

REVIEW

by Prof. Veska Ivanova Shivacheva, DSc - University „Prof. Dr. Assen Zlatarov ”- Burgas
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of the materials submitted for participation in the competition
for occupation of the academic position Associate Professor
at the Plovdiv University „Paisii Hilendarski“

in the area of higher education 1. Pedagogical sciences, professional field 1.3. Pedagogy of training
in... (Methodic of training in Chemistry and Environmental Protection)

In the competition for Associate Professor, announced in the State Gazette, issue. 40 /
14.05.2021 and on the website of the Plovdiv University „Paisii Hilendarski” for the needs of the
Department of General and Inorganic Chemistry with Methodic of training in Chemistry of the
Faculty of Chemistry, Ch. Assist. Prof. Antoaneta Atanasova Angelacheva, PhD and Ch. Assist. Prof.
Yordanka Petrova Stefanova, PhD, are candidates.

In this review I present an assessment of the materials of **Ch. Assist. Prof. Dr Antoaneta
Atanasova Angelacheva**

1. General presentation of the procedure and the received materials

By order NP33-3163 of July 13, 2021, from the Rector of the University of Plovdiv „Paisii
Hilendarski”, I was appointed as a member of the scientific jury of a competition for the Associate
Professor academic position in the Higher Education area 1. Pedagogical sciences, professional field
1.3 Pedagogy of teaching of ... (Methodic of training in Chemistry and Environmental Protection),
announced for the needs of the Department of General and Inorganic Chemistry with Methodic of
training in Chemistry of the Faculty of Chemistry, The above mentioned two candidates have
submitted documents for participation in the announced competition: Ch. Assist. Prof. Antoaneta
Atanasova Angelacheva, PhD - Paisii Hilendarski University of Plovdiv and Ch. Assist. Prof.
Yordanka Petrova Stefanova, PhD - Paisii Hilendarski University of Plovdiv.

The set of materials, presented by Ch. Assist. Prof, Dr Antoaneta Angelacheva is in
accordance with the Rules for Development of the Academic Staff of Plovdiv University and includes
the following documents:

- Autobiography;
- List of scientific papers (22 pcs.);
- Publications;
- Annotation of the materials. self-assessment of contributions;
- Documents and statements for working experience, teaching hours, scientific research,
etc.

In order to participate in the competition for the associate professor position, Ch. Assist. Prof. Dr. Antoaneta Angelacheva enclosed a total of 34 scientific works, of which 1 habilitation work, 1 monograph, 7 articles in peer-reviewed and indexed publications, 21 articles in non-peer-reviewed scientific journals, 1 book related to research results, 3 teaching aids. The submitted papers are different from publications for educational and scientific degree Doctor.

2. Brief biographical information

Ch. Assist. Prof. Dr. Antoaneta Angelacheva graduated in Chemistry, Master's Degree, specialization in Inorganic Chemistry, with a qualification of Chemist and Teacher of Chemistry and Chemical Technologies at the Faculty of Chemistry of Plovdiv University "Paisii Hilendarski". Since 2007 she has been a PhD in Methodic of training in Chemistry.

From 1996 until now she has been working at Plovdiv University consecutively as an assistant and chief assistant. The professional-pedagogical, academic and creative development of Ch. Assist. Prof. Dr. Antoaneta Angelacheva is related to the profile of the competition. She is an established name among the specialized pedagogical community.

3. General characteristics of the applicant's activities

3.1. Assessment of educational and pedagogical activity

Ch. Assist. Prof. Dr. Antoaneta Angelacheva has significant teaching experience in teaching students - future teachers of chemistry and environmental protection. She participates in the development of master's and bachelor's programs for students in the professional field „Pedagogy of training...". She conducts lectures and exercises with sufficient number of hours in academic disciplines related to the profile of the competition. He is the author and co-author of teaching aids for students.

Ch. Assist. Prof. Dr. Antoaneta Angelacheva is scientific supervisor of diploma theses of 9 students, master's degree.

