

To
The Chairman of the Scientific Jury,
appointed by Decree No. R-109-260/15.05.2023
by the Rector of Medical University "Prof. Dr. Paraskev Stoyanov"
City of Varna

REVIEW

by Associate Professor Dr. Svetlozar Spasov Spasov, MD - Head of the Department of Forensic Medicine and Deontology of the Medical University - Plovdiv,

Regarding the procedure for the defence of a doctoral dissertation by Dr. Deyana Georgieva Velkova in the field of higher education area

7. Healthcare and Sports, professional direction

7.1. Medicine,

Medical specialty-03.01.59 "Forensic Medicine and Deontology" - full-time doctoral student in the Department of "General and Clinical Pathology and Forensic Medicine and Deontology" of the Medical University "Prof. Dr. Paraskev Stoyanov", Varna.

With Protocol No. 410 dated April 27, 2023, from the first meeting of the scientific jury, I have been assigned to prepare a review of the scientific work authored by the candidate Dr. Deyana Georgieva Velkova, as part of the procedure for obtaining the educational and scientific degree of "Doctor" at Medical University - Varna.

Attached herewith is the review of the dissertation titled "Forensic Medical Identification using Earlobe Characteristics" for the award of the degree of "Doctor" in Medicine, scientific specialty: Forensic Medicine and Deontology, authored by Dr. Deyana Georgieva Velkova, a regular form Ph.D. student in the Department of "General and Clinical Pathology, Forensic Medicine and Deontology" at Medical University - Varna.

Field of higher education: **7. Healthcare and Sports.**

Professional direction: **7.1. Medicine.**

Doctoral program in the scientific specialty **03.01.59 "Forensic Medicine and Deontology"** (accredited specialty by the National Evaluation and Accreditation Agency for Medical University - Varna).

I. Procedure Details

Dr. Deyana Georgieva Velkova is an assistant in the Department of "General and Clinical Pathology, Forensic Medicine and Deontology" at Medical University - Varna.

She was enrolled in the same department as a *regular form Ph.D.* student, pursuing the educational and scientific degree of "Doctor" in the scientific specialty of "Forensic Medicine and Deontology," as per the enrolment order issued by the Rector of Medical University - Varna, Decree No. R-109-449/28.10.2020. The project is supervised by Assoc. Prof. Dr. William Dokov, MD.

With Protocol No. 410/127.04.2023, Dr. Velkova has been *dismissed with the right to defend her dissertation* after receiving a positive evaluation of her work from the academic staff of the department.

The dismissal with the right to defend was carried out based on a decision of the Faculty Council of the Faculty of Medicine, Protocol No. 2/04.05.2023, regarding the submitted reports with ref. No. 102-1048/27.04.2023 by Assoc. Prof. Dr. Deyan Lyudmilov Dzhenukov, MD, Head of the Department of "General and Clinical Pathology, Forensic Medicine and Deontology," and report with ref. No. 103-2078/09.05.2023 by Prof. Dr. Yoto Yotov, MD, Dean of the Faculty of Medicine at Medical University - Varna.

The procedure for the dismissal with the right to defend of the Ph.D. student Dr. Deyana Georgieva Velkova has been finalized with Decree No. R-109-260/15.05.2023.

The procedures for the enrollment and dismissal of Dr. Deyana Georgieva Velkova as a regular form Ph.D. student in the Department of "General and Clinical Pathology, Forensic Medicine and Deontology" at Medical University - Varna, in the field of higher education: **7. Healthcare and Sports**; professional direction: **7.1. Medicine**; doctoral program in the scientific specialty **03.01.59 "Forensic Medicine and Deontology"** (accredited specialty by the National Evaluation and Accreditation Agency for Medical University - Varna), **have been conducted in accordance with** the requirements of the Higher Education Act and the Regulations on the Conditions and Procedures for Obtaining Scientific Degrees and Occupying Academic Positions at Medical University "Prof. Dr. Paraskev Stoyanov" in Varna.

