

RECENSION

by **Prof. Nikolay Georgiev Lambov, Ph.D.** – guest lecturer at the Department of “Pharmaceutical technology and biopharmacy” at the Faculty of Pharmacy at MU-Sofia

About: Competition for the occupation of the academic position "ASSOCIATE PROFESSOR" in the specialty "Technology of Medicinal Forms and Biopharmaceuticals" in the field of higher education "Health and Sport", in the professional field 7.3. "Formation" for the needs of the Department of Pharmaceutical Technology at Faculty of Pharmacy at MU – Varna "Prof. Dr. Paraskev Stoyanov", announced in the State Gazette, issue 45/28.05.2024

In the announced competition for the academic title " ASSOCIATE PROFESSOR " only one candidate participates - the chief assistant professor Viliana Edwardova Gugleva, PhD, from the Department of Pharmaceutical Technology at Faculty of Pharmacy of MU-Varna, for the needs to which she was announced.

By order No. P-109-229/ 26.07.2024 of the Rector of MU-Varna, I am included in the composition of the scientific jury, which at its first meeting decided to prepare a review (protocol No. 1/ 05.08.2024).

The presented set of materials on electronic medium **is in full compliance** with the legal requirements and the requirements of the Regulation for the Development of the Academic Staff (RDAS) at MU-Varna (2018, amended from 08.07.2024) for the occupation of the academic position “Assent and Chief assistant professor” (Art. 126 (1)), the submitted evidence not repeated with the submitted and assessed upon acquisition of the ESD “doctor” (Art. 126 (3)).

All administrative deadlines for conducting the competition have been met.

I declare that I do not have a conflict of interest with the candidate and joint publications.

Candidate's career profile

Chief assistant professor V. Gugleva graduated in higher pharmaceutical education in 2011 at the Faculty of Pharmacy of MU-Sofia and acquired the a **master's degree in “Pharmacy”**.

Since 2012, he has been a successive assistant and chief assistant professor in the “Technology of Drugs Forms and Biopharmaceuticals”, initially in the Department of “Pharmaceutical Sciences” and subsequently in the Department of “Pharmaceutical Technology” of the Faculty of Pharmacy at MU-Varna.

In 2021, assistant professor V. Gugleva defended his PhD thesis on the topic “*Design and characterization of doxycycline-laden niosoms*” on the scientific specialty “Technology of

Drugs Forms and Biopharmaceuticals” and acquired the **educational and scientific degree “Doctor”** (diploma No. 843-D/ 09.03.2021 of the Medical University of Sofia).

Increasing its qualification, Chief assistant professor V. Gugleva has acquired a specialty in “Technology of Drugs and Biopharmacy” (Certificate, reg. No. 020668/ 07.02.2017 at MU-Varna). In the meantime, he also obtained additional qualification for the “Assessment of the Safety of Cosmetic Products (2022).

Chief assistant professor V. Gugleva is the Quality Officer of the Department of Pharmaceutical Technology at the Faculty of Pharmacy at MU-Varna and a course manager for the Cosmetology students of the 1st course. He is a member of the American Chemical Society (ACS), the Academy of Pharmaceutical Sciences (APS), the Bulgarian Science Society of Pharmacy (BSSF) and the Union of Scientists – Varna.

He is fluent in English, German, Russian.

From the above, the conclusive conclusion can be drawn that the Chief assistant professor Viliana Gugleva fully **complies with the requirements of Art. 125 (1) and (3) of the Regulation for the Development of the Academic Composition at MU-Varna for holding the academic position "association professor", as well as additional conditions of the competition (Order No. R-109-129/ 26.07.2024 of the Rector of MU-Varna).**

Has acquired:

- **Masters de degree in professional field 7.3. “Pharmacy”;**
- **ESD “doctor” under the doctoral program “Technology of Drugs Forms and Biopharmaceuticals” in the professional field 7.3. “Pharmacy”;**
- **Specialty in “Technology of Drugs Forms and Biopharmaceuticals”.**

Teaching and learning activity

Chief assistant professor Gugleva leads practical exercises and seminars and participates in the semester exams in the academic disciplines "Technology of drugs forms" I and II-part and "Biopharmacy and pharmacokinetics" of students of pharmacy at the Faculty of Pharmacy of MU-Varna. At the same time, he leads the FSOS "Technology of the medicinal-cosmetic preparations", as well as 5 disciplines in the master's program "Cosmetology".

The traineeship of the Chief assistant professor Gugula as of 01.07.2024 is 11 years, 11 months and 22 days.

The training load of the Chief assistant professor Gugleva has been impressive for the past 5 academic years - **2114 hours**, with an annual normative for MU-Varna of 360 hours. She was the leader of 2 successfully defended graduates.

