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REPORT

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	Senior assistant provessor	Ph.D.	Veronika	Atanassova	Karadjova	UCTM
Nº	academic position	scientific degree	name	middle name	last name	workplace

Scientific area:

4	4. Natural sciences, mathematics and informatics
code	name

Professional area:

4.2.	Chemical Sciences
code	name

Scientific specialty:

Inorganic Chemistry

The competition has been announced:

No. 36	13.05.2022 г.	Department of Inorganic Chemistry	Metallurgy and material Science
in SG issue	date	for the needs of the Department	Faculty

The report was written by:

Prof.	PhD	Ivanka	Georgieva	Stankova	Department	of
					Chemistry	
					South-West	
					University	

academic	scientific	name	middle	last name	workplace
position	degree		name		

1. Report for the candidate:

Senior assistant	PhD	Veronika	Atanassova	Karadjova
academic position	scientific degree	name	middle name	last name

1.1. 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.

1.2. 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)	8 points	x
B) Research is relevant. Results from other authors are known for each of the topics and / or applications studied.	6 points	
C) Most of the research is relevant, but also some results are presented that have no scientific and / or applied value	4 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.

The scientific activities of doctor Karadjova are is several directions, among them:

Studies on beryllium salts with applications in some high technologies and especially bearing in mind the stron biological activities of them.

Studies of Tutton salts as stand of portion towards finding of new materials with proton conductivity and applications related to human health

Synthesis of bio-active substances applicable to treatments related to Alzheimer disease, peptides with anticancer effects and anti-oxidants.

1.3. 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 main tasks of the reported studies can be outlined as:

- Synthesis structures and properties of beryllium salts;
- > Synthesis structures and properties of Tutton salts;
- > Synthesis of bio-active substances:
 - Esters of galantamine with and studies on the inhibition of β-amilooid aggregation and the acetylcholinesterase
 - Compaunds of mono-fluoride съединения analogs of BIM-23052, with naphthalimide , caffeic acid и tripeptide Arg-Gly-Asp , and the anti-cancer activities;
 - 3-hydroxyflavone complexes with copper ions and their anti-oxidant activities

1.4. Candidate research contributions:

A) With lasting scientific and / or applied response, they form the basis for new research and applications	20 points	x
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	
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. With scientific contribution:

The dissolutions of 9 versions of three-component aqueous salts at 25°C have been studied with creation of dissolution diagrams and crystallization fields. It has been established that the systems BeSeO₄ – MeSeO₄ – H₂O (Me = Co, Ni, Zn, Cu) and the system CsIO₃–Be(IO₃)₂–H₂O belong to simple evtonic type and respectively there are only crystallization fields corresponding to the simple salts. As a result a new compound of the beryllium Rb₂Be(IO₃)₄·2H₂O has been found and studied.

The powder X-ray studies and by the codes ITO and LSUCR the parameters of the elementary cells of the following salts $M_2Be(IO_3)_4 \cdot 2H_2O$ (M = K, NH₄⁺, Rb) μ (NH₄)₂Be(SeO₄)₂·2H₂O have been dtermined. The X-ray diffractions allowed the structure of the double salt (NH₄)₂Be(SO₄)₂·2H₂O to be decoded.

The wave numbers corresponding to the valent vibrations OD of the matrixisolated HDO allowed the strength of the hydrogen bounds to of the studied double salts (NH₄)₂Be(SO₄)₂·2H₂O and (NH₄)₂Be(SeO₄)₂·2H₂O to be calculated and compared to the water molecules in the corresponding potassium salts -K₂Be(SO₄)₂·2H₂O μ K₂Be(SeO₄)₂·2H₂O.

The wave numbers of v_{OD} vibrations of the matrix isolated HDO molecules in $M_2Be(IO_3)_4 \cdot 2H_2O$ (M = K, NH₄⁺, Rb) reveal that in the potassium and rubidium salts there are strong hydrogen bounds attributed to strong interactions Be-OH₂ (synergetic effects).

Potassium, ammonium, rubidium and cesium Tuttonian salts have been investigated.

The powder X-ray studies and by the codes ITO and LSUCR the parameters of the elementary cells of the following salts:

- Rb2M(SeO4)2·6H2O (M = Mg, Ni, Cu)
- Rb2M(SO4)2·6H2O (M = Mg, Co, Ni, Cu, Zn)
- Cs2M(SO4)2·6H2O (M = Mg, Co, Ni, Zn)

In the Infra-red spectra of the studied Tutton slats haven investigated and a correlations between the vibration bands and the crystal structure has been established. A group-factor analysis between the normal vibrations and the atomic groups SO42- μ SeO42- ions, water molecules and their position symmetry of the group factors have been determined.

The strength of the hydrogen bounds in the pure Tutton slats has ben discussed.

Syntesis of bioactive compounds;

- Compounds of galantamine have been developed.

- Syntheses of new peptide-galantamine derivatives with glucose residuals have been developed.

- Syntheses of new mono-fluoride analogs of BIM-23052 with naphthalimide, caffeic acid the tripeptide Arg-Gly-Asp, have been developed. The anti-cancer effect has been proved with cancer cell lines of the the mammary gland MCF-7 (ER+, PR+ и Her-2-); MDA-MB-231 (ER-, PR- и Her-2-).

- Syntheses of 3-hydroxyflavone complexes with copper ions upen different conditions have been developed с медни йони, получени

The applied synthesis approach reveals that doctor Karadjova applies new techniques and methodologies

1.5. 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.

1.6 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"

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

1.7. Critical notes:

A) Lack of critical notes	8 points	х

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.

1.8. Conclusion

A) The evaluation of the candidate's activity is POSITIVE	This evaluation is assigned to a total number of at least 50 points	x
B) The evaluation of the candidate's activity is NEGATIVE	This evaluation is assigned to a total number below 50 points	
		one of the answers given is marked with
		the sign "X"

To be filled in if requested by the member of the scientific jury

The applicants has contributions to 5 national research projects, 3 og them as a member of the team and 2 as a principle investigator; 8 projects have been supported by UCTM and 1 by the South-West University.

The results are published in 27 research articles and 23 of them are indexed in SCOPUS and Web of Science, while 4 are published in non-indexed but refered journals. The effects of the published results are 32 citations

The pedagogical activity in UCTM is perfect and satisfies the condition required doctor Karadjova to be promoted to the position of associate professor. A manual for laboratory works on inorganic chemistry has been published by UCTM in 2006.

The presented results and the materials allow suggesting that they satisfy the conditions imposed by the law for academic development in Bulgaria.

Based on the above, I recommend the academic jury to present a positive and motivated proposal to the faculty council for a consequent promotion of doctor Karadjova to the position of associate professor.

date		
	The report was written by:	
15.09.2022	Prof. PhD Ivanka Georgieva	signature
	StankovaDepartment of Chemistry	
	South-West UniversityThe report was	
	written by	