

REVIEW

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On the materials submitted for participation in the competition for the academic position Associate Professor in the field of Higher education: 4. Natural Sciences, Mathematics and Informatics, Professional direction: 4.2. Chemical Sciences (Organic Chemical Technology, Food Chemistry)

The competition was announced in the SG, number 39 from 02.05.2023 and on the internet page of the University of Plovdiv P. Hilendarski for the needs of the Department of Chemical Technology at the Faculty of Chemistry.

2. GENERAL DESCRIPTION OF THE SUBMITTED MATERIALS

By the order number RD 21-1426 of 30.06.2023 of the Rector of the University of Plovdiv P. Hilendarski I was appointed a member of the Scientific jury for the competition for the academic position of Associate Professor in the field of Higher education: 4. Natural Sciences, Mathematics and Informatics, Professional direction: 4.2. Chemical Sciences (Organic Chemical Technology, Food Chemistry) for the needs of the Department of Chemical Technology at the Faculty of Chemistry.

The only candidate in the current competition for Associate professor is Ch. Assist. Prof. Zhana Yuliyanova Petkova, Ph.D., Department of Chemical Technology at the Faculty of Chemistry, University of Plovdiv P. Hilendarski.

The documents provided by the candidate are in full compliance with the Law for the Development of the Academic Staff in the Republic of Bulgaria, the Regulation for the Implementation of the Law for Development of the Academic Staff in the Republic of Bulgaria and the Regulation for the Development of the Academic Staff at the University of Plovdiv P. Hilendarski. The documents include the following: Application form to the Rector for admission to participate in the competition; Curriculum vitae in European format; Bachelor's degree diploma, Master's degree diploma; Diploma for Doctor of education and science; lists of scientific works and citates; information on compliance with the minimum

national and additional faculty requirements; annotation of the materials under art. 65, with the candidate participating in the competition, including self-assessment on contributions; declaration of originality and authenticity of the attached documents; certificate of work experience; documents for education works; documents of research works and in scientific conferences and others.

Ch. Assist. Prof. Zhana Yuliyanova Petkova has presented a total 30 scientific works, 1 manual for laboratory exercises, lists of scientific projects, as well as a list of participations in scientific conferences. Materials for obtaining doctoral scientific degree including 7 works; materials for Ch. Assistant Prof. – 5 works. For the contest the candidate presented 18 works, 1 manual for exercises, list of 11 scientific projects and 43 participations in scientific conferences. Of the scientific publications, from indicator B 3 reports were in quartil Q₁, 1- in Q₂, 1 report - in Q₃, 1 report - in Q₄. From indicator Γ were presented 12 reports: in quartil Q₁ – 5 reports, in Q₂ – 5 reports, in Q₃ – 1 report, in Q₄ – 1 report.

2. SHORT BIOGRAPHICAL DATA

In 2009 Zh. Petkova obtained a Bachelor's degree and in 2010 – a Master's degree at the University of Food Chemistry, specialty Technology of Fats, Essential oils, Perfumery and Cosmetics. In 2015 she successfully defended her doctoral thesis at the University of Plovdiv and acquired the educational and scientific degree PhD. In 2015-2016 she was appointed Assistant Professor and in 2016 – Chief Assistant Professor at the Faculty of Chemistry of the University of Plovdiv.

3. GENERAL CHARACTERISTICS OF THE CANDIDATE'S ACTIVITY

Educational and pedagogical activity

According to the submitted Report on the workload for the last 3 years, chief asst. prof. Zh. Petkova has the following workload:

2020/2021 – with Bachelors – 343, with Masters – 293, total – 641 academic hours

2021/2022 – with Bachelors – 497, with Masters – 116, total – 703 academic hours

2022/2023 – with Bachelors – 415, with Masters – 236, total – 721 academic hours

For the student of bachelor's specialties, she conducted lectures on Food Additives,

Materials for Medicine, exercises in High Molecular Compounds, Food additives, Chemistry of Polimers, Medicine Forms, Bioorganic Chemistry, Industrial Organic chemistry, Chemistry of Food Products and Thechnology of Medicine Forms for differenn specialties.

Auditor activities (Lectures and exercises) with students in the Master's program "Food chemistry"

Lectures and seminars

- Chemistry of Food Additives and Contaminantes, Chemistry of Food Additivies" for selected discipline Functional Foods.