Summarizing the teaching activity of the Chief assistant professor Viliana Gugleva can categorically define her as a built and continuously developing teacher who fully meets the

requirements of DASRBA¹, RAADASRB² and the Rules for the Development of the Academic Staff at MU-Varna for the occupation of the academic position of “associate professor”:

- *He has held for over 12 years the academic position Assistant and Chief assistant professor;*
- *conducts practical exercises and seminars and participates in the conduct of semester exams;*
- *has 2 124 hours of teaching activity in the past 4 academic years;*
- *he was the scientific supervisor of 2 successfully defended graduates.*

Scientific research activity

Chief assistant professor V. Gugleva co-author **17 original papers in scientific journals** not included in the dissertation work, **13** of which are in scientific journals, referred to and indexed in world-renowned scientific databases, **with 12** in “factor impact” journals. **The total “impact-factor”** of the **applicant** is impressive - **41.94**. The remaining **3** publications are in unreferenced journals, **2** of which are in foreign journals. The candidate is also the author of a chapter in a collective monograph.

Chief assistant professor V. Gugleva participated in the announced competition with **6** citations, all in magazines with “impact-factor”, which bore her **90** items and met the requirement for the minimum scientific indicators in MU-Varna, DASRBA and the Rules for its implementation. When Google Scholar was checked by 27.09.2024, an extremely large number of citations were found - **601**.

Chief Assistant V. Gugleva has participated in **5 international** (Barselova, Rotterdam, Malmo) and **15 national congresses and symposia** in Bulgaria, after the acquisition of the ESD “doctor”.

The applicant was involved in **2 national education projects** – 1 funded by the Scientific Research Fund but the Ministry of Health and 1 by MU-Varna. She is a guest editor in the “Farmation.”

Chief Assistant V. Gugleva is a standalone **monograph** author on “*Contemporary trends and perspectives in the design of vesicular systems. Focus on Niosomals*» (Varna, 2024), (ISBN: 979-619-221-498) with 2 reviewers. The presented work shows an extremely good knowledge of the subject matter and the ability of the author to successfully analyze and summarize. The results of own tests related to the preparation and administration of the niosomas as drug-supply systems are also included.

The research activities of the Chief Assistant. V. Gugleva is mainly in the area of nano-sized drug-delivery systems, mostly of vesicular type. Her main achievements and contributions reflected in scientific publications are definitely scientific and scientifically

¹ Development of Academic Staff in the Republic of Bulgaria Act

² Regulation of Application of the Act on Development of Academic Staff in the Republic of Bulgaria (2010, as amended, 05.09.2023)

applied and, in my opinion, are a significant contribution to pharmaceutical science and practice. These can be broadly summarized as follows:

I. Scientific original theoretical contributions

Development and characterization of vesicular systems - niosoms, etosomes and transfersomes containing model drugs:

- For the first time, pH-sensitive niosomas based on hexadecyl-poly(acrylic acid) copolymers (HD-PAAn) were developed, loaded with model substances of different solubility - calcein (water soluble) and curcumin (hydrofoben) which provide pH-dependent release;
- For the first time, cannabidiol-laden niosomas have been developed for systemic use based on non-ionic surfactants from the Span and Tween groups by film hydrating method with ultrasound post-treatment;
- For the first time, sterically stabilized cannabidiol-based niosomas were created by modifying the vesicles using newly synthesized amphylline or star-shaped (3- and 4-arm) copolymers based on polyglycidol (PG) and poly(ϵ -caprolactone) blocks, providing sterical stabilization in a physiologically relevant environment. The impact of the type and concentration of copolymers on the physicochemical and biopharmaceutical characteristics of the vesicles has been shown;
- Etosomes and transfersomes loaded with curcumin have been developed for the first time as a dermal delivery system. The impact of the components of the composition (phospholipid concentration, ethanol and "edge" activator) on the basic physicochemical characteristics of the vesicles has been shown. As a result of the studies conducted, it was found that the etosomes based on Lipoid S75 (4% w/w) and ethanol (30% v/v) are characterized by optimal physicochemical properties (hydrodynamic diameter 578.6 nm, monomodal distribution in size, high curcumin load efficiency (78.2%).

All resulting systems are characterized by high load efficiency, controlled release and system-appropriate physicochemical characteristics.

