

REVIEW

to occupy the academic position:

"Professor"	
"Associate Professor"	X
	one of the academic positions indicated shall be marked with the sign "X"

Candidates to occupy the position:

1	Chief Ass Professor	PhD	Stanislava	Plamenova	Vladimirova	UCTM
№	academic position	scientific degree	name	middle name	last name	workplace

Scientific area:

5.	Technical Sciences
code	name

Professional area:

5.10.	Chemical Technologies
code	name

Scientific specialty:

Fine Organic and Biochemical Technology

The competition has been announced:

67	13.08.2021	Organic Synthesis and Fuels	Chemical Technologies
in SG issue	date	for the needs of the Department	Faculty

The review was written by:

Professor	PhD, DS	Ivan	Georgiev	Ivanov	BAS
academic position	scientific degree	name	middle name	last name	workplace

1. Review for the candidate:

Chief Ass Professor	PhD	Stanislava	Plamenova	Vladimirova
academic position	scientific degree	name	middle name	last name

1.1. Completion of the provided documents:

A) The competition documents are in full compliance with the Regulations	3 points	X
B) The documents are complete but do not fully comply with the requirements of the Regulations	2 points	
C) The documents are not completed in accordance with the requirements of the Regulations	0 points	
		one of the answers given is marked with the sign "X"

Missing documents and violated requirements must be described if response C is marked.

1.2. Meeting the minimum requirements under the Regulations:

A) The candidate meets the minimum requirements	20 points	X
B) The candidate doesn't meet the minimum requirements	0 points	
		one of the answers given is marked with the sign "X"

It must be filled in if answer B is marked. The publication activity of the candidate is analyzed. The response of the results achieved (quoted) is analyzed.

1.3. Relevance of scientific and / or applied research:

A) The research is relevant. Part of the research is pioneering (no results are known on the topic by other authors)	7 points	
B) Research is relevant. Results from other authors are known for each of the topics and / or applications studied.	5 points	X
C) Most of the research is relevant, but also some results are presented that have no scientific and / or applied value	3 points	
D) The smaller part of the research is relevant	2 points	
E) Research is not relevant	0 points	
		one of the answers given is marked with the sign "X"

The evaluation of the relevance of the research must be substantiated.

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1.4. Knowledge of the problems subject of research:

A) The candidate knows in detail the achievements of other authors on the researched topics and/or applications	6 points	X
B) The candidate is partially familiar with the achieved results on the researched topics and / or applications	4 points	
C) The candidate has no prior knowledge of the status of the researched problems	0 points	
		one of the answers given is marked with the sign "X"

The evaluation must be substantiated if answer C is marked.

1.5. Type of research:

A) Theoretical	4 points	
B) Applied	4 points	
C) Theoretical with application elements	4 points	X
D) It does not correspond to the level specified in the Act for the Development of the Academic Staff in the Republic of Bulgaria and the Regulations	0 points	
		one of the answers given is marked with the sign "X"

The level of research must be substantiated if answer D is marked.

1.6. Objectives of the research:

A) Realistic and of scientific and / or applied interest	8 points	X
B) Realistic, but not of scientific and / or applied interest	4 points	
C) Unattainable (unrealistic)	0 points	
		one of the answers given is marked with the sign "X"

Objectives must be specified. The type of the set objectives must be justified.
The objectives of the research of Ch. Ass. Prof. Dr. S. Vladimirova is to create new synthetic candidate drugs belonging to the group of N-pyrrolylcarboxylic acids and their hydrazides and hydrazones, as well as other biologically active pyrrole containing compounds.

1.7. Methods of research:

A) Adequate to research and set scientific objectives and /or applications	8 points	X
B) Partially appropriate, enabling part of the scientific objectives and / or applications to be achieved	4 points	
C) Inappropriate methods	0 points	
		one of the answers given is marked with the sign "X"

Methods must be specified. The type of methods used is justified.
The methods used in the research of Ch. Ass. Prof. Dr. S. Vladimirova can be classified as: a) synthetic methods; b) analytical methods; c) biological-pharmacological methods; d) computer and statistical methods.
<u>Synthetic methods.</u> N-pyrrolylcarboxylic acids, hydrazides and hydrazones were synthesized in high yield by Paal-Knorr cyclization using four 1,4-dicarbonyl compounds and various amino acids as primary amines.
<u>Analytical methods.</u> The structures of all newly synthesized compounds were confirmed by ¹ H-NMR, IR spectra and elemental analysis, and their purity was assessed by thin layer chromatography.
<u>Biological and pharmacological methods.</u> The anti-inflammatory and analgesic activity of the new compounds was tested on Wistar rats injected intraperitoneally, and the analgesic activity was also determined by the "hot plate escape" method. Antioxidant activity (free radical scavenging activity) was assessed by classical DPPH and ABTS tests.
<u>Computer and statistical methods.</u> Specialized software has been used in the design of new COX2 inhibitors, and routine statistical analyzes have been applied to process the results of pharmacological studies.