Exercises

For the disciplines Chemistry of Food Products – I part., Food Chemistry, Chemistry of Food Additivies, Methods for Analysis of Foods, Scientific and Investigation Practice – I and II parts.

The new teaching programs were prepared for the next disciplines:

- Chemistry of Food Additives", Scientific and Investigation Practice – I part.,
- Chemistry and Technology of Aromatic and Taste Compounds",
- Functional Foods

The new laboratory exercises and seminars were prepared.

The new tests and tasks for current control and wtitten works were prepared.

The new tests for wtitten works for Scientific and investigation practice – I part for specialties Chemistry, Medicine Chemistry, Computer Chemistry, optional discipline Food Chemistry and for State examiner in Chemistry of Food Additivies and Contaminantes, Chemistry of Food Additives for students of the Master's program.

Chief Asst. Prof. Zh. Petkova has of successeful defended graduation works – 3 ps. and head of current graduation works – 3 ps.

Chief Asst. Prof. Zh. Petkova co-authored one Manual for laboratory exercises for Food Chemistry, 2023. eISBN 978-619-202-859-6, published by University of Plovdiv Press for the students in the bachelor and master programs.

Evaluation of scientific and scientifically applied activity

For participation in the competition for the academic position of Associate Professor were presented 18 scientific publications referenced and indexed in world renowned scientific databases (Web of Science and Scopus) of science: (*Plants* $IF_{2021}=4.658$, $IF_{2020}=3.935$; *Industrial Crops&Products* $IF_{2018}=4.191$; *OCL-Oilseeds and fats, Crops and Lipids* $SJR_{2022}=0.356$ u $SJR_{2019}=0.365$; *Grassas y Aceites* $IF_{2021}=1.416$ u $IF_{2020}=1.650$; *Natural Product Communications* $IF_{2019}= 0.468$, *Molecules* $IF_{2021}=4.927$; *Heliyon* $SJR_{2020}=0.455$; *Journal of the Sciences of Food and Agriculture* $IF_{2019}=2.614$; *Turkish Journal of Agriculture and Forestry* $IF_{2020}=2.585$, *Journal of Food Science and Technology* $IF_{2020}=2.701$ u $IF_{2017}=1,797$; *Journal of Thermal Analysis and Calorimetry* $IF_{2018}=2.471$); 1 Manual for laboratory exercises in the field of Food Chemistry. These materials are not the same as the previous used for the academic position of Chief Assistant Profesor and for obtaining PhD degree and are in accordance with the National minimal requirements in the Academic Staff Register.

The numbering used reflects the number from the table of indicators of the relevant scientific work submitted for participation in the competition.

The total number of the citations of all publications (up to 2022) is 232, with 162 in Scopus and/or Web of Science databases and 70 in other peer-reviewed journals. A total of 90 citations were made in the publications submitted for participation in the competition, of which 70 were in publications referenced and indexed in Scopus and/or Web of Science databases. The most significant cited reports are as follows: $\Gamma.4$ – 16 times; $\Gamma.5$ – 10 times, $\Gamma-7.$ – 23 times, $\Gamma.8$ – 7 times. H-index in Scopus is 7 and in Web of sciences – 5.

4. ASSESMENT OF THE PERSONAL CONTRIBUTION OF THE CANDIDATE

All materials submitted by Zh. Petkova are co-authored. In the presented reports Zh. Petkova is the first in 5 reports and in 6 reports – second author. This reflects the candidat's significance to the investigations.

Successfully completed scientific projects after the acquisition of academic degree Ch. Assist. Prof.:

- 1 project of Scientific investigation Fund (Ministry of education) – leader
- 6 projects of Scientific investigation Fund (University of Plovdiv) (member of the team)
- 1 project of Scientific investigation Fund (University of Food Technology)) –

member of the team;

- 1 international project with the company Global Enterprise Technologies Corp., MA, USA (member of the team);

- 1 project by Operative programme Science and Education for Intelligent Growth the creation of Master's program Intelligent Analytics with University of Sofia St Kliment Ohridski (member of the team);

- 1 project of National Programme for Recovery and Stability, Programme for Acceleration of the Economic Recovery and Transformation by Science (leader of group);

Investigations were provided in collaboration with colleagues from different structures of universities and scientific organisations in Bulgaria, USA, Turkiye, Chehia, Morroco, Sauthi Arabia, Egypt, Malaysia.

The official documents required for the competition were presented.

