REVIEW

by

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(Faculty of Pharmacy, Medical University – Sofia, Department of *Pharmaceutical Technology and Biopharmaceutics*),
Member of the Scientific Jury appointed by Order No. R-109-68/28.01.2026 of the Rector of Medical University "Prof. Dr. Paraskev Stoyanov" – Varna

regarding the competition for the academic position of PROFESSOR in the professional field 7.3 "Pharmacy", scientific specialty "Pharmaceutical Dosage Form Technology and Biopharmaceutics", for the needs of the Department of Pharmaceutical Technologies, Faculty of Pharmacy at Medical University "Prof. Dr. Paraskev Stoyanov" – Varna, announced in the State Gazette, issue No. 102 of 28.11.2025.

In the announced competition for the academic position of PROFESSOR for the needs of the Department of Pharmaceutical Technologies, Faculty of Pharmacy at MU–Varna, only one candidate has applied – Associate Professor Velichka Yordanova Andonova from the same department.

The documents submitted by Assoc. Prof. Andonova have been prepared in accordance with the requirements of the competition and comply with the Act on the Development of the Academic Staff in the Republic of Bulgaria, as well as with the Regulations for the Acquisition of Academic Degrees and the Occupation of Academic Positions at Medical University "Prof. Dr. Paraskev Stoyanov" – Varna.

BIOGRAPHICAL DATA AND PROFESSIONAL DEVELOPMENT OF THE CANDIDATE

Assoc. Prof. Velichka Andonova completed her higher education at Medical University – Sofia in 1996, obtaining a Master's degree in Pharmacy. Her professional career began in community pharmacy practice, where she worked as a pharmacy manager during the period 1997–2018, gaining substantial practical experience in pharmaceutical care and pharmaceutical practice.

Her academic career started at Medical University – Plovdiv, where, after successfully winning a competition, she was appointed Assistant Professor at the Department of Pharmaceutical Sciences in the specialty Pharmaceutical Dosage Form Technology and Biopharmaceutics. In 2014, she successfully defended her PhD dissertation entitled:

Nano-particles with Indomethacin – Drug Delivery Systems for Ocular Application,

and was awarded the academic degree Doctor (PhD). During the period 2014–2018 she held the position of Chief Assistant Professor in the same department.

Assoc. Prof. Andonova's academic development continued at Medical University "Prof. Dr. Paraskev Stoyanov" – Varna, where since September 2018 she has held the academic position

of Associate Professor at the Department of Pharmaceutical Technologies in the specialty Pharmaceutical Dosage Form Technology and Biopharmaceutics.

Alongside her teaching and research activities, Assoc. Prof. Andonova has also undertaken significant administrative responsibilities, actively contributing to the development of MU–Varna. Between 2018 and 2020 she served as Head of the Educational Sector "Pharmaceutical Dosage Form Technology and Biopharmaceutics." During the 2020–2024 mandate she held the position of Vice-Dean for Educational Activities, Accreditation and Quality at the Faculty of Pharmacy. Since 2020 she has been Head of the Department of Pharmaceutical Technologies.

Her professional qualifications are complemented by the acquired specialty "Pharmaceutical Technology with Biopharmaceutics" (2010–2012, Medical University – Plovdiv). She actively participates in academic mobility programs and international collaborations. In the period 27.07.2023 – 28.11.2023, she conducted a long-term outgoing research mobility at *Universitatea Ovidius din Constanța*, Romania, within a project funded by the Operational Programme "Science and Education for Smart Growth", aimed at developing a multidisciplinary educational environment and strengthening integrated competencies in biomedicine and healthcare.

The candidate continuously develops and enhances her pedagogical and research competencies through participation in numerous training and qualification courses. Among these are the course "Pedagogical Competence" (2022) at the Centre for Pedagogical and Andragogical Competence at MU–Varna, the course "Cosmetic Product Safety Assessment" (2023), and the training "Research Design and Statistical Analysis" (2024), focused on improving scientific methodology.

In 2024 she completed training in "Innovative Educational Technologies" within the framework of the National Programme "Digital Qualification", and in 2025 she obtained professional qualification in protection and humane treatment of experimental animals used for educational and scientific purposes.

