

## REVIEW

**by Prof. Margarita Ivanova Kassarova - Traykova, PhD**

Member of the scientific jury, appointed by Order No. R – 2177 /28.04.2025 of MU-Plovdiv in implementation of Art. 4(2) and Art. 25 of the Law on Higher Education and Sports and Art. 2, para. 57(2) of the Regulations for the Implementation of the Law on Higher Education and Sports in connection with the procedure for occupying the academic position of "PROFESSOR", in Pharmaceutical Chemistry, field of higher education 7. Health and Sports, professional field 7.3. Pharmacy at the Department of "Pharmacognosy and Pharmaceutical Chemistry" for teaching in Bulgarian and English in the discipline "Pharmaceutical Chemistry", according to a competition announced in the State Gazette, issue 15 of 21.02.2025, according to an approved proposal of the Faculty of Pharmacy - MU-Plovdiv with protocol No. 4 of 23.04.2025 to hold a competition for the position of one AD "PROFESSOR" with a candidate - Assoc. Prof. Kalin Valentinov Ivanov, Ph.D.

The submitted documents in connection with the competition are complete and in accordance with the requirements of the Law on Academic Staff Development and the Regulations for the Implementation of the Law on Academic Staff Development, the Regulations for Academic Development at the Medical University - Plovdiv and provide an opportunity for a complete and objective assessment of the candidate participating in the competition. The only candidate in the competition is Assoc. Prof. Kalin Valentinov Ivanov, Ph.D.

### **Analysis of the candidate's career profile**

Assoc. Prof. Kalin Ivanov, Ph.D. graduated as a Master of Pharmacy at the Faculty of Pharmacy, MU-Sofia in 2004. He worked for 2 years as a Master of Pharmacy in an open-type pharmacy. After winning a competition in 2006, he was appointed as an assistant professor in the Department of Pharmaceutical Sciences at the Faculty of Pharmacy of MU-Plovdiv. Conducts practical exercises in the discipline "Pharmaceutical Analysis" for pharmacy students, Master's degree. Since 2014, he has been a chief assistant in the same department and conducts practical exercises in "Pharmaceutical Analysis". After defending his dissertation, as a doctoral student in independent training on the topic "Approaches for analytical control of amino acids in food supplements" in 2014, he was awarded the ONS "Doctor" in the doctoral program "Pharmaceutical Chemistry", field of higher education 7. Health and Sports, professional field 7.3. Pharmacy. Since 2012, he has acquired a specialty in "Analysis of Medicinal Products" from the postgraduate training for acquiring a specialty by persons with professional qualifications Master of Pharmacy, after studying at the Faculty of Pharmacy of the Medical University of Sofia. Since 2017, he has held the academic position of "Associate Professor" in the scientific specialty "Pharmaceutical Chemistry" at the Faculty of Pharmacy - Medical University of Plovdiv. Conducts lecture courses and exams in the disciplines "Pharmaceutical Chemistry", "Pharmaceutical Analysis" and "Analysis of Biologically Active Substances" for pharmacy students in the Master's degree program at the Faculty of Pharmacy Plovdiv in Bulgarian and English.

From 2018 to the present, Assoc. Prof. Kalin Ivanov has been the Head of the Department of Pharmacognosy and Pharmaceutical Chemistry, and since 2020 he has been the Deputy Dean for International Cooperation and Project Activities of the Faculty of Pharmacy-Plovdiv. From 2023 to the present, he has been the Dean of the Faculty of Pharmacy, MU-Plovdiv.

### **Description of the submitted materials for the competition**

The candidate Assoc. Prof. Kalin Ivanov, Ph.D. has submitted all documents required by the Law on the Academic Affairs of the Republic of Bulgaria, the Law on the Academic Affairs of the Republic of Bulgaria and the Regulations on the Terms and Procedure for Acquiring Scientific Degrees and Holding Academic Positions at the Medical University - Plovdiv: CV, certified diplomas of education and specialty in SDO, diploma of Ph.D., certificate of internship in the specialty, official reference for the study load, list of scientific works and full texts of publications, reference for citations, summaries of scientific works in Bulgarian and English, monographic work (10 publications in refereed and indexed in Scopus and/or Web of Science), author's reference for original scientific contributions, list of participation in national and international scientific forums, reference - self-assessment according to the template, list of participation in projects, a certificate of original scientific contributions, a certificate of academic workload, certificates of completed training courses, a certificate of English language proficiency (Cambridge Assessment English, Grade C) and other documents.

