

OPINION

by **Dr. Zhelyazka Dimitrova Raykova - Professor at the University of Plovdiv "Paisii Hilendarski"**

of the materials submitted for participation in the competition
for the academic position of **'Associate Professor'**
at the Plovdiv University "Paisii Hilendarski"
in the field of higher education 1. Pedagogical sciences
Professional direction 1.3 Pedagogy of teaching ...
Scientific specialty Didactics of Chemistry

In the competition for 'associate professor', announced in the State Gazette, issue 40 from 14.05. 2021 and on the website of Plovdiv University "Paisii Hilendarski" for the needs of the Department of Educational Technologies at the Department of General and Inorganic Chemistry with the Methodology of Chemistry Education at the Faculty of Chemistry, as a candidate **Dr. Antoaneta Anastasova Angelacheva**, Chief Assistant in the same department.

1. General presentation of the procedure and the candidate

By order № P33-3163 / 13.07.2021 of the Rector of Plovdiv University "Paisii Hilendarski" I was appointed a member of the Scientific Jury.

The set of materials on electronic media presented by Dr. Antoaneta Angelacheva is in accordance with the Regulations for development of the academic staff of the University of Plovdiv and includes all necessary documents.

The candidate Dr. Angelacheva has submitted a total of **32** scientific papers, of which **2** monographs, **1** book, **28** publications, **7** articles in peer-reviewed and indexed publications, **21** articles in non-peer-reviewed scientific journals. **3** textbooks have been published - **1** co-authored and **2** independent. Documents for participation in one national and **3** university projects and **26** (**17** international) participations in scientific conferences are also attached.

The documents presented for consideration are in good technical condition and very well arranged. In terms of quantitative criteria and type and nature of the scientific production, Dr. Angelacheva meets the profile of the competition and exceeds the minimum national and faculty requirements for holding the academic position of "Associate Professor". Her research interests are in the field for which the competition has been announced - the methodology of teaching chemistry.

Ch. Assistant Professor Dr. Antoaneta Angelacheva graduated from Plovdiv University "Paisii Hilendarski", majoring in Chemistry. She has the qualifications of Chemist and Teacher of Chemistry and Chemical Technology. Ms. Angelacheva defended her dissertation for the educational and scientific degree "Doctor" in 2007. Her dissertation is on the field in which the competition is held and is on "Modern aspects of environmental education in chemistry in high school". Since 1999 he has held the positions of Assistant, Senior Assistant and Chief Assistant at the Faculty of Chemistry of the University of Plovdiv, Department of General and Inorganic Chemistry with Methodology of Chemistry Education.

2. General characteristics of the candidate's activity

Assessment of educational and pedagogical activity of the candidate

The high assessment of the educational and pedagogical activity and of the preparation of the candidate for the position of "associate professor" can be justified by her professional commitment to overfulfillment of the obligatory teaching norm. Dr. Angelacheva has prepared

and conducted training in **11** lecture courses, **2** of which are in chemistry and the remaining **9** in the Didactics of Chemistry and has led exercises in **13** different subjects. The candidate has prepared and participated in the preparation of **7** curricula and **3** textbooks on the methodology of teaching chemistry. For her successful work as a lecturer we judge by the number (9) of the defended graduates, of which she was the scientific supervisor. This determines her rich and diverse pedagogical experience, which is a reason for positive evaluation.

Evaluation of the scientific and scientific-applied activity of the candidate

Her research activity, related to the work on projects, as well as to independently organized scientific research, is a confirmation of the professional opportunities of Dr. Angelacheva in the scientific field of the competition. My high assessment of the scientific and scientific-applied activity of the candidate is a result of an analysis of the scientific works and the established scientific contributions.

The contributions of the scientific publications presented for participation in the competition can be grouped in the following thematic areas: (For each of the topics there is a published book, skill for systematization and summary).

- *Educational chemical experiment* (Publications №1, 4, 8, 9, 11, 24, 25, 26, 27, 31, 32, 33)

On this topic is the monograph presented as a habilitation thesis entitled "The experiment and observation in chemistry education" (*Angelacheva, A. (2020). The experiment and observation in chemistry education. Plovdiv, Macros, p. 157, ISBN 978-954 -561-503-0*). The book impresses with its logical structure, scientific precision and clarity of style. The huge number of used literature sources allows the review made in the first chapter to be argued and detailed. I highly appreciate the summary and analysis of basic concepts related to science literacy, as well as the methods of knowledge with an emphasis on scientific experiment and scientific observation.

