

Opinion

by Prof. Milena Petkova Popova, PhD,

Institute of Organic Chemistry with Centre of Phytochemistry, Bulgarian Academy of Sciences
appointed as a member of the scientific jury by Order No. RD-09-139/23.07.2026 of the Director of
IOCCP

on the materials submitted in a competition for the academic position of **Associate Professor** at the Institute of Organic Chemistry with Centre of Phytochemistry, Bulgarian Academy of Sciences (IOCCP-BAS) in the higher education field 4. Natural Sciences, Mathematics, and Informatics; professional field 4.2 Chemical Sciences; scientific specialty "Organic Chemistry"; for the needs of the Laboratory Organic Synthesis and Stereochemistry.

Assist. Prof. Dr. Ivaylo Momchilov Slavchev from IOCCP, Laboratory "Organic synthesis and stereochemistry" is the only candidate in the competition for the academic position of Assoc. Prof., announced in the State Gazette, issue 55 dated 16 June 2026, and on the website of IOCCP.

1. General presentation of the candidate and the procedure

The candidate, Ivaylo Slavchev, graduated in 2013 with a Master's degree in Medical Chemistry from the Faculty of Chemistry and Pharmacy at Sofia University "St. Kliment Ohridski". Between 2014 and 2018, he worked on his doctoral dissertation within the framework of a joint doctoral programme between the Institute of Organic Chemistry with Centre of Phytochemistry (IOCCP) and Université Paris Descartes in Paris, France. In 2019, he was awarded a PhD degree. During the periods 2013–2014 and 2019–2020 he held the position of Chemist at the IOCCP, and since April 2020, he has held the academic position of Assistant Professor.

The set of materials submitted by Assist. Prof. Dr. Ivaylo Slavchev is in accordance with the Regulations on the Conditions and Procedure for Acquiring Scientific Degrees and Holding Academic Positions at IOCCP, and meets the criteria of the Institute for the academic position of Associate Professor.

The candidate's total scientific output comprises 22 research papers. Sixteen of these (6 under indicator „B” and 10 under indicator „Г” have been submitted for the competition; none have been presented in previous competitions for academic positions or the acquisition of scientific degrees. All submitted papers have been published in scientific journals indexed in WoS/Scopus, with the following distribution by quartile (Q-factor): 11 in Q1 journals, 4 in Q2, and 1 in Q3. Citations are presented only for the publications under indicator B, totaling 40 citations. The candidate's h-index is 5 (according to Scopus). Information (a list) regarding participation in projects has also been provided.

2. General characteristics of the candidate's activities. Evaluation of the contributions and their significance

Dr. Slavchev's research activities lie in the fields of organic and medicinal chemistry and focus on the development of new synthetic methods, as well as the design and synthesis of potential biologically active compounds and molecular sensors.

The results and contributions of the publications presented as equivalent to a habilitation thesis (Indicator „B“) can be categorized as follows:

✓ *Methodological studies on new synthetic approaches*

A comprehensive methodological study on new methods for amide bond formation was conducted, resulting in the development of two new, efficient, and practically applicable methods for the direct synthesis of amides from unactivated esters and amines. A wide range of substrates (over 50) was utilized, including compounds that are traditionally challenging to handle and rarely reported in the literature. Following series of experiments the applicability of these methods was demonstrated for synthesizing compounds used in pharmaceuticals and agrochemistry; in most cases, high to quantitative yields and products of high purity were obtained. These results establish the developed methods as an efficient and more environmentally friendly alternative to traditional approaches for amide bond formation.

