



STATEMENT

from

Assoc. Prof. Dr. Vanya Atanasova Boycheva (Birdanova), MD, PhD

Department of Hygiene, Medical Ecology, Occupational Diseases and Disaster Medicine, Faculty
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REGARDING: dissertation thesis for awarding of the educational and scientific degree "Doctor" to Daniela Dimitrova Stankova-Kostadinova, full-time doctoral student, doctoral student of independent training at the National Center for Public Health and Analysis (NCPHA)

1. Overview of the procedure

By Order № RD-21-/15.01.2024 of the Director of the NCPHA, I have been elected as an external member of the Scientific Jury. This is in connection with a dissertation on the topic: "Study of the content of total mercury in various environments of importance for human health and for the environment". This is for obtaining the educational and scientific degree "Doctor" in the field of higher education 7. "Health and Sport", professional field 7.1 "Medicine", doctoral program "Hygiene" (incl. Labor, communal, school, radiation, etc.) with author Daniela Dimitrova Stankova-Kostadinova. The Research Supervisor of the dissertation thesis is Assoc. Prof. Rositsa Borisova Gergieva, MD, PhD.

The doctoral student has submitted all the necessary documents in accordance with the requirements of the Law for the development of the academic staff of the Republic of Bulgaria and the Regulations for the development of the academic staff of NCPHA.

2. Professional development of the candidate

Daniela Dimitrova Stankova-Kostadinova was born on January 22, 1971 in Sofia. She graduated in 2001 at the University of Chemical Technology and Metallurgy with a master's degree in "Materials Technology and Materials Science". Since 2012 and currently, she is a chief expert at the "Chemical Factors" department, National Center for Public Health and Analysis (NCPH). She has a diploma in specialty "Medical Sanitary Chemistry" (2019) and certificate of completed specialized training in general toxicology - Eurotox Education course "Basic toxicology", European Society of Toxicology and Bulgarian Toxicological Society (2006 г.). Daniela Stankova-Kostadinova speaks English.

3. Structure of the dissertation thesis

The present work is current, both from a scientific and a practical point of view. The topic of the dissertation is dedicated to the mercury – nonessential element for the human organism, recognized as a global pollutant of the environment due to the adverse effects to human health and the ecosystems. The quantification of mercury content in different environments and data on their use are the basis of health risk assessment, which determines the relevance of the problem presented in this dissertation. The dissertation, presented on 121 standard pages, embodies the qualities of a thoroughly completed scientific product and is complemented by 39 tables and 15 figures, enhancing the precision of presenting the obtained results. The bibliographic reference includes 214 literary sources, of which 169 are in Latin and 45 in Cyrillic and 28 % of the total number of reviewed articles are from the last five years. The exposition is clear, the structure of the dissertation work is properly constructed, and the separate sections are well balanced. The literature review occupies 33 pages, covers all aspects of the given topic and logically brings out the argumentation for conducting the scientific study. The presented data on the physico-chemical properties, occupational exposure and non-occupational exposure, toxic action, mercury content in various environments: water, food, cosmetic products, soils and sediments, polymeric materials, the legislation and analytical methods for its determination in the review are problematically structured and supported by a large number of literary sources, which shows the doctoral student's good awareness of the scientific discussion on the topic in modern literature. The aim of the dissertation is clearly defined: to optimize and validate methods for the determination of total mercury by direct analyzer of solid and liquid samples and to apply them to the safety assessment of various media of importance to human health and the environment. The set 3 tasks, 2 tasks with 6 subtasks, are well formulated and fully sufficient to achieve the goal of the scientific research.

The material used is extremely extensive in volume and includes a total of 2583 samples from different environments as follows; cosmetic products - 1051 samples; foods and food additives - 227 samples; waters - 998 samples; soils – 104 samples; sediments – 109 samples; polymeric materials – 94 samples. The attached EPA 7473 "Method for the direct determination of mercury in solid and liquid samples", which is based on the principle of atomic absorption spectrometry, allows obtaining objective and reliable results for the studied pollutant. The results of the study are presented and competently discussed in 2 chapters, each of which has 6 sub-

chapters and logically lead to 9 main conclusions which I accept. They fully meet the objectives and emphasize the main achievements of the dissertation.

4. Contributions of the dissertation thesis

The contributions of the dissertation are well formulated and are the result of the research. Doctoral student Stankova-Kostadinova outlined 5 scientific contributions, which I fully accept. A systematic and thorough analysis of mercury content in different environments was carried out by applying an optimized and validated modern method. Compliance with the requirements of European and national legislation regarding mercury content in the studied environments was evaluated. The summarized and systematized information on the presence of mercury in the studied environments can be used to fulfill Bulgaria's commitments in implementing Regulation (EU) 2017/852, as well as to take preventive actions. A particularly valuable scientific and applied contribution is the resulting quantitative information on the actual population's exposure to mercury, facilitating the assessment of exposure and health risks.

5. Publications related to the dissertation thesis

Daniela Stankova-Kostadinova has presented 5 scientific publications and 9 participations in prestigious national forums. All materials are related to the dissertation thesis.

6. The author's abstract

The presented author's abstract fully meets the requirements and accurately summarizes the scientific research carried out by Daniela Stankova-Kostadinova.

In conclusion, the dissertation of Daniela Dimitrova Stankova-Kostadinova presented to me for opinion, contains scientific and scientific-applied results that make a contribution to science and fully meet the requirements for the award of educational and scientific degree "DOCTOR".

On this basis, I vote "yes" and invite the members of the esteemed Scientific Jury to vote positively for the awarding the educational and scientific degree "DOCTOR" in doctoral program "Hygiene" (incl. Labor, communal, school, radiation, etc.) of Daniela Dimitrova Stankova-Kostadinova.

With respect:

Assoc. Prof. Dr. Vanya Boycheva (Birdanova), PhD

12.02.2024