The analysis of the various definitions made in the second chapter for the methods of training as a component of the training process, I evaluate their characteristics as very useful and speak for the scientific maturity of Dr. Angelacheva.

The content of the third chapter has a more applied character and is related to the educational chemical experiment. Its didactic functions are described, requirements for its successful implementation are systematized and a classification of the different types of educational chemical experiment is made. Special attention is paid to solving experimental-logical problems in chemistry and to observation as a method of teaching.

I see a significant applied contribution in the content of the fourth chapter, where a methodology for preparing teachers for the use of the teaching experiment in teaching chemistry has been developed. The constructed cognitive models are very useful both for the training of students, future chemistry teachers, and for current teachers. The effectiveness of these models was proven by an experiment, the data of which were statistically processed, which determines the reliability of the conclusions.

- *Environmental education in chemistry education in secondary school* (Publications № 3, 5, 6, 7, 10, 13, 15, 16, 20, 21, 23, 28, 29, 30, 31)

This direction is related to the candidate's dissertation thesis and makes a good impression that the interest in it is sustainable.

The book published in this direction (*Angelacheva, A. (2019). Contemporary aspects of environmental education in the teaching of chemistry in high school. Plovdiv, UI "Paisii Hilendarski", p. 110, ISBN 978-619-202-527 -4*) adds new accents to the theory and practice of teaching chemistry and environmental protection by offering a theoretically substantiated didactic model, supported by rich didactic material for the implementation of environmental education in the process of teaching chemistry. The ideas presented in the monograph for the

implementation of environmental education in the process of teaching chemistry have theoretical and practical significance and are important for the training of future chemistry teachers.

- *Organization and control of the process of teaching chemistry* (Publications № 2, 12, 14, 17, 18, 19, 22)

Dr. Angelacheva's experience and views related to this area are summarized in the book "Organizational forms of chemistry education" (Angelacheva, A. (2020). *Organizational forms of chemistry education*. Plovdiv, Macros, ISBN 978-954- 561-513-9.) The problem of organizational forms of education is given special attention in research for the development and improvement of education. The book competently and scientifically argues the organizational elements of the chemistry lesson, summarizes the features for classification of types of lessons and develops a model plan-summary of a chemistry lesson, supported by many specific methodological developments.

In general, I give a categorically high assessment of the scientific and scientific-applied production presented by Dr. Angelacheva in the field of the Didactics of Chemistry. In support of this overall assessment of the scientific contributions, the fact that the candidate's works have been cited in **16** publications can be cited.

The presented reference for fulfillment of the minimum national requirements for holding the academic position of "Associate Professor" shows that the candidate overlaps the requirements for the different groups of indicators. The review of the reliability of the presented data and evidence convinces me of their truthfulness and correctness.

3. Critical remarks and recommendations

I have the following recommendation for the scientific and teaching activity of the candidate: For her future professional development it is good for Dr. Angelacheva to direct her efforts to more active participation in project activities. This will enable her to do more empirical research and work with different specialists and teachers and will enrich her with new ideas.

We work with Dr. Antoaneta Angelacheva at the same university and train the same students. We have had excellent collegial relationships over the years and I believe that she is a conscientious, ethical and disciplined scientist and colleague.

CONCLUSION

The documents and materials submitted by **Ch. Assistant Professor Dr. Antoaneta Anastasova Angelacheva** meet all the requirements of the Law for the Development of the Academic Staff in the Republic of Bulgaria (ZRASRB), the Regulations for implementation of ZRASRB and the relevant Rules of PU "Paisii Hilendarski".

The candidate in the competition has submitted a **sufficient** number of scientific papers published after the materials used in the defense of ONS "Doctor". The candidate's works contain original scientific and applied contributions, which have received international recognition, some of which have been published in journals and scientific journals published by international academic publishers. Her theoretical developments have practical applicability, as most of them are directly oriented to the educational work. The scientific and teaching qualification of *Ch. Assistant Professor Dr. Antoaneta Anastasova Angelacheva* is **undoubted**.

After getting acquainted with the materials and scientific works presented in the competition, analysis of their significance and contained in them scientific, scientific-applied and applied contributions, I find it reasonable to give my positive conclusion and to recommend to the Scientific Jury to prepare a report-proposal to the Faculty Council of the Faculty of

Physics and Technology for selection of Dr. Antoaneta Anastasova Angelacheva to the academic position of "Associate Professor" at the University of Plovdiv "P. Hilendarski "by professional field 1.3. Pedagogy of teaching ... (Didactics of Chemistry).

10.09. 2021

Prepared the opinion:
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