The materials submitted by the candidate in electronic format **for the preparation of the review, as well as the dissertation and abstract in paper format**, are in accordance with the requirements of the Higher Education Act and the Regulations on the Conditions and Procedures for Obtaining Scientific Degrees and Occupying Academic Positions at Medical University "Prof. Dr. Paraskev Stoyanov" in Varna.

II. Biographical data, career development, achievements

1. Date of birth: October 22, 1991, in Kyustendil, Bulgaria.

2. Higher education:

- 2010-2016: Master's degree in Medicine, Medical University "Prof. Dr. Paraskev Stoyanov" - Varna, Bulgaria.

3. Specialization:

- 2017-2021: Specialization in Forensic Medicine at Medical University - Varna. Obtained a medical specialty in Forensic Medicine and Deontology.

4. Positions held:

- 2016-2021: Physician at the SOS Center, "Dream Business Solutions" Ltd.

- 2017-2021: Resident Physician at the Clinic of Forensic Medicine, University Hospital "St. Marina" EAD, Varna, Bulgaria.

- 2021-present: Specialist in Forensic Medicine at the Clinic of Forensic Medicine, University Hospital "St. Marina" EAD, Varna, Bulgaria.

- 2017-2021: Assistant; in 2023 - Honorary Lecturer, Medical University "Prof. Dr. Paraskev Stoyanov" - Varna, Bulgaria.

5. Short-term specializations: both in Bulgaria and abroad.

6. Teaching experience: Conducted classes in the field of forensic medicine and deontology for medical and dental medicine students.

7. Membership in organizations:

- International Academy of Legal Medicine.

- Forensic Anthropology Society of Europe.

- British Association for Human Identification.

- Bulgarian Society of Forensic Medicine.

- Bulgarian Medical Association.

8. Language proficiency: Intermediate level in English.

III. Position on the Dissertation

Regarding the topic - *essence and title of the work*

The problem of personal identification discussed by the doctoral candidate is fundamental to forensic medicine science and practice. The historical aspects of human identification are highly interesting and encompass numerous attempts by various scholars to standardize certain characteristics of the human body and qualify and systematize features, measurements, and indicators that allow for the establishment of the identity of an expert object (a person) or their remains, both soft tissue and skeletal.

The persistent efforts of French police officer and biometric researcher Alphonse Bertillon, who developed and created a system of identification based on physical measurements in the mid- to late 19th century, are well known. His goal was to analyse and systematize anthropobiometric data for the purpose of identification. During its time, this system was effective and widely used until the discovery of newer and more accurate identification methods.

Following in history, we have the fields of dactyloscopy, cranial measurement, and osteometry. In the 20th century, blood group and serological examinations, as well as examinations of hair and fibres, gained importance. Forensic odontology also progressed, with dental status identification becoming a matter of state policy in some countries.

With the scientific discovery of DNA, it became the primary method of identification from the late 20th century to the present day.

In the Republic of Bulgaria, key researchers in the field of identification include Prof. Y. Yordanov, Prof. D. Radoynova, Prof. Dr. Ivan Doychinov, Assoc. Prof. Dr. Pavel Timonov, and others.

The presented scientific project directs the attention of the scientific community to something new not only for the country but also for the world. This research is significant in debunking scepticism regarding the topic expressed by some authors.

A great deal of effort and energy has been invested, which is an exceptional merit of the chosen research topic. The obtained results can be used to validate other studies and, after a certain proven practical relevance of the methodology, as an independent method of identification.

Upon reviewing the presented materials, the exceptional perseverance of the author and their scientific supervisor in overcoming various methodological and result standardization issues is evident.

Familiarity with the topic:

The introduction to the topic sufficiently propaedeutic, defines the problem and substantiates the idea of the research project.

The literature review comprises 40 pages, which accounts for 35.1% of the entire work, representing a standard relative share of this part of the research. The literature review is comprehensive, containing sufficient data that motivated the author's choice of the topic, explaining the issues, and providing essential theoretical information on the subject. Authors from the country and around the world are presented. The effort made by the researcher to cover all aspects of the topic, which would be useful in proving the null hypothesis, is impressive. Data from textbooks, encyclopaedias, monographs, and popular science sources of various ages are used, covering almost all scientific knowledge related to the research.

