

## OPINION

by

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Prof. Dr. Asen Zlatarov University of Burgas,

Member of the Scientific Jury appointed by Order № ПД-16-180/26.11.2020

of the Rector of Konstantin Preslavsky University of Shumen

**Regarding** the application for the academic position of Associate Professor, announced in the State Gazette, issue 87/09.10.2020, Area of Higher Education 4. Natural Sciences, Mathematics and Informatics, **Professional Field 4.2 Chemical Sciences** (Analytical Chemistry with Instrumental Methods) for the needs of the Department of Chemistry, Konstantin Preslavsky University of Shumen.

### 1. Brief Biographical Data

Sen. Lect. Ismail Ismailov, PhD is the sole applicant for the academic position of Associate Professor. The procedure is announced in the State Gazette, issue 87/09.10.2020, Area of Higher Education 4. Natural Sciences, Mathematics and Informatics, Professional Field 4.2 Chemical Sciences (Analytical Chemistry with Instrumental Methods). He was awarded a Master Degree in Biology and Chemistry in 2001 by the Faculty of Natural Sciences at *Konstantin Preslavsky University of Shumen*. Between 2005 – 2008 r. the applicant was enrolled as a Master student in Management of Protected Territories and Resources major. Within these two master's programs he gained specialized knowledge in the field of non-organic and organic chemistry, biochemistry, physicochemistry and analytical chemistry, and gradually enhancing his interest in modern instrumental methods of analysis.

Since 2011 he is part of the academic staff of the Department of Organic Chemistry and Technologies at the Faculty of Natural Sciences, *Konstantin Preslavsky University of Shumen*. In 2015 he was awarded with a Doctoral Degree in Organic Chemistry. His PhD dissertation was on *Synthesis and Reactions of Electrophilic Cyclization and Cycloisomerization of Phosphorylated Alpha- and Beta- Hydroxyalenes*.

### 2. General Description of the Submitted Materials

Since 2011 Sen. Lect. Ismail Ismailov, PhD published **46** articles in international journals with IF. A monograph is also published. **23** of the articles are published in international journals indexed by Scopus and/or Web of Science and **32** of them are published in national and international scientific annuals.

Ismail Ismailov, PhD participates in this very competition with 13 articles published in journals divided as follows:

*Bulgarian Chemical Communications* (IF=0.242; SJR=0.14, Q4) – [1, 2, 4]

*Physica Scripta* (IF=1.126; SJR=0.53, Q2) – [9, 10]

*Biharean Biologist* (IF=0.46, Q3; SJR=0.222, Q2) – [3]

*Comptes Rendus de L'Academie Bulgare des Sciences* (IF=0.27, Q4; SJR=0.22, Q2) – [5]

*Research Journal of Pharmaceutical, Biological and Chemical Sciences* (IF=0.3; SJR=0.121, Q3) – [6]



*Molecules* (IF=4.1, Q2; SJR=0.698, Q1) – [7]

*Journal of IMAB - Annual Proceeding* (SJR=0.11, Q4) – [8]

*Journal of Physic: Conference Series* (IF=0.7; SJR=0.227) – [11]

*Arkivoc* (IF=1.08; SJR=0.374, Q3) – [12]

*Heterocycles* (IF=0.908; SJR=0.477, Q3) – [13]

He presents 1 habilitation work (monograph) in this very habilitation procedure: Ismailov, I. Functionalized allenes - cyclization reactions. Regioselective synthesis and study of the reaction of cycloisomerization of phosphorylated 1- hydroxyalkylalenes. ISBN 978-619-201-416-2, Konstantin Preslavsky Publishing House, 2020, pp. 196. The total number of the citations is 57. The reference in Web of Science shows 50 citations. The candidate's *h-index* is 6.

Additional reference according to Art. 57a, § 2 stated in The Regulation on the Terms and Procedure for Acquisition of Academic Degrees is submitted by the applicant.