### **Evaluation of the candidate's scientific works for the overall academic development**

Assoc. Prof. Kalin Ivanov, Ph.D. participated in the competition with a total of 42 publications (after Associate Professor) in specialized scientific journals indexed in Scopus and Web of Science with IF- 108,158 and 6 publications in non-refereed journals with scientific review. Of the 42 publications indexed in Scopus and Web of Science, 10 are equivalent to a habilitation thesis. Publications in scientific journals, referenced and indexed in world-renowned databases with scientific information by indicators in group D (of the mandatory scientometric indicators) are 26 with a total IF - 77,558. According to the Clarivate indexing, 8 of the publications are indexed Q1, respectively 7 are - with Q2, 2 are with Q3 and 9 are with Q4. 36 of the attached indexed publications (only in Scopus and Web of Science) are from the last 5 years. Evidence is also presented for 272 citations in scientific publications referenced and indexed in Scopus and/or Web of Science for the period 2020 – 2025 only. According to Citation overview (Scopus) Hirsh index =10. Over the past 6 years, the scientific results have been presented at a total of 21 international scientific forums. This has made the research available to a wide range of the scientific community.

The candidate has participated in the publication of a textbook for pharmacy students published by the University Press of MU-Plovdiv. He is a member of research teams of six projects funded by MU-Plovdiv from a competitive session for applied research, focused on innovations or intellectual property, on the topic: "Strategies for the development of young researchers". He was also the head of two intra-university projects: "Pharmacoanalytical control of adaptogens of plant origin and characterization of *Rhaponticum carthamoides* extract" and "Modern guidelines and pharmacoanalytical approaches in doping prevention". The summarized comparative table for the implementation of the minimum national requirements and the

specific requirements according to the Regulations on the conditions and procedure for acquiring scientific degrees and occupying academic positions at the Medical University - Plovdiv for the professional field 7.3. Pharmacy.

Assoc. Prof. Kalin Ivanov is a recognizable scientist, as evidenced by the large number of citations. His scientific interests have several important focuses: Unintentional doping, development of rapid highly sensitive methods for monitoring undeclared substances in food supplements - a topic he developed back in 2016 in the first edition of his monograph "Substances in Sport"; fight against overweight and diets - a problem of global importance; biologically active substances isolated from plant drugs, exhibiting adaptogenic properties; phytochemical studies, isolation of pure biologically active substances and their effects

**The contribution of the scientific developments** of Assoc. Prof. Kalin Ivanov, PhD have a scientific and scientifically applied nature and can be summarized in the following main areas:

### **1. Contributions of a scientific nature:**

- A comprehensive meta-analysis of worldwide significance has been conducted, relating to studies related to the biological activity and chemical composition of the little-studied plant species *Salvia verticillata* (L.). Systematized information on the chemical composition of essential oils and plant extracts has been provided obtained from *S. verticillata* from different geographical areas around the world, including systematized information on all in vitro and in vivo studies and the potential in the development of medicinal products for the treatment of several important diseases.
- The risk of unintentional doping due to the intake of nutritional supplements has been assessed. Modern approaches to the prevention of unintentional doping have been proposed.
- The largest systematic review of the benefits of plant-based diets for weight loss has been conducted. It concludes that plant-based diets may play a significant role in future strategies for combating obesity and controlling some chronic diseases.
- For the first time, the isolated biologically active substances from plant drugs that have shown adaptogenic properties - from *Rhaponticum carthamoides*, *Lepidium meyenii*, *Eleutherococcus senticosus* and *Panax ginseng* - have been systematized.

A major problem facing the scientific community is to clarify what the adaptogenic properties are due to – individual compounds or the entire complex of biologically active substances. The focus of future research is to study the potential of some of the isolated substances and their inclusion in new medicinal products.

### **2. Contributions of a scientific and applied nature**

- Of interest are the results of studies with *Rhaponticum carthamoides* (Willd.) Iljin. The extract was standardized with a developed and validated highly sensitive liquid chromatographic method with PDA for the quantitative determination of phytoecdysteroids. These data highlight the potential of *Leuzea* root as a natural adaptogen for its ability to influence age-related decline in overall health, providing valuable information for natural interventions for longevity. The study is a foundation for future strategies to influence the aging process.

