtained compounds retain the anti-inflammatory activity characteristic of anthranilic acid, while revealing the modifying influence of additional pharmacophores. The experimental results indicate the compounds described in publication **B4** as compounds with the most pronounced antimicrobial and antifungal activity.

A rapid, completely green, and environmentally friendly method for the synthesis of silver nanoparticles as drug or synthetic substance carriers has been developed. Silver nanoparticles loaded with mebeverine, mebeverine analogues, and phenindione have been obtained for the first time. The antispasmodic and anticoagulant activity of immobilized nanoparticles has been studied for the first time.

#### **4. Assessment of the candidate's personal contribution**

The originality of the research and the personal participation of Assoc. Prof. Dr. Stoyanka Nikolova Atanasova are undeniable. The developments are interdisciplinary. The response in scientific circles confirms the scientific-applied nature of the research and the significance of the contributions. The quantitative indicators according to the criteria of the national requirements for occupying the academic position of "Professor" have been met.

## **5. Critical remarks and recommendations**

The wrong title of the textbook is indicated. The years (periods) in which the scientific projects were developed are not indicated. A bilateral Bulgarian-Indian project for bilateral cooperation at the Ministry of Youth and Sports on the topic: "Development and application of new synthetic strategies for the synthesis of DHODH inhibitors with antitumor activity" is not indicated. Project No. D0 02-195, 2009-2012, funded by the Ministry of Youth and Sports on the topic: "Synthesis and biological activity of new isoquinoline compounds as analogues of papaverine" is not listed, but Assoc. Prof. Stoyanka Atanasova is a participant in both projects.

## **6. Personal impressions**

I have known Assoc. Prof. Atanasova since 2004 and I have very good impressions of the development of her academic career. She is dedicated to her work and extremely active in all areas. She has experience in organizing and conducting scientific events. Under the Erasmus and Erasmus+ programs, she participates as a lecturer in partner universities from Spain, Poland, etc. Under her leadership, full-time doctoral student Miglena Milusheva was selected as "PhD Student of the Year 2024". Assoc. Prof. Atanasova participates in several interdisciplinary research teams together with medical physicists, pharmacologists, toxicologists, biologists, etc. She develops the traditional scientific fields of the department with research in the field of nano-pharmacology.

## **CONCLUSION**

The documents and materials presented by Assoc. Prof. Dr. Stoyanka Nikolova Atanasova meet all the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria, the Regulations for the Implementation of this law and the relevant Regulations of the Paisii Hilendarski University of Plovdiv.

The candidate in the competition has presented a significant number of scientific works published after the materials used in the defense of the PhD thesis and academic position of "Associate Professor". The candidate's works contain original scientific and applied contributions that have received international recognition, all of which have been published in journals and in scientific collections published by international academic publishing houses. The theoretical developments have practical applicability, and some of

them are directly oriented towards academic work. The scientific and teaching qualifications of Assoc. Prof. Atanasova are undoubted.

The results achieved by Assoc. Prof. Dr. Stoyanka Nikolova Atanasova in academic and research activities fully comply with the minimum national and additional requirements of the Faculty of Chemistry, adopted in connection with the Regulations of the University of Plovdiv for the implementation of the Law on the Development of the Academic Staff in the Republic of Bulgaria.

After reviewing the materials and scientific works presented in the competition and in view of the analysis of their significance and the scientific and applied scientific contributions contained in them, I find it reasonable to give my **positive assessment** and to recommend to the Scientific Jury to prepare a report proposal to the Faculty of Chemistry at the Paisii Hilendarski Plovdiv University **for the election of Stoyanka Nikolova Atanasova to the academic position of "Professor"** at the Paisii Hilendarski University of Plovdiv in field of higher education **4. Natural sciences, mathematics and informatics, professional field 4.2. Chemical sciences (Organic chemistry, Bioorganic chemistry).**

05.03. 2026

Reviewer: .....

(Assoc. Prof. Dr. Stela Statkova-Abeghe)