✓ *Synthesis and semi-synthesis of new compounds with biological activity*

Research has been conducted focusing on the design and synthesis of new compounds with potential biological and pharmacological activity. Over 100 new compounds belonging to various structural series, including diaryl ethers and their analogues, arylidene-camphors, pyrimidines with a camphane skeleton, and amides with a fenchane skeleton have been synthesized. The compounds were characterized using a combination of spectral and physicochemical methods (NMR, MS, X-ray, elemental analysis, melting point). A two-step synthesis method for sterically hindered 2-aminopyrimidines was also developed. The biological activity of compounds from the different structural series was investigated, covering *in vitro* antiviral (anti-enteroviral), anti-tuberculosis, and antimicrobial activity, as well as the antioxidant properties of selected compounds. For compounds exhibiting high and selective anti-enteroviral activity, the *in vivo* therapeutic potential was evaluated in mice, demonstrating a protective effect and prolonged survival. Safety profiles and metabolic stability were determined for the anti-tuberculosis agents. Structure-activity relationships were established for the investigated compounds.

✓ *Design and synthesis of novel sensors for heavy metals*

A series of novel naphthalimide ligands were designed, synthesized, and investigated for detection of Hg(II) and Cu(II) ions. The synthesized compounds were structurally (NMR, HRMS) and photophysically characterized and exhibit distinct interaction mechanisms with the two metal ions. Of particular significance is the observed chelation-enhanced fluorescence response to Hg(II), enabling its highly selective and sensitive detection, as well as redox activity towards Cu(II). The results demonstrate the potential of the developed ligands for applications in environmental and biological monitoring, as well as in redox-responsive catalytic and multifunctional sensors.

Although research activities under indicator „I“ are not presented in this summary, it should be noted that they fall within the scientific fields outlined above. A significant part of this work is dedicated to the synthesis and investigation of novel organic compounds regarding their anticancer, antitubercular, and antiviral activities.

The results and scientific contributions are of undoubted scientific and practical importance. The presented publications and the outlined prospects for the candidate's future work demonstrate a purposeful and consistent approach to research, focusing on the development of new synthetic methodologies and the preparation of compounds, molecular sensors and functional materials with potential for application in various practical fields.

The results presented in the competition are reflected in 16 research papers with Assist. Prof. Dr. Slavchev listed as the first or second author on eight of them, and he also leads research projects in the field, which clearly demonstrates his personal contribution. Dr. Slavchev has submitted a list of 13 international and national projects in which he has participated. He leads four of them, funded through the Bulgarian National Science Fund and the National Program "Young Scientists and Postdoctoral Researchers."

3. Personal impressions

I know the candidate as a colleague at the IOCCP. Based on the submitted materials, I can state that he is a promising researcher capable of conducting in-depth scientific research, including work with significant practical applications. I wish him continued interest and enthusiasm in his work.

4. Critical remarks

I believe the habilitation report would benefit from including a brief summary of the contributions made in the scientific papers listed under Indicator „Г“. Although the requirements for Indicator „Д“ have been met, it is unclear to me why citations of the publications listed under Indicator „Г“ were not included. Information regarding participation in scientific forums is missing, although I have no doubt that such participation has taken place.

CONCLUSION

The documents and materials submitted by Assistant Professor Dr. Ivaylo Slavchev meet the requirements of the Act on the Development of the Academic Staff in the Republic of Bulgaria, the Regulations for its application, the Regulations of the Bulgarian Academy of Sciences (BAS) and the Institute of Organic Chemistry with Centre of Phytochemistry (IOCCP-BAS).

The candidate has presented a sufficient number of scientific publications demonstrating indisputable scientific and applied contributions. He has shown a clear research focus and consistency, as well as the ability to work effectively within interdisciplinary scientific teams.

Based on the materials and scientific publications submitted for the competition, and the analysis of their significance and contributions, I consider it fully justified to provide a **positive assessment** and to recommend that the Scientific Jury prepare a report proposing to the Scientific Council of the IOCCP-BAS **the appointment of Assistant Professor Dr. Ivaylo Momchilov Slavchev to the academic position of "Associate Professor"** at the IOCCP-BAS, in Professional Field 4.2 Chemical Sciences, Scientific Specialty "Organic Chemistry".

14 October 2026

Opinion prepared by:

/Prof. Dr. Milena Popova/