- • A high-performance thin-layer chromatography (HPTLC) method for the identification and quantification of meloxicam and piroxicam has been developed and validated. This is the first HPTLC method that allows for the simultaneous analysis of more than 10 samples which contain some of the most widely used NSAIDs – meloxicam and piroxicam, and at the same time the analysis can be performed very quickly. The method can be applied both for scientific research and for routine quality control.
- A histochemical study was conducted for the first time, concerning the localization of essential oil from *Echinophora tenuifolia* L. subsp. *Sibthorpiana*. The chemical profile of essential oil from a Bulgarian population of *E. tenuifolia* subsp. *Sibthorpiana* was also established using the gas chromatography method with mass spectrometry developed for the purposes of the study. Идентифицирани са шестнадесет летливи компонента, представляващи 92,03% от общото количество етерично масло. Резултатите от изследването могат да са основа за по-задълбочени бъдещи изследвания върху вида *E. tenuifolia* subsp. *sibthorpiana*, разпространен в България.
- For the first time, a study was conducted on the histochemical localization of secretory structures and lipid accumulations in roots and rhizomes of *Rhaponticum Carthamoides* (Willd.), cultivated in Bulgaria. For the first time, the extracted essential oil was extracted and characterized using a developed gas chromatography method with mass spectrometry.
- For the first time, the phytochemical composition, as well as the acute and subacute toxicity of essential oils from *Tanacetum vulgare* L. and *Tanacetum parthenium* L., growing in Bulgaria, was evaluated and it was found that the essential oil is of the camphor chemotype. The antioxidant activity of the oil was determined by the oxygen radical absorbance capacity (ORAC) method -  $605.4 \pm 49.3 \mu\text{mol TE/mL}$ . For the first time, the in vivo acute and subchronic toxicity of an essential oil obtained from the aerial parts of the species *Tanacetum parthenium*, distributed in Bulgaria, has been studied.
- Rapid and sensitive methods have been developed and validated that can be applied in rapid monitoring for the analysis of undeclared substances in food supplements. These methods can play an important role in the prevention of unintentional doping.
- • Chromatographic methods have been developed for the quantitative analysis of ecdysterone, turkesterone and ponasterone, which are found only in extracts of *Leuzea* and some superfoods such as asparagus, quinoa, canina, spinach, etc. The proposed methods are fast, accurate and can be used for food quality and safety control.
- • One of the focuses of modern science is the search for approaches and molecules that can be successfully applied in the fight against obesity and overweight. In this regard, the developments related to the study of the antiadipogenic activity of an extract of *R. carthamoides*, 20-hydroxyecdysterone and turkesterone in SGBS cells. It was found that *R. carthamoides* and 20-hydroxyecdysterone stimulate basal lipolysis. The conducted studies provide valuable data and guidelines for future studies of the relevant molecules and extracts of *Leuzea* in the development of products used for body weight reduction.
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### **Evaluation of the monographic work**

The candidate has submitted 10 publications, equivalent to a monographic work. All publications are in authoritative periodicals referenced in Scopus/Web of Science with a high

Impact Factor: Foods (IF 4.350), Plants (IF 4.658), Int .J. Anal. Chem. (IF1.8), Nutrients (IF4.8), Molecules (IF 4.6), Processes (IF 2.8), Pharmacia (IF 1.1), J. Essent. Oil-Bear. Plants (IF 2.4). Scientific publications address current issues of modern science such as: the important problem of modern society - obesity and overweight and plant-based diets as a strategy for weight control; methods for analyzing unauthorized substances in food supplements as a source of unintentional doping; isolation and proof of pure substances of natural origin and application of in vitro/in vivo methods for studying their biological activity. The emphasis in the publications is on the potential of natural biologically active substances as therapeutic agents and the expansion of their applications in medical practice.