1.8. Candidate research contributions:

A) With lasting scientific and / or applied response, they form the basis for new research and applications	20 points	
B) They are of significant scientific and / or applied interest, complete and / or summarize previous research	16 points	
C) They are of scientific and / or applied interest	12 points	X
D) Lack of significant contributions	8 points	
E) Lack of contributions	0 points	
		one of the answers given is marked with the sign "X"

Contributions must be specified. The type of results achieved must be justified.

The main contributions of Ch. Ass. Prof. Dr. S. Vladimirova can be formulated as follows:

1. Following the basic requirements for COX2 inhibitors structure, she has synthesized 20 new N-pyrrolylcarboxylic acids, which are characterized in terms of chemical structure and biological (antipyretic, analgesic, antibacterial, etc.) activity. In connection with this, an original UHPLC method was developed to determine their chemical stability under physiological mimicking conditions. Thus, she selected a number of new substances with improved properties compared to the reference compounds that could be offered as candidate drugs for future pharmacological studies.

2. Under microsynthesis conditions, two series of new pyrrolylcarboxyl hydrazides and hydrazones with well-defined antioxidant activity have been synthesized. They all were tested for radical scavenging ability, cytotoxicity and chemocompatibility, and their pharmacokinetic properties have been assessed by the Lipinski's Rule 5.

3. A series of new molecules containing pyrrole heterocycles have been synthesized. New hybrid compounds (pyrrole and Tyr-MIF-1 peptide analogs) with analgesic activity were prepared. New 2-hydroxynaphthylpyrroles were obtained by condensation of benzaldehyde, β -naphthol and pyrrolylbenzamide. Four new pyrrole compounds were synthesized by cyclocondensation of N1, N1-dimethylpropane-1,3-diamine and variously substituted 1,4-dicarbonyl compounds. The structure of all compounds has been verified by physical methods and elemental analysis, and their biological effects were studied by adequate biological and pharmacological methods.

1.9. Participation of the candidate in the achievement of the presented results:

A) The candidate has at least an equal participation in the submitted papers	8 points	X
B) The candidate has at least an equal participation in most of the submitted papers	7 points	
C) The candidate has a secondary participation in most of the submitted papers	4 points	
D) The candidate participation is unnoticeable	0 points	
		one of the answers given is marked with the sign "X"

Critical notes must be provided if one of the items C or D is marked.

1.10. Pedagogical activity:

A) The candidate has effective and sufficient pedagogical activity at the university. The textbooks issued are modern and useful (they meet the requirements of the Regulations). The work with undergraduate and doctoral students is at a high professional level.	8 points	X
B) The candidate has sufficient pedagogical activity at the university. The textbooks issued satisfy the requirements of the Regulations.	6 points	
C) The pedagogical activity and / or textbooks issued are insufficient (do not meet the requirements of the Regulations)	0 points	

		one of the answers given is marked with the sign "X"
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Critical notes must be provided if one of the items B or C is marked.

1.11. Critical notes:

A) Lack of critical notes	8 points	X
B) Critical notes of a technical nature	7 points	
C) Critical notes that would partially improve the results achieved in a small part of the research	5 points	
D) Critical notes that would partially improve the results achieved in most of the research	3 points	
E) Significant critical notes	0 points	
		one of the answers given is marked with the sign "X"

Critical notes must be provided if one of the answers C, D or E is marked.

1.12. Conclusion

A) The evaluation of the candidate's activity is POSITIVE	This evaluation is assigned to a total number of at least 65 points	X
B) The evaluation of the candidate's activity is NEGATIVE	This evaluation is assigned to a total number below 65 points	
		one of the answers given is marked with the sign "X"

To be filled in if requested by the reviewer

Ch. Ass. Prof. Dr. Stanislava Vladimirova is an established researcher in the field of fine organic synthesis and pharmaceutical chemistry. She participates in the competition for Associate Professor with 25 scientific articles, of which 18 were published in peer-reviewed journals (with IF or SJR) and 7 in non-peer-reviewed journals or scientific conference proceedings. Her papers have been cited 20 times so far. The results of her research have been presented at 27 scientific forums. My overall assessment according to the criteria of the Law of Development of the Academic Staff in the Republic of Bulgaria and the internal UCTM regulations amounts to 90 points (out of a maximum of 100 and required 65). This means that Ch. Ass. Prof. Dr. Stanislava Vladimirova meets the official requirements for holding the academic position of Associate Professor, which gives me reason to strongly recommend to the esteemed Scientific Jury to elect Dr. Vladimirova as an Associate Professor in the area of higher education 5. Technical Sciences, Professional field 5.1. Chemical technologies, Scientific specialty Fine Organic and Biochemical Synthesis Technologies.

16.11.2021	The review was written by:	
date		Signature