

STATEMENT

by Associate Professor Dasha Spasova Mihaylova, Dipl. Eng., PhD

regarding the materials submitted for a competition for the academic position of **“Professor”**
at Institute of Organic Chemistry with Centre of Phytochemistry (IOCCP), BAS

in Area of Higher education 4. Natural sciences, mathematics and informatics

Professional Field 4.2. Chemical Sciences

(„Bioorganic chemistry, chemistry of natural and physiologically active substances“)

In a competition for the academic position of “Professor”, announced in the State Gazette, issue 43 dated 31 May 2019 and on the IOCCP – BAS internet site, applied assoc. prof. Petko Nedyalkov Denev, PhD, at Laboratory of Biologically Active Substances (LBAS) – Plovdiv, IOCCP-BAS.

1. General presentation of the procedure and the applicant

For the participation in the announced competition as the sole candidate documents has submitted assoc. prof. Petko Nedyalkov Denev, PhD (LBAS - Plovdiv, IOCCP-BAS).

The set of paper materials presented by assoc. prof. P. Denev is in accordance with the Regulations for the Development of the Academic Staff of IOCCP, and fully meets the criteria of IOCCP-BAS for occupying the academic position "Professor".

The applicant assoc. prof. Petko Nedyalkov Denev has submitted a total of 31 scientific papers all in respect of the topic of the competition, including a list of 27 scientific papers, 3 chapters of collective monographs and 1 utility model, which are published his PhD thesis and after the competition for academic position of “Associate Professor”. All 31 papers are considered at the final evaluation, as well as the submitted research projects. The distribution of scientific papers according to the relevant Q factors is as follows: Q1 - 10 publications; Q2 - 4 publications and Q4 - 8 publications.

Assoc. Prof. Petko Denev has been working at the Laboratory for Biologically Active Substances - Plovdiv at the Institute of Organic Chemistry with the Center of Phytochemistry at the Bulgarian Academy of Sciences since October 2003, achieving accordingly various positions, to become a supervisor in October 2014, which is his current position. The above illustrates the sustainable development of the applicant, who has been habilitated as an Associate Professor at the same laboratory since October 2014. Assoc. Prof. Denev is the head of a scientific group engaged in the study of the chemical composition and biological activity of medicinal and economically important plants, other fruits, vegetables, herbs and mushrooms; the biological activity of pectic polysaccharides and involved in seeking approaches for the utilization of waste from the essential oil industry to obtain new products.

The projects, publications and cooperation that the applicant implements, contribute in forming him as a leading specialist in the field of medicinal plants in our country. Last but not least, Assoc. Prof. P. Denev is a recipient of the Pythagoras Grand Prize for Young Scientist awarded to him by the Ministry of Education and Science in 2013 and the Young Scientist Award "Prof. Marin Drinov" in the Biomedicine and Quality of life”, awarded to him by the Bulgarian Academy of Sciences in the same year.

I know Assoc. Prof. Denev personally, and I respect his qualities as a young, enthusiastic, competent, thorough and responsible researcher, a good and responsive colleague who is critical to both himself and other colleagues.

2. General characteristics of the applicant's activities

Assoc. Prof. Denev applied to the competition with 31 publications, 22 of which have an impact factor; three chapters of collective monographs (№ 29-31); five articles without impact factor (№ 5-7, 22, 23) and one utility model (№ 28). The applicant is the first or corresponding author of ten of them. The publications quartiles distribution is impressive, which testifies to the quality of its scientific production.

The report on the scientific contributions presented by Assoc. Prof. Denev adequately and thoroughly reflects the results of his research work. The applicant's research work is mainly devoted to the study of the chemical composition of medicinal and economically important plants, as well as the determination of their biological activity, which is included in the largest number of publications (18 publications) submitted for review.

Assoc. Prof. Denev states participation in 25 projects, three of which are in international cooperation; three are funded by the business and sixteen are with national funding, which proves the public interest on his working topics. It is noteworthy that in eight of them he is the leader or coordinator.

The publications submitted for review highlight several scientific and scientific-applied contributions that are within the priority areas of the "National Strategy for the Development of Scientific Research in the Republic of Bulgaria 2017-2030", "The Innovation Strategy for Smart Specialization 2014-2020" and others.