These trainings contribute significantly to improving the candidate's pedagogical effectiveness and scientific expertise in the fields of pharmaceutical technology and biopharmaceutics.

Assoc. Prof. Andonova has excellent command of English and Russian, which facilitates her active participation in international scientific initiatives, academic collaborations, and editorial activities in international scientific journals.

EVALUATION OF THE SCIENTIFIC AND TEACHING ACTIVITY OF THE CANDIDATE

I. Publication activity and citation impact

The overall scientific output of Assoc. Prof. V. Andonova includes one monograph, book chapters, more than 15 full-text conference papers, and 67 scientific publications.

For the purposes of the current competition, the candidate has submitted 33 scientific publications, classified according to the relevant national regulations into publications related

to the habilitation work and publications outside the habilitation work. Four of the ten publications included in the habilitation reference (Indicator B.4) are published in journals with an Impact Factor (IF) according to Thomson Reuters/Clarivate Analytics.

Under Indicators G.7 and G.8, 23 publications are presented outside the habilitation work, 20 of which have an Impact Factor, with a total cumulative impact factor of 93.1.
It is particularly noteworthy that all publications submitted by Assoc. Prof. Andonova fall within the scientific profile of the competition and have been published within the last five years, i.e., after obtaining the academic title of Associate Professor.

The relevance of the research topics and the significance of the obtained results are further evidenced by the high citation rate of the candidate's publications. According to data retrieved from Scopus, a total of 654 citations (excluding self-citations) have been recorded. Most citations appear in high-impact specialized journals. According to Scopus data, three publications have been cited more than 30 times, while four publications have been cited more than 50 times.
The candidate's Hirsch index (h-index) is 14, indicating that her research has gained substantial recognition and is widely used by other researchers, reflecting an impressive publication profile.
In addition to journal publications, the results of the candidate's research have been disseminated through 55 international and national scientific forums with international participation, mainly in the form of poster presentations and oral reports, in most of which the candidate is the first author.

II. Participation in research projects

Assoc. Prof. Velichka Andonova has demonstrated substantial involvement in research and project activities, including internationally funded, national, and institutional research initiatives.
She has participated as project leader, leading researcher, or expert in a total of 17 scientific projects funded by various sources. Among them is one internationally funded educational and research project, implemented at Medical University – Varna and funded through the Operational Programme "Science and Education for Smart Growth" 2014–2020, co-financed by the European Union through the European Structural and Investment Funds.

The candidate has also participated in four projects related to applied and innovation-oriented research within the MUVE-TEAM project (one research group and three internal projects), funded under the National Recovery and Resilience Plan of the Republic of Bulgaria through the European Union – NextGenerationEU.

An essential part of her research activity also includes participation in seven research projects funded by the "Science Fund" of Medical University – Varna.
The candidate's active project involvement demonstrates a consistent commitment to scientific development, interdisciplinary collaboration, and the implementation of innovations in pharmaceutical science.

III. Teaching activity

The teaching activities of Assoc. Prof. Velichka Andonova are mainly related to the education of pharmacy students at Medical University – Varna, as well as pharmacy technician students, in the disciplines:

- Pharmaceutical Dosage Form Technology
- Biopharmaceutics and Pharmacokinetics
- Radiopharmacy

These subjects are fundamental to the professional training of future pharmaceutical specialists.

The candidate also participates in teaching within the Cosmetology programme, where she delivers the course Technology of Cosmetic Product Manufacturing, as well as in the programme Technology Transfer and Innovation in Pharmacy, where she teaches Dosage Forms and Innovations.

She has also contributed significantly to the development of new interdisciplinary educational programmes, including participation in teaching within the programmes:

- Artificial Intelligence in Healthcare
- Artificial Intelligence in Biomedicine

where she delivers courses such as: E-health; 3D Modelling and Printing; Nanotechnology and Nanomedicine.

Assoc. Prof. Andonova is actively involved in supervising diploma theses of students from different programmes, including Pharmacy, Cosmetology, and interdisciplinary AI-related programmes in healthcare and biomedicine.

Her teaching activities also include participation as a lecturer in continuing education programmes for pharmacists, organized by the Bulgarian Pharmaceutical Union, as well as participation in national scientific conferences.

This activity contributes to the continuing professional development of pharmaceutical practitioners.