The scientific contributions and their citations of the candidate meet the requirements of the competition for the academic position of Associate Professor.

Analysis of the scientific contributions submitted for participation in the competition

The presented works correspond to the scientific interest of the candidate in the last 11 years and include complex evaluation of the chemical (content of proteins, cellulose, fiber, carbohydrates, composition of amino acids, content and composition of minerals) and lipid composition (fatty acid composition of triacylglycerols, phospholipids, sterol esters, content and composition of sterol, tocopherol, phospholipid and carotenoid fractions) of the number traditional and unconventional plant cultures (fruits, seeds seedcakes and peels of pine, uniper, tobacco, lupin, physalis, laurel, vitex, sorbus domestica, physalis alkekengi, carob, nettle, madaia sativa, bitter vetch) (B.4.1-6, Г.1, 2, 6, 7, 9-12). Composition of essential oil in laurel, vitex and physalis alkekengi was determined (B.4.-1, 4, 6). The possibilities for increasing of oxidative stability of the glyceride oils) (B.4.2, G.7), investigation of the changes in lipid composition and physico-chemical characteristics of the lipid products during thermal treating and during storage were established too. The establishing of those indicators leads to full characterisation of the studied object and to research the possibilities for including in different food products, forages for animals and potential application as source of biologically active substances.

Scientifically applied contributions

1. Information about composition of untraditional plants is useful with a view to preparing food products with improved physical and functional properties, establishing the presence of biologically active substances and their application for food, farmaceutical and industrial purposes.

2. Results from investigations of composition of eggs from different genotypes of chickens and method for nutrition give possibilities to optimize the nutrition of poultry with a view to producing higher quality eggs products.

3. Establishing the changes during thermal treating of different vegetable oils and methods of approach give possibilities for improvement of the quality and time for oil.

4. Essential oils isolated from some plants could be used to put in food, farmaceutical and industrial products.

The below table shows the fulfillment of the requirements of the minimum national required number of points by group of scientific metric indicators for the academic position Associate Professor in professional direction 4.2 Chemical Sciences.

Minimum national required number of points by groups of scientific metric indicators and their respective implementation

Metrics groups	Content	Ass.Professor – number of points	Performance – number of points
A	Indicator 1	50	50
B	Sum of points from indicators 3 and 4	100	122 (from indicator 4)
Г	Sum of points from indicators 5–10	200	252 (from indicator 7)
Д	Sum of points from indicator 11	50	324
E	Sum of points from indicators 12–20	-	4 (from indicator 20)
	Total:	400	752

In all scientific and teaching indicators and citations the candidate meets the requirements of the competition for the academic position Associate Professor.

5. CRITICAL REMARKS AND RECOMMENDATIONS

I have noticed that Zh. Petkova has a very heavy teaching activity and it have to tray possibilities to decrease it.

CONCLUSION

The documents and materials submitted by Assist. Prof. Zhana Petkova meet all the requirements of the Law for Development of the Academic Staff in Republic of Bulgaria (ZRASRB), the Regulation for implementation of ZRASRB and the respective Regulation of Plovdiv University P. Hilendarski. The candidate has a submitted a sufficient number of scientific papers, published after the materials used in the deffense of ONS “Doctor” and Ch. Assist. Prof. In the works of the candidate there are original scientific and scientifically applied contributions, wich have received international recognition as a representative part of them were published in scientific journals by international academic publishers and presented at international scientific conferences. Its developments have practical and theoretical application. Some are directly oriented to education. The scientific and teaching qualification of Ch. Assist. Prof. Zhana Petkova is undoubted.

The achievements of Ch. Assist. Prof. Zhana Petkova in teaching and research fully comply with the specific requirements of the Faculty of Chemistry, adopted in connection with the Regulation of the Plovdiv University P. Hilendarski for application of ZRASRB.

In this regard, I confidently give a positive assessment to the candidate’s work and recommend to the Honorable Scientific Jury to prepare a report-proposal to the Faculty Council at the Faculty of Chemistry of the University of Plovdiv, for the election of Ch. Assist. Prof. Zhana Yuliyanova Petkova PhD, to the academic position Associate Professor at the University of Plivdiv P. Hilendarski in profesional field of: Higher education: 4. Natural Sciences, Mathematics and Informatics, Professional direction: 4.2. Chemical Sciences (Organic Chemical Technology, Food Chemistry).

3.08.2023

Reviewer:

(Prof. M. Zlatanov PhD)