### 3. Teaching Activities

The total teaching experience of Chief Assistant Dr. Ismail Ismailov exceeds 10 years. As can be seen from the attached reference, his teaching activity is extremely active and involves delivering lectures, organizing seminars and laboratory experiments with Bachelor degree students in the field of analytical chemistry, focusing on the study of modern instrumental methods of analysis. He teaches specialized disciplines such as "Analysis of Medicinal Substances" and "Molecular Spectroscopy" to students majoring in "Medical Chemistry".

### 4. Scientific Activities

Ismail Ismailov, PhD has participated as a researcher in two national projects. He participated under the Project intended to provide access of students, doctoral students and young Scientists to the National Center for MRI Spectroscopy named "Development of the National Laboratory of NMR Spectroscopy in an Effective Research Infrastructure for NMR Analysis of Bio- and Nanomaterials ". The second project was Enhancement and Sustainable Development of Doctoral Students, Postdoctoral Students and Young Scientists in the Field of Natural, Technical and Mathematical Sciences". Shumen University, 2012.

The main contributions of Sen. Lect. Ismail Ismailov could be summarized in the following **scientific areas**:

1. A method has been developed for the preparation of bifunctionalized and trifunctionalized allenes by synthesized alkinols with diphenyl chlorophosphine or dimethyl chlorophosphite in the presence of an organic base with intermediate formation of propargyl phosphites or phosphinites, which spontaneously tolerate [2,3] rearrangement to the desired phosphorylated hydroxyalenes and alencarboxylates with a protected hydroxyl group. The synthesized allenes were used as substrates for the production of hydroxyalenes by deprotecting the hydroxyl group of the respective bifunctionalized and trifunctionalized hydroxyalenes with a protected hydroxyl group in the presence of PPTS.

2. Synthesized, isolated and purified by column chromatography and characterized <sup>1</sup>H-, <sup>13</sup>C-, <sup>31</sup>P-NMR and IR-spectral new, not described in the literature, bifunctionalized and trifunctionalized allenes.

3. Phosphorylated reactions of  $\alpha$ -,  $\beta$ - hydroxyalenes, 4-phosphorylated 5- hydroxial-2,3-dienoates were studied, as well as those of 4- phosphorylated  $\beta$ - hydroxyalcarboxylates with a



protected and unprotected hydroxyl group with electrophilic reagents such as sulfur chloride, bromine, benzenesulfanyl chloride and benzeneselenyl chloride. Reaction conditions in regard to their solvent, reaction temperature and time and electrophile molar ratio were optimized. It has been found that the reactions proceed in the same way, regardless of whether the hydroxyl group is protected or unprotected. Heterocyclic and unsaturated acyclic compounds are obtained depending on the type of substituents in the phosphoryl group.

4. The cycloisomerization reactions of the phosphorylated  $\alpha$ ,  $\beta$ - hydroxyalenes, 4-phosphorylated 5-hydroxial-2,3-dienoates and 4- phosphorylated  $\beta$ - hydroxyalcarboxylates with the catalytic participation of ions of the so-called coin metals were studied.

5. Synthesized, isolated and purified by column chromatography and characterized <sup>1</sup>H-, <sup>13</sup>C-, <sup>31</sup>P-NMR and IR-spectral new, not described in the literature, organophosphorus heterocyclic and unsaturated acyclic compounds

### 5. Meeting the Minimum National Requirement

The set of electronic materials submitted is in compliance with The Regulation on the Terms and Procedure for Acquisition of Academic Degrees and the Habilitation Procedure at Shumen University and includes all administrative and scientific documents required.

