

STATEMENT

by Associate Professor Aleksandar Nikolov Dimitrov, PhD – Member of the Scientific Jury
Head of the Department of Ecology and Environmental Protection
Assen Zlatarov University - Burgas

In the competition for the occupation of the academic position Associate Professor in the field of higher education: 4. Natural sciences, mathematics and informatics; professional field: 4.4. Earth sciences; Specialty: 02.22.04. Waste recovery and treatment technology (Recovery and treatment of waste from biodiesel production), announced by the Assen Zlatarov University - Burgas.

The competition is announced in the State Gazette, v.1/03.01.2020. With an Order of the Rector № RD-64/04.03.2020 the scientific jury has been approved.

There is one candidate for the competition and he is eligible to participate.

The documents for participation in the competition are in compliance with the regulatory requirements.

1. Education and professional qualification

Chief Assistant Professor Nikola Stoyanov Todorov was born on 25.10.1983 in Burgas. He has graduated from the Assen Zlatarov University - Burgas.

In 2011 he completed his Master's Degree in Ecology and Environmental Protection. In addition, he has a (previous) master's degree in International Business.

In 2012 he was enrolled as a doctoral student in the department. In 2015, he defended his doctoral thesis on "Utilization of PET wastes by depolymerization with waste glycerol from biodiesel production and use of the obtained products for the production of resins, polymer concrete, alkyds and others".

From 2015 to the present day Nikola Todorov has worked as an Assistant and Chief Assistant in the Department of Ecology and Environmental Protection at the Assen Zlatarov University - Burgas.

2. Educational activity

Chief Assistant Professor Nikola Stoyanov Todorov has a very good teaching experience. He gives lectures and conducts exercises with students in the fields of Environmental Monitoring, Environmental Law, Air Pollution and Ecosystem Impact and Protected Areas. Over the years he has had a full academic load, exceeding the 360 hours accepted at the University.

The applicant has participated in the development or updating of 7 curricula and lecture courses. He has taught in English language to foreign Erasmus students.

He has published 2 textbooks - one alone and one co-authored.

Under his guidance, 5 graduates defended their diploma work and he has worked with 9 circulars.

He has been the leader of 2 inter-institutional projects and has participated in the research team of several internal, national and 1 international research projects.

He has participated in the organizational and methodological provision of four consecutive editions of the "Thinking Environmentally" for university students and high-school students conferences.

3. Research activities

Research activities of Chief Assistant Professor Nikola Stoyanov Todorov meets the requirements reflected in the Regulations on the Terms and Conditions for Acquiring Degrees and Occupation of Academic Positions at the Assen Zlatarov University - Burgas.

In connection with the competition, the Applicant presents the following scientific works:

1 /one/ Habilitation work (scientific monograph), the topic of which fully corresponds to the code of the competition;

2 /two/ textbooks - Environmental Monitoring (stand-alone) and Protected Areas (co-authored);

Scientific publications - 26 issues. It is noteworthy that 21 of them are in English, 5 are independent and 21 are co-authored, with 11 of them being the highest contributor.

As of the date of the competition, 35 citations were registered, 14 of which were in Scopus and Web of Science.

The candidate is also a Reviewer in the refereed and indexed SCOPUS scientific publication - Journal of Coatings Technology and Research, IF 1.584.

The publications of Ch. Assistant Professor Nikola Stoyanov Todorov contain scientific and applied contributions that can be grouped into three thematic areas:

1. Recovery and treatment of waste from biodiesel production;
2. Environmental monitoring;
3. Investigation of the structure of certain organic compounds or polymers by instrumental methods of analysis.

In the first thematic area, which corresponds entirely to the scientific specialty of the announced competition, one monograph and 16 publications were published [1, 2, 4-16, 18].

The use of glycerol is necessary and very important as huge amounts are generated annually in the world.

The monograph illustrates the possibility of utilizing the glycerol phase and the waste poly(ethylene terephthalate) - [PET] for the production of alkyd resins. Microwave heating was

used to accelerate the processes, save electricity and water without degrading the physico-chemical parameters of the products obtained. Modification with maleic anhydride improves the drying properties of the alkyd resins and extends the use of glycerol. The products obtained show improved drying ability, increased hardness and improved chemical resistance and can be used as air-drying paints and varnishes.

For the first time, it has been found in candidate publications that PET can be chemically recycled by depolymerization with crude glycerol (from biodiesel production) in the absence of a catalyst [11]. Depolymerization conditions have been optimized [12] and technology has been proposed for it [9]. The period during which propylene glycol modification must be carried out has been established to improve the compatibility and physico-mechanical properties of the cured products (resins) [10, 4]. Alkyd resins were obtained from PET depolymerisation products, phthalic anhydride and sunflower oil (or a mixture with flax oil) [7]. The films obtained from these alkyd resins have increased hardness and the degree of drying, adhesion and chemical resistance are the same as those studied [1, 7]. Fatty acids and crude glycerol have been obtained for the first time from sunflower oil, which have been used to produce monoglycerides and the optimal conditions [5], depolymerization of PET [8] and surface coatings have been determined [2]. The results of this area are of scientific, environmental and economic contribution.

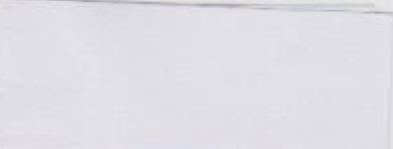
In the second thematic area, a textbook and 1 publication with an attached contribution were published.

In the third thematic area, 9 publications with scientific and research contributions were published.

Conclusion

I have personally known Nikola Stoyanov Todorov for several years. He is communicative and able to work in a team. I believe that with the accumulated teaching and organizational experience, he can handle as a habilitated individual the teaching of disciplines as well as the organization, management and conduct of research.

In conclusion, I give my positive opinion and recommend to the Scientific Jury Chief Assistant Professor Nikola Stoyanov Todorov to be elected to the academic position Associate Professor in the field of higher education: 4. Natural sciences, mathematics and informatics, professional field: 4.4. Earth sciences, specialty: 02.22.04. Technology for waste recovery and treatment (Recovery and treatment of waste from biodiesel production) at Assen Zlatarov University - Burgas.



Assoc. Prof. A. Dimitrov, PhD
Member of Scientific Jury

22.04.2020