I believe that the teaching activity of the candidate corresponds to the requirements of the Law for development of the academic staff of the Republic of Bulgaria, the Regulations for application of this law, the respective Regulations of the University of Plovdiv „Paisii Hilendarski"

3.2. Evaluation of scientific and applied science activities

The works, which Ch. Assist. Prof. Dr. Antoaneta Angelacheva presents for the competition, are in the field of the Methodic of training in Chemistry. Scientific production meets the criteria of the University.

The works for participation in the competition (34 pieces) can be ranked as: 1 habilitation work, 1 monograph, 1 book, 28 articles (7 of them are in scientific writings, which are included in the world system for reviewing, indexing and evaluation) and 3 teaching aids. Published papers in scientific conferences (international and national) are in full text in reviewed journals, scientific publications, identification number and name of publisher. Eight of the publications are in a foreign language.

I consider that the research activity of the candidate fully meets the requirements of the Law for development of the academic staff of the Republic of Bulgaria, the Regulations for application of this law, the respective Regulations of the University of Plovdiv „Paisii Hilendarski“

The comparison of the scientometric data of Ch. Assist. Prof. Dr. Antoaneta Angelacheva with the national minimum requirements for area of higher education 1. Pedagogical sciences show a total of **775 points**.

The scientific publications are according to the profile of the announced competition. The analysis of their content gives grounds to accept the grouping made by the author in the following relatively different directions:

– **Educational chemical experiment**

In the habilitation work „Experiment and observation in chemistry education“ (2020) and in some of the publications (№ 4, 8, 11, 20, 24, 25, 27, etc.) the results of a long term study of the nature, place, the role and significance of the learning experiment in training in chemistry at school. Trends, ideas and methodical solutions tested in practice are revealed.

The author presents constructed cognitive models for experimental study of chemical objects in the conditions of the higher school, in order to form competencies of the students - future teachers of chemistry and environmental protection. Ideas for strengthening the research approach in science education are substantiated

. The results of the research are linked to the motivation to learn and to specific experimental activities. Methodical prerequisites for the formation of scientific literacy and competencies in the conditions of the educational chemical experiment are derived. It would be good to emphasize the methodical support of experimentation in a digital environment..

– **Envinromental education through training in chemistry at school**

Part of the research of Ch. Assist. Prof. Dr. Antoaneta Angelacheva are focused on the effectiveness of envinromental education through chemistry training in high school. In the book „Contemporary aspects of envinromental education in chemistry education in school“ (2019), which is based on research for educational

and scientific degree Doctor, the author justifies the relevance and importance of the problem. She performs an in-depth analysis and summary of scientific and practical experience in this direction. She substantiated and tests in practice a model of environmental education in the process of teaching chemistry. The author rightly considers the effectiveness of environmental education with a view to forming an ecological culture of students. Of interest are the methodical solutions and good practices for environmental education substantiated in other publications (№ 6, 7, 10, 13, 16, 28, 29, 31, etc.) in the study of specific topics from the curriculum in Chemistry and Conservation of environment.

- Organization and control of the process of training in chemistry

In some of the works Ch. Assist. Prof. Dr. Antoaneta Angelacheva defends those on the organization and control of the process of teaching chemistry. She analyzes the performed practical-applied activity on this important procedural-activity component. The traditions and the innovations in ensuring the process are most reflected in the monograph „Organizational forms of chemistry education" (2020) and articles under № 14, 15, 17, 22, 30.

The substantiated theoretical formulations are illustrated with models for plan - konspekt, for observation and analysis of organizational forms of training, control-diagnostic procedures, etc Of particular interest are the proposed methodical developments of different types of lesson and non-lesson forms. It is useful for the author to strive to apply more mathematical and statistical methods in the processing of empirical data on the effectiveness of tested methodological solutions.

The candidate's research activity is related to her participation in four research projects. The scientific and pedagogical work of Dr. Angelacheva is complemented by her co-authorship in teaching aids that are useful for the preparation of students and teachers.