In summary, the teaching activity of Assoc. Prof. Andonova is characterized by broad disciplinary coverage, active involvement in multidisciplinary education, integration of modern scientific and technological developments into the educational process, and dedication to the training of young specialists and researchers in pharmaceutical technology.

IV. Research directions and scientific contributions

The extensive research activity of Assoc. Prof. Velichka Andonova is characterized by clear interdisciplinarity and is focused on the development of innovative drug delivery systems and technological solutions for the formulation of biologically active substances.

The analysis of the submitted scientific works allows the identification of several major research directions, within which the candidate has achieved significant scientific and applied results.

These directions represent a consistent and logically interconnected research line, covering the entire technological cycle—from the study of sources of biologically active compounds, through

the development of modern drug delivery systems, to the formulation and optimization of pharmaceutical dosage forms with appropriate biopharmaceutical characteristics.

1. Development and characterization of nanoscale carriers for biologically active substances as innovative drug delivery systems

A central place in the candidate's scientific work is occupied by studies focused on the development of nanoscale drug delivery systems, which represent a modern approach for improving the stability, solubility, and bioavailability of biologically active compounds and drug substances.

In this field, Assoc. Prof. Andonova has developed and optimized two types of lipid-based nanocarriers:

- Solid lipid nanoparticles (SLN)
- Nanostructured lipid carriers (NLC)

designed for encapsulation of natural bioactive compounds with unfavorable physicochemical properties.

A significant contribution in this direction is the development of nanostructured lipid carriers containing Hypericum perforatum extract rich in hyperforin, achieving high loading efficiency and long-term physical stability.

Experimental studies demonstrate not only the stabilizing effect of the nanocarriers, but also their potential to enhance the therapeutic efficacy of the incorporated biologically active compounds.

Within this research direction, environmentally friendly methods for the synthesis of silver nanoparticles via "green" reduction using catechins extracted from green tea have also been developed, along with their conjugates with antimicrobial agents.

These complexes exhibit pronounced antimicrobial and virucidal activity and represent promising systems for treatment of skin and mucosal infections.

2. Development of hybrid semisolid and stimuli-responsive pharmaceutical dosage forms based on nanoscale carriers

A logical continuation of the research on nanoscale carriers is the development of innovative pharmaceutical dosage forms in which these systems are incorporated into semisolid or stimuli-responsive matrices.

In this context, Assoc. Prof. Andonova has developed hybrid bigel dosage forms, combining the advantages of hydrogels and organogels, allowing efficient incorporation of nanodispersed systems. The developed bigels containing nanostructured lipid carriers loaded with Hypericum perforatum extract demonstrate excellent mechanical and rheological properties, good stability, and considerable therapeutic potential in wound treatment.

In vivo experiments demonstrate a pronounced wound-healing effect and beneficial impact on tissue regeneration processes.

Within this research direction, in situ thermogelling systems for nasal drug delivery have also been developed, ensuring prolonged residence time on the nasal mucosa and improved drug

release. These systems show potential for prevention of respiratory infections and intranasal delivery of drugs to the central nervous system.

3. Development and technological characterization of age-specific pharmaceutical dosage forms

Another significant part of the candidate's research activity focuses on the development of pharmaceutical dosage forms designed for specific patient groups, including pediatric and geriatric populations.

In this context, a stable oral suspension of nitrofurantoin suitable for magistral preparation in pharmacy practice has been developed.

The proposed formulation includes natural polymers such as xanthan gum and sodium carboxymethylcellulose, which ensure appropriate rheological characteristics, stability, and improved organoleptic acceptability.

This contribution has both scientific and practical significance, addressing real needs of pharmaceutical practice and healthcare systems.

4. Investigation of biopolymers and biologically active substances derived from aquaculture organisms

Another important research direction involves the study of natural biologically active compounds and biopolymers derived from microalgae and other aquaculture organisms.

The research includes quantitative analysis of Arthrospira platensis and Chlorella spp., as well as evaluation of their potential use as functional components in pharmaceutical systems.

A particularly interesting contribution is the demonstration that protein-rich microalgal biomass can serve as a natural emulsifier in colloidal and emulsion systems.

Furthermore, a green ultrasound-assisted extraction method for phycocyanin has been developed and optimized, enabling the production of extracts with different purity levels suitable for food, cosmetic, and biomedical applications.