Based on the publications the following main contributions could be summarized:

- Investigation of chemical composition and biological activity of medicinal and economically important plants such as *Aronia melanocarpa*, other fruits, vegetables, herbs and mushrooms; - publications № 1-2, 4-6, 9-11, 13, 18-19, 21, 23-24, 26-27; chapter of collective monograph – № 30 and utility model № 28;
- Utilization of waste from the essential oil industry in order to obtain new products; - publications № 8, 12, 17, 22, 25;
- Investigation of chemical composition and biological activity of pectic polysaccharides; – publications № 14-16, 20, chapter of collective monograph - № 29.

It has to be noted that the applicant's scientific interest is sustainable and is furthermore developed in the direction of socially significant problems such as age-related diseases and their prevention through natural products; study of the biological activity of functional foods both *in vitro* and *in vivo*; utilization of industrial waste along with isolation, chemical composition and characterization of new pectic polysaccharides.

As a result of the conducted research, several significant scientific achievements can be summarized, such as:

- Supplementation of *Aronia melanocarpa* juice has been shown to reduce significantly the proterogenic fraction of low-density lipoproteins in animals tested and led to a 16.5% reduction in their total cholesterol, as well as a lower atherogenic risk and cardio-protective cardiovascular indices system in a model of healthy adult rats (Publication № 6).

- The chemical composition and antioxidant activity of *Chaenomeles maulei* fruit juice (cultivated in Bulgaria) was studied for the first time and substantial amounts of polyphenolic substances were detected (Publication № 23).

- The polysaccharide composition of 11 European and Bulgarian medicinal plants has been characterized for the first time (Publications № 14, 15, 16, 20, chapter of collective monograph 29).

- Isolated from the flowers of *Tilia tomentosa* for the first time a unique pectic polysaccharide with anti-inflammatory potential (Publication No. 15).

- The structure and immunomodulatory activity of water-extractable pectin polysaccharides from *Lavandula angustifolia*, showing *ex vivo* immunostimulatory action on phagocytic leukocytes and intestinal immunomodulatory activity, were studied for the first time (Publication № 14).

The research and scientific works of Assoc. Prof. Petko Denev, as well as their contributions, are entirely on the topic of the announced competition. The general overview of his scientific work defines him as a brilliant scientist at the world level and fully meets the requirements for the respective position.

According to the citation report (Scopus) presented by the candidate, the publications of Assoc. Prof. Petko Denev have been cited 531 times during the period 2015-2019, and to date, his personal h index according to Scopus excluding the self-citation is 13. The citations are mostly in specialized high impact scientific journals.

The scientific results by Assoc. Prof. Denev have been presented at a numerous international scientific forums.

He is a co-author of a utility model as a result of his research activity entitled "Composition for synergistic enhancement of antioxidant activity of fruit and herbal extracts" since 2015.

3. Critical notes and recommendations

I have no critical comments on the submitted scientific papers and other documents.

CONCLUSION

The documents submitted by Assoc. Prof. Petko Nedyalkov Denev **unequivocally corresponds** to the requirements of the Act on the Development of the academic staff in the Republic of Bulgaria, the Regulations for the Application of the Act for the Development of the Academic Staff in the Republic of Bulgaria, the Regulation for the implementation of the Act on the Development of the academic staff in BAS and Regulations of IOCCP- BAS.

The applicant has submitted a **sufficient** number of scientific papers published after occupying the Degree "PhD" and the academic staff position "Associate Professor". The candidates' works contain original scientific and scientific-applied contributions that have received international recognition being published in journals by international academic publishers. His theoretical achievements have been practically implemented. In this regard Prof. Petko Denev's scientific qualification is **undoubted**.

The accomplished results in the research activity of assoc. prof. Denev **fully** comply with the specific requirements of the Regulations for the Application of the Act for the Development of the Academic Staff in IOCCP- BAS.

Based on the analysis of the submitted documentation for participation in the competition, analysis of the importance and the containing scientific, scientific-applied and applied contributions, I find it justifiable to give my **positive** assessment and **to recommend** to the Honorable Members of the Scientific Jury to prepare a report-proposal to the Scientific Council of IOCCP-BAS for the election of Assoc. Prof. Dr. Petko Nedyalkov Denev at the academic position “**Professor**” to the IOCCP-BAS, Professional Field 4.2. Chemical Sciences („Bioorganic chemistry, chemistry of natural and physiologically active substances“).

02.09.2019 г.

Signature:

(Assoc. prof. Dasha Mihaylova, PhD)