3.3. Contributions and citations

The substantive analysis of the scientific production of Ch. Assist. Prof. Dr. Antoaneta Angelacheva makes it possible to highlight the scientific, scientifically applied and methodological contributions that, in my opinion, relate to:

- Modern tendencies in the educational experimentation in chemistry are presented, on a scientific basis and methodical solutions for its implementation in the conditions of school education have been tested in practice. The place and the role of the educational chemical experiment in the system of preparation of the students - future teachers of chemistry with conceptual solutions and methodical developments for its application in classroom and extracurricular activities are scientifically substantiated.
- Methodological prerequisites for achieving the effectiveness of environmental education through training in chemistry and environmental protection have been empirically proven.

- Views for modern organization and control of the process of training in chemistry with specific models of practical and applied activities and methodical support for different types of organizational forms are presented.
- Experimentally proven models for experimentation, environmental education and for organization and control of education are applicable in the educational practice of other higher education institutions that train specialists in the professional field „Pedagogy of training in" and are useful as ideas for teachers in natural sciences.

The 16 citations noted so far by the candidate refer to 13 of the papers. In number and content they meet the criterial requirements, as 5 of the citations from 2002 to 2012 are in referenced and indexed Bulgarian editions. It is noteworthy that 5 citations refer to the textbook „Active training in natural sciences" with a team of authors.

4. Assessment of the personal contribution of the applicant

I believe that the formed contributions and the obtained results are a personal merit of the candidat. The basis for this assessment is the analysis of the scientific production, professional-pedagogical, academic and overall creative development, the accompanying official statements, documents, applications and the response among the pedagogical college.

In most of the presented publications (22) Ch. Assist. Prof. Dr. Antoaneta Angelacheva is an independent author. In the first place it is in the author's team in 2 publications and in the second place - in 4 publications.

5. Critical remarks and recommendations

I recommend to Ch. Assist. Prof. Dr. Antoaneta Angelacheva to direct her future publishing activity to specialized foreign periodicals.

I propose that the issues studied by the author be linked to the emerging trends for the application of digital technologies, project activities, augmented and virtual realities in the context of blended training in chemistry and environmental protection.

6. Personal impressions

I know Ch. Assist. Prof. Dr. Antoaneta Angelacheva from her publications and participations in national forums on the theory and methodology of science education. The procedure materials reinforce my personal impression of the importance of her research.

CONCLUSION

The documents and materials presented by Ch. Assistant prof. Antoaneta Angelacheva, PhD, meet the requirements of the Law for development of the academic staff of the Republic of Bulgaria, the Regulations for application of this law, the corresponding Regulations of the University of Plovdiv „Paisii Hilendarski” and the specific requirements of the Faculty of Chemistry. The candidate has submitted a sufficient number of scientific papers that do not repeat the publications for educational and scientific degree „Doctor”. The papers have significant scientific and applied contributions, as part of the articles have been published in scientific journals included in the world system of abstracting, indexing and evaluation. Habilitation work, monograph, book and manuals have been published. Theoretical and methodological developments have practical applicability and relate to the teaching of chemistry to pupils and students. The scientific and teaching qualification and experience of Dr. Antoaneta Angelacheva is in the profile of the competition.

After getting acquainted with the materials and scientific works presented in the competition, analysis of their importance and the scientific, applied and applied contributions contained therein, I find it justifiable to give my **positive assessment and to propose to the Scientific Jury to prepare a report proposal to the Faculty Board of the Faculty of Chemistry. for the selection of Chief Assistant Professor Antoaneta Atanasova Angelacheva, PhD, at the Academic Position „Associate professor” at the Plovdiv University „Paisii Hilendarski” in professional field 1.3. Pedagogy of education in... (Methodic of training in Chemistry and Environmental Protection)**

10.09.2021 г.

Reviewer:

/ Prof. Veska Ivanova Shivacheva, DSc/