5. Optimization of physical stability and rheological properties of pharmaceutical dosage forms

An important component of the candidate's research focuses on the optimization of physical stability and rheological characteristics of liquid and semisolid pharmaceutical dosage forms using natural lipids and polymers.

Various emulsion systems have been developed in which the influence of lipid phase composition on stability, consistency, and technological properties has been investigated.

The results demonstrate that carefully selected combinations of plant oils can significantly improve the rheological characteristics and functional properties of cosmetic and dermal formulations, which is relevant for both the pharmaceutical and cosmetic industries.

In conclusion: The presented scientific output identifies Assoc. Prof. Velichka Andonova as an established researcher in the field of pharmaceutical technology and drug delivery. Her research

activity is characterized by interdisciplinarity, consistency, and strong integration between fundamental and applied scientific approaches.

The developed nanoscale carriers, hybrid pharmaceutical dosage forms, and technological solutions for the formulation of biologically active substances represent original scientific contributions that expand current knowledge in pharmaceutical technology.

Particularly valuable is the comprehensive research approach, tracing the pathway from natural sources of biologically active compounds, through their extraction and stabilization, to the development of pharmaceutical dosage forms with proven therapeutic potential.

This multifaceted research activity not only enriches scientific knowledge but also creates real opportunities for practical applications in dermatology, prevention of infectious diseases, pharmaceutical practice, and the cosmetic industry.

OVERALL EVALUATION OF THE CANDIDATE

Based on the systematization and analysis of the results of the research and teaching activities, as well as the scientometric indicators of Assoc. Prof. Velichka Andonova, it can be unequivocally concluded that she not only meets but significantly exceeds the requirements set out in the Act on the Development of the Academic Staff in the Republic of Bulgaria (ADASRB) and the Regulations of Medical University – Varna for its implementation.

The candidate's achievements according to the respective evaluation indicators are as follows:

- **Indicator Group B** – habilitation thesis or equivalent scientific publications: with a required minimum of 100 points, the candidate presents 10 full-text publications (B4), amounting to 165.81 points;
- **Indicator Group G** – publications and reports in refereed and indexed (G7) and non-refereed (G8) scientific journals: the candidate achieves 242.22 points against a required 200 points;
- **Indicator Group D** – citations: the declared 450 points (D10) exceed the minimum required 300 points;
- **Indicator Group E** – supervision and participation in research projects, training of PhD students and medical residents, and development of teaching materials: the candidate reports 252.33 points, compared to a minimum requirement of 100 points.

These results clearly demonstrate that Assoc. Prof. Velichka Andonova fully satisfies the criteria for occupying the academic position of Professor, while at the same time attesting to the high level of her scientific productivity, academic leadership, and pedagogical excellence.

CONCLUSION

Based on the comprehensive evaluation of the submitted scientific works, the scientometric indicators, the identified scientific contributions, and the teaching and academic activities of the candidate, I conclude that Assoc. Prof. Dr. Velichka Yordanova Andonova fully meets the requirements of the Act on the Development of the Academic Staff in the Republic of Bulgaria,

as well as the criteria established in the Regulations for the Development of the Academic Staff at Medical University – Varna for occupying the academic position of Professor.

The scientometric indicators presented by the candidate significantly exceed the minimum required thresholds, while her scientific output is characterized by high quality, strong international visibility, and a clearly defined and contemporary research focus in the field of pharmaceutical technology and drug delivery systems.
The accumulated research and teaching experience, the substantial volume and high quality of the scientific production, and the demonstrated original scientific and applied contributions convincingly establish Assoc. Prof. Dr. Velichka Yordanova Andonova as a well-established and authoritative researcher in the field of pharmaceutical technology.

In view of the above, I give my unequivocally positive assessment and strongly recommend that the esteemed Scientific Jury award Assoc. Prof. Dr. Velichka Yordanova Andonova the academic position of PROFESSOR in the professional field 7.3 Pharmacy, scientific specialty "Pharmaceutical Dosage Form Technology and Biopharmaceutics."

Sofia,

17 March 2026

Reviewer:.

Заличено на основание чл. 5, §1, б. „В“ от Регламент (ЕС) 2016/679

/Prof. Denitsa Momekova, DSc/