### **Study-methodical and teaching activity**

Assoc. Prof. Kalin Ivanov participates in teaching students in the specialty "Pharmacy" in Bulgarian and English. He leads the courses in "Pharmaceutical Chemistry", "Pharmaceutical Analysis" and "Analysis of Biologically Active Substances" for students of Pharmacy OKS "Master" at the Faculty of Pharmacy Plovdiv in Bulgarian and English. He also conducts lecture courses on "Pharmaceutical Chemistry" and "Bromatology" for students of the "Professional Bachelor" program in the specialty of Assistant Pharmacist - Medical College Plovdiv. He is the supervisor of doctoral students, two of whom have defended their dissertations in the doctoral program "Pharmaceutical Chemistry". He is the supervisor of three postgraduate students in postgraduate training for the acquisition of a specialty in "Analysis of Medicinal Products". For the period 2021 - 2025 alone, he has completed training in 15 courses in various instrumental methods of analysis. Kalin Ivanov has been a lecturer in the specialty of the announced competition for 18 years, of which approximately 8 years he has been an associate professor in the same specialty. The presented report on the academic workload over the last three academic years shows the extremely high workload for all three academic years. During the last one - 2023/2024, the academic workload - lectures and exams with students, doctoral students, interns is 929 hours - many times exceeding the regulatory requirements for the academic position held. Conducts lecture courses and exams in the disciplines "Pharmaceutical Chemistry", "Pharmaceutical Analysis" and "Analysis of Biologically Active Substances" for pharmacy students in the Master's degree program at the Faculty of Pharmacy Plovdiv in Bulgarian and English. In addition, he conducts lecture courses and exams in "Pharmaceutical Chemistry" and "Bromatology" of students of the "Professional Bachelor" specialty in the field of Assistant Pharmacist at the Medical College of Plovdiv. Supervises doctoral students in the doctoral program "Pharmaceutical Chemistry" and specialists in postgraduate training for the acquisition of a specialty in "Analysis of medicinal products". Assoc. Prof. Ivanov is a reviewer of publications in authoritative periodicals in the field of his competence - pharmaceutical chemistry and pharmaceutical analysis.

Assoc. Prof. Kalin Ivanov is a member of the Bulgarian Scientific Society of Pharmacy.

### **Critical notes and recommendations**

I have no critical remarks. I would like to share my personal impressions of the candidate in this competition. I know Kalin Ivanov, who was one of the first appointed assistants in the Department of Pharmaceutical Sciences in the specialization disciplines for Master of Pharmacy - Pharmaceutical Chemistry in the then newly opened Faculty of Pharmacy. He contributed greatly to the teaching and development of practical exercises and lecture courses in pharmaceutical chemistry and pharmaceutical analysis and the conduct of training in these

disciplines. With exceptional dedication, professionalism, personal efforts and the support of the staff of the department of which he is the head Assoc. Prof. Kalin Ivanov created the best student and scientific laboratories for the disciplines taught in the department – pharmaceutical chemistry, pharmaceutical analysis and pharmacognosy, and phytochemistry. He managed to form a well-trained teaching and research team, which is responsible for the very good results of the department.

## CONCLUSION

The quantitative data presented in the table shows full compliance Taking account the criteria of the Act on the Development of Academic Staff in the Republic of Bulgaria, the Regulations for its implementation, the Minimum requirements under Art. 2b, para. 2 and 3, the Regulations for Academic Development at the Medical University - Plovdiv, Section IV and the Mandatory Minimum Scientometric Indicators for the Field 7.3. Pharmacy I believe that there is full compliance with the requirements and the documents and evidence presented for the competition by the candidate Assoc. Prof. Kalin Ivanov, Ph.D.: He obtained the ONS "Doctor" in the same specialty of the announced competition - "Pharmaceutical Chemistry"; he has a specialty in SDO "Analysis of medicinal products" from postgraduate training ; He is the supervisor of two successfully defended doctoral students; he has presented a habilitation thesis (10 publications), and has a study load that many times exceeds the requirements.

The quantitative data presented in the table shows full compliance with the individual indicators and the multiple exceeding of some of the minimum quantitative requirements.

Comparative table of indicator values according to the requirements of MU-Plovdiv and the candidate Assoc. Prof. Kalin Valentinov Ivanov, Ph.D.

<b>A group of indicators</b>	<b>Mandatory minimum scientometric indicators of MU-Plovdiv for direction 7.3. Pharmacy for AD "Professor"</b>	<b>Assoc. Prof. Kalin Valentinov Ivanov, Ph.D.</b>
A	50	50
V	100	100,23
G	300	371,69
D	500	4080
E	150	411,66
J	560	1819
<b>Total: A - J</b>	<b>1660</b>	<b>6832,58</b>

*Therefore, I firmly state my positive opinion towards the candidacy of Assoc. Prof. Kalin Valentinov Ivanov, PhD in the current competition. He is a well-established researcher with broad scientific interests, a well-established lecturer in the specialty, has the necessary teaching experience and high scientific achievements, has management experience as head of a department and Dean of the Faculty of Pharmacy and fully meets the scientometric requirements for holding the academic position of "PROFESSOR" in the specialty "Pharmaceutical Chemistry" for the needs of teaching in the Department of Pharmacognosy and Pharmaceutical Chemistry and I strongly recommend to the members of the esteemed Scientific Jury to make a positive decision to appoint Assoc. Prof. Kalin Valentinov Ivanov, Ph.D.*

01.06.2025

Reviewer:

Prof. Margarita Kasarova - Traykova, Ph.D.

Заличено на основание  
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