1. The biological activity and tolerability of the established viscular systems has been established:

- improved cytotoxic and apoptogenic activity of curcumin included in pH-sensitive niosomals compared to free curcumin on cell lines originating in bladder cancer (T-24) and cutaneous T-cell lymphoma (HUT-78 and MJ);
- preserving the antineoplastic activity of the PV-based cannabidiol included in niosomas, while at the same time prolonged circulation time and significantly higher apoptogenic and inflammatory biomarker-modulating effects are observed in the equivalent effective exposure to the free substance, which imply the potential for use in the therapy of oncological diseases;
- preservation of the antineoplastic activity of cannabidiol included in sterically stabilized niosomas, while exhibiting significantly higher apoptogenic and inflammatory biomarker-modulating effects in the equivalent effective exposure to the free substance;

➤ a more pronounced antiproliferative activity of curcumin included in the ethosoms and transfersomes, compared to the free substance that determines the possibility of being used as an alternative approach in the therapy of cutaneous T-cell lymphoma.

The above-analyzed studies and results I consider to be particularly significant and prospective with the possibilities for practical implementation in clinical practice in the treatment of a number of malignancies and strongly recommended to Gugleva to expand and deepen them with a view to the creation and implementation of their base of medicinal products.

II. Scientific-applied contributions

1. Hybrid systems based on beagles and nanostructural lipid carriers have been developed. As a result of the studies conducted on the influence of the technological factors and the relationship "hydrogel/oleogel" on the structural-morphological characteristics of the bigels, it was found that with the most suitable consistency for dermal application, the hydrogel-based bigel:oleogel is characterized (80:20);

2. As a result of comparative studies of a large number of Black Sea equatorial algae and bioreactors, it was found to be nearly 54% higher in protein in convectively dried *A. platensis* (43.4%) and lyophilized *Chlorella* spp. (43.7%) compared to other species, which defined them as suitable emulsifiers in colloidal and emulsion systems. At the same time, lyophilisation has been found to reduce protein content by up to 20%;

2. The highest antioxidant activity of *Sambucus nigra* L. color extracts (phenol content (49.2 ± 1 mg GAE/g) and flavonols (18.6 ± 0.5 mgQE/g) was found in samples from the Rhodope region compared to three other regions of Bulgaria. It is justified that higher altitude and lower mountain temperatures may affect the accumulation of secondary metabolites in *Sambucus nigra* L. colours, which improves the antioxidant potential of plants;

4. A research study has shown that extemporal formulations are still preferred by physicians in order to achieve a personalized treatment approach with the options for individualized dosage of the drug substance. The applicability of motorway and pharmacopoeia formulations is particularly important in the field of dermatology, given the possibility of combining different active substances to achieve better therapeutic action and alternatively, in the absence of relevant commercial products on the market.

Summarizing the results of the research work as well as the scientist's metrics Viliana Gugleva can conclude that they demonstrate her substantial achievements in the field of "The Technology of Drugs Forms and Biopharmacy" and fully satisfy the requirements of Appendix 1 of the Regulation for the Development of Academic Staff at MU-Varna for the occupation of the academic position "associate professor" in division 7.3. "Pharmacy":

- ***17 scientific publications of these 13 in scientific journals referred to and indexed in world-renowned scientific databases - at requirement 10;***
- ***601 citations (Google Scholar) in foreign scientific journals;***

- 2 national scientific projects;
- total impact factor 41.94.

Summary

The scientific indicators of Chief assistant professor V. Gugleva exceeds the minimum national requirements specified in the RAADASRB and Appendix No. 1 of the Regulations for the Development of the Academic Staff at MU-Varna for occupying the academic position of "associates professor" in professional direction 7.3. "Pharmacy" - with a minimum number of points of 300, the candidate has collected **469 points**.

The values of the main groups of indicators are presented in the table:

Group of indicators	RDSAS at MU-Varna	Chief. ass. V. Gugleva
And 1	50	50.0
In 3	100	100.0
D 5-9	200	229.56
E 10-12	50	90.0
Total number of points	300	469.56

CONCLUSION

As a result of everything stated above, I firmly believe that Chief assistant professor Viliana Gugleva fully meets the conditions under Art. 29 of DASRBA art. 60 of the RAADASRB and Art. 137 of the Regulations for the Development of the Academic Staff of MU-Varna, as well as the minimum national requirements laid down in Art. 26, para. 2 and Art. 2b, para. 2 and 3 of the DASRBA, as well as the Regulations for its application for occupying the academic position "ASSOCIATE PROFESSOR".

Considering the pedagogical qualities and skills, the long experience in the training of students, as well as the high value of scientific achievements, I strongly believe that the Chief assistant professor Viliana Edwardova Gugleva, Ph.D., fully meets the requirements for the acquisition of the academic title "ASSOCIATE PROFESSOR" in the specialty "Technology of Drugs Forms and Biopharmacy" for the needs of the Department of Pharmaceutical Technologies of the Faculty of Pharmacy at MU-Varna and I express my full support for her application.

Sofia,
03-Oct-2024

REVIEWER:

/Prof. N. Lambov, MD/

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