Group A Indicators presents the applicant's PhD dissertation on Synthesis and Reactions of Electrophilic Cyclization and Cycloisomerization of Phosphorylated Alpha- and Beta-Hydroxyalenes (50 points)

In Group B a monograph is presented: I. Ismailov, Functionalized allenes – Reactions of Cyclization. Regioselective Synthesis and Research on the Cycloisomerization Reaction of Phosphorylated 1-hydroxyalkylalenes. ISBN 978-619-201-416-2, Konstantin Preslavsky University Publishing House, 2020, p. 196 (100 points)

In Group F Sen. Lect. Ismail Ismailov, PhD submits for the completion a total list of 13 publications (Web of Science и Scopus).

According to the regulations procedures in professional field 4.2 Chemical sciences involve quartiles Q1, Q2, Q3 and Q4 according to the metrics SJR, In this regard, Ismail Ismailov submitted 13 publications in scientific journals divided as follows:

Scientific Journal	Quartiles (in years)	Points in F7 Indicator
<i>Bulgarian Chemical Communications</i>	[1] – Q4 for 2020 [2] – Q4 for 2019 [4] – Q4 for 2017	12 p. 12 p. 12 p.
<i>Biharean Biologist</i>	[3] – Q3 for 2018	15 p.
<i>Comptes Rendus de L'Academie Bulgare des Sciences</i>	[5] – Q2 for 2017	20 p.
<i>Research Journal of Pharmaceutical, Biological and Chemical Sciences</i>	[6] – Q3 for 2016	15 p.
<i>Molecules</i>	[7] – Q1 for 2015	25 p.
<i>Journal of IMAB - Annual Proceeding</i>	[8] – Q4 for 2015	12 p.
<i>Physica Scripta</i>	[9, 10] – Q2 for 2014	2 x 20 = 40 p.
<i>Journal of Physic: Conference Series</i>	[11] – no Quartile	10 p.
<i>Arkivoc</i>	[12] – Q3 for 2013	15 p.
<i>Heterocycles</i>	[13] – Q3 for 2013	15 p.
<b>Total points</b>		<b>203 p.</b>



Group  $\Delta$  consists of 25 citations presented (Web of Science и Scopus)\*- 50 points.

The minimum number of points in each group of indicators required for the academic position of "Associate Professor" in the professional field 4.2 Chemical Sciences, according to the Regulations for the development of the academic staff of Konstantin Preslavsky University of Shumen are met.

<i>Group Indicators</i>	Minimal National Requirements	Minimal Requirements according to the Regulations for the development of the academic staff of Konstantin Preslavsky University of Shumen	Total points achieved by Ismail Ismailov, PhD
<i>A</i>	50	50	50
<i>B</i>	-	-	-
<i>B</i>	100	100	100
<i>Г</i>	200	200	203
<i>Δ</i>	50	50	50
<i>E</i>	-	-	-
<i>Total Number of Points</i>	400	400	403

#### 4. Conclusion

The profile of the application corresponds to the procedure announced and is in accordance with the The Regulation on the Terms and Procedure for Acquisition of Academic Degrees and the Habilitation Procedure at Shumen University.

Once I have read the materials and scientific publications submitted and have made an analysis of their significance and the scientific contributions contained in them, I think that the sole candidate: Sen. Lect. Ismail Ismailov, Ph.D. has accomplished all the minimal national requirements set in the Development of Academic Staff in the Republic of Bulgaria Act, The Regulation on the Terms and Procedure for Acquisition of Academic Degrees and the Occupation of Academic Jobs at Shumen University and all other relative normative documents. I find it worthwhile to **give my positive assessment** and to recommend to the Scientific Jury to make a report to the Faculty Council of the Faculty of Natural Sciences to ask them to grant the academic rank **Associate Professor** to Sen. Lect. Ismail Ismailov, Ph.D. at *Konstantin Preslavsky* University of Shumen in the Area of Higher Education 4. Natural Sciences, Mathematics and Informatics, Professional Field 4.2 Chemical Sciences (Analytical Chemistry with Instrumental Methods) for the needs of the Department of Chemistry.

13.01.2021

Member of the Scientific Jury:  
(Assoc. Prof. Svetlana Zheleva, PhD)

