

## OPINION

by

**Assoc. Prof. Romyana Zlatinova Yankova, PhD**

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.

It is Sen. Lect. Ismail Ismailov, PhD being the sole candidate applied 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. 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.

### **Candidate Background**

Sen. Lect. Ismail Ismailov was awarded a Master Degree in Biology and Chemistry in 2001 by the Faculty of Natural Sciences at *Konstantin Preslavsky* University of Shumen. Since 2011 he is part of the academic staff of the Department of Chemistry at the Faculty of Natural Sciences, *Konstantin Preslavsky* University of Shumen. In 2015 he was awarded with a Doctoral Degree. His PhD dissertation was on *Synthesis and Reactions of Electrophilic Cyclization and Cycloisomerization of Phosphorylated Alpha- and Beta- Hydroxyalenes*. His academic tutor was Prof. Dr. Habil Valerij Christov.

### **General Characteristics of Candidate`s Teaching and Scientific Activities**

The submitted reference in compliance with Art. 57a, § 2 stated in The Regulation on the Terms and Procedure for Acquisition of Academic Degrees shows that his activities

significantly exceed the teaching workload at Shumen University of **360 hours** per academic year. Last year (2019-2020) his teaching workload was of **540 hours**. Sen. Lect. Ismail Ismailov, PhD delivers lectures to Bachelor Degree Students in: Analytical Chemistry with Instrumental Methods, Instrumental Methods for Analyses, Analysis of Medicinal Substances, Instrumental Methods in Chemistry, Molecular Spectroscopy and etc.

Sine 2011 Sen. Lect. Ismail Ismailov, PhD published **46** articles in international journals with IF, **23** of them are articles published in international journals with IF, **32** of them are published in national and international scientific annuals. The applicant submits a list of 13 publications with IF in English for this very competition. All publications presented correspond to the profile of the announced competition. 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- hydroxyalkylallenes. ISBN 978-619-201-416-2, *Konstantin Preslavsky Publishing House*, 2020, pp. 196.

The scientific production of Sen. Lect. Ismail Ismailov is of great interests to the sciences community: a total of 57 citations in journals, referenced and indexed in world-famous databases with scientific information have been noticed. Sen. Lect. Ismail Ismailov has contributed to the development and implementation of **2** national projects and in **9** projects, funded by the Bulgarian Ministry of Education.

The scientific interests of Sen. Lect. Ismail Ismailov are in the field of: Spectral analysis, Organic Structural Analysis, Organic Synthesis and Chemistry of Allenes.

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 hydroxyallenes and alencarboxylates with a protected hydroxyl group. The synthesized allenes were used as substrates for the production of hydroxyallenes by deprotecting the hydroxyl group of the respective bifunctionalized and trifunctionalized hydrolens 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 sulfuryl chloride, bromine, benzenesulfanyl chloride and benzeneselanyl 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  $^1\text{H}$ -,  $^{13}\text{C}$ -,  $^{31}\text{P}$ -NMR and IR-spectral new, not described in the literature, organophosphorus heterocyclic and unsaturated acyclic compounds.

### **Meeting the Minimum National Requirement**

The presented materials and scientific results entirely meet the requirements set in the Law for the Development of the Academic Staff in the Republic of Bulgaria (LDASRB), in the Rules on the Application of LDASRB (RALDASRB) and in The Regulation on the Terms and Procedure for Acquisition of Academic Degrees and the Occupation of Academic Jobs at Shumen University. The development of Sen. Lect. Ismail Ismailov, Ph.D. in the last few decades as a student, doctoral student, lecturer and scientist at the Shumen University is fully presented in a convincing manner.

The points declared by the candidate in regard to the groups of indicators for the academic position Associate Professor are as follows:

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 all of which in compliance with the competition announces. These are not

presented by him in other competitions, and are accepted for review. Total number of points-  
**203.**

Group Д consists of 25 citations presented – **50 points.**

## **CONSLUSION**

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).

12.01.2021

Scientific Jury Member:



(Assoc. Prof. Romyana Yankova)