A substantial and high-quality literature database is cited. The bibliography contains 123 correctly referenced literary sources, with 22 in Cyrillic and 101 sources in foreign languages. The review has a good structure, arrangement, and style. All aspects relevant to the topic and the subsequent research are addressed. At the end of the review, a brief analysis and conclusions are made, substantiating the essence of the topic and its purpose.

The goal of the dissertation work corresponds to the topic and the set tasks for its achievement.

The tasks of the research are relevant to the goal, well organized, specific, clear, and precise.

The materials and methods are suitable for achieving the goal and accomplishing the tasks, as well as for the overall development of the topic. A significant strength of the work is the development of a statistical chart for data integration and subsequent analysis.

Another notable strength of the work is the developed methodology for photographic examination and documentation of the results, which is evidently a result of in-depth analysis of the primary outcomes and continuous refinement of the methodology to achieve an excellent final result in this regard.

The methods are described in a 5-page section, including photographs and graphical material. They are well explained, and even for the uninformed reader, their description is useful and essential for evaluating the entire project.

Own research and results:

The results of the conducted analysis are presented both in textual and partially in graphical form. They are clear, specific, and aligned with the set tasks and the goal of the work. The relevant conclusions have been drawn from the available database and are presented in an understandable and clear manner.

It should be noted that the statistical processing of the measured values is exceptionally well done and well presented, both in text and graphical form.

Formulated conclusions, recommendations, conclusion and claimed contributions are presented in separate chapters. They are clear, relevant, correct and true. I accept all stated contributions as genuine. The scientific work has a unique informational contribution for the Bulgarian population, being a good theoretical-practical basis for future work in this direction with a practical verification of the established results with the aim of routinely introducing the methodology in forensic medicine and forensic practice, when this is needed as an additional identification method.

I have almost no critical notes. The language and style of the work are strictly according to the rules of the scientific style and communicate the information concisely and clearly. The information is new for Bulgaria, and the research itself for expert purposes is new.

IV. Evaluation of mandatory publications on the subject of dissertation work:

The dissertation student submits an independent peer-reviewed article:

Velkova D., Sex differences in anthropometric study of the auricle, Varna Medical Forum, 11 (2), 168-173.

In addition, the dissertation student presents a poster from participation in a scientific conference:

Velkova D. The external ear as a tool for human identification – a review. Spring Conference "Identification of the Living", British Association for Human Identification (BAHID), 10th April 2021

They have the necessary scientific value and present stages of the preparation of the dissertation work.

V. The abstract meets the scientific requirements for this form and reflects the conducted research, results, conclusions and stated contributions.

VI. Overall rating:

The presented dissertation work of Dr. Deyana Georgieva Velkova is in a volume of 114 pages, including 39 tables and 40 figures, 2 appendices.

The bibliography contains 123 correctly indicated literary sources, 22 of which are in Cyrillic and 101 sources in foreign languages.

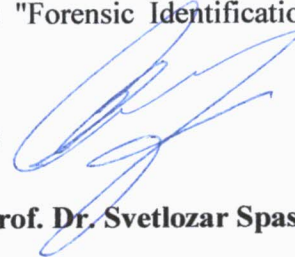
The work is written in grammatically and stylistically sound language, structured in the sections required by law - introduction, literature review, purpose, tasks, hypotheses, research material and methodology, results and discussion, conclusions, conclusion, contributions, bibliography, which is in accordance with the legal requirements for such work.

The discussion, conclusions, recommendations and conclusion in the dissertation work of Dr. Velkova fulfils the purpose and tasks and forms a relatively clear position of the author on the discussed problem, based on the obtained results. The conclusions drawn are clear, concrete and reflect the fulfillment of the topic, purpose and tasks of the dissertation work. The working hypotheses of the work has been proven.

All this gives me reasons to recommend to the members of the Scientific Jury to vote **positively** for the awarding of the **educational and scientific degree "Doctor"** in Forensic Medicine and Deontology to Dr. Deyana Georgieva Velkova for her dissertation "Forensic Identification by the Auricle" .

06.06.2023

Signed:



Assoc.Prof. Dr. Svetlozar Spasov, MD

