

REVIEW

from prof. Plamen Todorov Peikov, PhD

for the announced competition for the academic position of "Associate Professor" in the field of higher education 7. "Health and Sport", in the professional field 7.3. "Pharmacy" and scientific specialty "Pharmaceutical Chemistry" for the needs of the Department of Pharmaceutical Chemistry, Faculty of Pharmacy (FF), Medical University (MU) - Varna, State Gazette, no. 7/23.01.2024 r.

One candidate participated in the competition, Chief assistant, MPharm Silvia Yordanova Atanassova-Stamova, PhD, who meets the scientific-metric requirements in accordance with the "Regulations for the Implementation of the Law on the Development of Academic Staff in the Republic of Bulgaria" and the "Regulations for the Development of Academic Staff of MU-Varna" (Academic reference prepared by the library of MU-Varna for publications, citations and scientific profiles) and was admitted to the competition by the admission committee of the required documents.

Chief assistant Atanasova-Stamova was born in 1982 in the town of Yambol. She graduated in Pharmacy and obtained the qualification of Master Pharmacist in 2016, Faculty of Pharmacy, MU-Varna. In 2021, chief assistant Atanassova-Stamova acquired the educational and scientific degree "Doctor" in the PhD program "Pharmaceutical Chemistry", MU-Varna with scientific problems of biologically active substances: synthesis, pharmaco-analytical characterization, and biological activity of imidazole derivatives. She has a recognized scientific specialty in "Analysis of medicinal products", MU-Sofia, 2021. The work experience as a lecturer chief assistant Atanassova-Stamova started in 2017 and passed through assistant, chief assistant and continued in the Department of Pharmaceutical Chemistry (current name), Faculty of Pharmacy, MU-Varna. This academic development ensures the necessary knowledge for her professional realization at FF, MU-Varna.

Educational work

The educational work of the chief assistant Atanasova-Stamova is related to the training of pharmacy students for the acquisition of the educational-qualification degree "Master Pharmacist" in the special disciplines. In accordance with the curricula, chief assistant Atanasova-Stamova conducts practical exercises, seminar classes and participates in semester examination committees with a teaching load above the required horarium, according to the Normative by the decision of the Academic Council of MU-Varna. She is the supervisor of one graduate student. Chief assistant Atanasova-Stamova participates in the development and updating of the curricula for the practical

exercises of the disciplines she teaches. She is a continuously developing lecturer at MU-Varna in the fields of pharmaceutical analysis and pharmaceutical chemistry.

Scientific research work

Regarding the scientific research work, chief assistant Atanasova-Stamova fully meets the quantitative criteria set in the Minimum national requirements and the requirements of the Regulations for the conditions and procedure for the acquisition of scientific degrees and occupation of academic positions at MU-Varna. According to the report prepared in the Library of MU-Varna, she participated in the competition for the academic position "Associate Professor" with 11 scientific works, Indicator D7 and 12 scientific works, Indicator D8. The total points obtained from Indicators D7 and D8 are 230,14 points with a mandatory minimum of 200 points (Indicators D5-9). The citations reflecting the scientific activity of chief assistant Atanasova-Stamova are 4 in Indicator D10 and 1 in Indicator D12 from foreign scientific journals and authors. The scientific projects with the participation of chief assistant Atanasova-Stamova are 7. The publications beyond the minimum scientific requirements for the position of "Associate Professor" are 6. chief assistant Atanasova-Stamova has participated in 33 scientific forums in the Republic of Bulgaria and 19 scientific forums abroad. The scientific-metric indicators presented by chief assistant Atanasova-Stamova for the academic position of "Associate Professor" in accordance with the Regulations for the implementation of the Law on the development of academic staff in the Republic of Bulgaria and the Regulations for the development of academic staff of MU-Varna are convincing.

The presented monograph entitled "The potential of natural compounds in dealing with AMP/Essential oils - a useful ally in the fight against pathogens", MU-Varna, 2023 is 192 pages long. The topic is trendy with a focus on antimicrobial resistance (AMP), a problem identified by WHO as one of the most serious threats to human health. The main strategies applied in the fight against AMP are analyzed, with a major emphasis on phytotherapy. The antimicrobial activity of natural compounds is reviewed based on chemical structure and targeting the proven antimicrobial activity of essential oils.

The main scientific contributions of chief assistant Atanasova-Stamova are mainly of scientific and applied, as well as fundamental nature in the areas of synthesis and characterization of chemical compounds, microbiological testing for potential pharmacological activity and prevention and treatment approaches for diseases of different etiology.

In her scientific research work, chief assistant Atanasova-Stamova is focused on the preparation of new, not described in the literature derivatives of imidazole. She applies synthetic

methods described in the literature but adapted and optimized depending on the synthetic scheme. Amides based on the anti-infective drug molecule Metronidazole have been prepared and have proven chemical structures (spectral methods). The compounds were tested for antimicrobial pharmacological activity. It was reported that the incorporation of an amide group in the structure of metronidazole derivatives determined stronger antimicrobial activity against the studied clinical isolates and reference strain compared to Metronidazole. The applied *in silico* model provides information on the possible metabolism and pharmacological activity and thus will optimize the search for compounds with biological activity. These are major contributions of a scientifically applied and fundamental nature.

A similar approach was taken in the synthesis of new hydrazone derivatives of Bexarotene. An *HPLC* method for the characterization of the compounds has been developed and validated. The metabolic dermal activation of these derivatives was analyzed using an *in-silico* model.

The antifungal activity of essential oils from the plant species thyme and oregano was studied, as well as their positive effect on the antifungal drug molecules Nystatin and Fluconazole. A synergistic effect was found. High antimicrobial activity of thyme essential oils was demonstrated using Kirby-Bauer disc diffusion susceptibility test and strong inhibitory effect of oregano essential oils in control of reference strains of Gram (+) and Gram (-) pathogens, contributions definitely of scientific and applied nature.

Research in the areas of prevention and therapy of diseases in the field of gynecology, *Helicobacter pylori* infections, topical treatment of Acne rosaceae, antimycotic treatment of candidiasis, and the relationship between antimicrobial resistance and the COVID-19 pandemic is of a review nature.

Chief assistant Atanasova-Stamova analyzes and applies appropriate research methods in the field of pharmaceutical science. The scientific contributions prove the effectiveness of her scientific research work.

Conclusion

Chief assistant Silvia Atanasova-Stamova meets all the requirements for the acquisition of the academic position "ASSOCIATE PROFESSOR".

My evaluation is convinced POSITIVE.

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Reviewer:

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