STATEMENT

by

Prof. Georgi T. Tomov, DDS, PhD

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Appointed by Order No. P-109-537/07.08.2025 as a member of the scientific jury for the procedure for awarding the educational and scientific degree **Doctor (PhD)** in Professional Field 7.2. *Dental Medicine*, PhD Program in *Therapeutic Dentistry*

Author: *VELISLAVA DEYANOVA SLAVOVA*

Form of Doctoral Studies: Full-time PhD student

Department: Periodontology and Dental Implantology, Faculty of Dental Medicine, Medical University – Varna

Thesis title: *CORONARY ARTERY PATHOLOGY IN PATIENTS WITH PERI-IMPLANTITIS*

Scientific supervisor: Prof. Stefan Vasilev Peev, DDS, DSc, PhD

1. General Overview of the Procedure and the Doctoral Candidate

The review of the submitted documents confirms that the procedure for the doctoral candidate's enrollment and the procedure for announcing the public defense have been conducted in accordance with the requirements of the Act for the Development of the Academic Staff in the Republic of Bulgaria, its Implementing Regulations, and the Regulations on the Conditions and Procedures for Awarding Academic Degrees and Academic Positions at the Medical University – Varna..

2. Brief Biographical Data of the Doctoral Candidate

DR. VELISLAVA DEYANOVA SLAVOVA graduated in 2019 from the Faculty of Dental Medicine at the Medical University "Prof. Dr. Paraskev Stoyanov" – Varna, obtaining a Master's degree in Dental Medicine. At the time of the competition, she is employed as an Assistant Professor at the Department of Periodontology and Dental Implantology, Faculty of Dental Medicine, MU – Varna, where she conducts classes in Periodontology and Dental Implantology. In 2020, she was enrolled as a full-time doctoral student with a dissertation topic Pathology of Coronary Arteries in Patients with Peri-implantitis. Since 2024, she holds a specialty in Dental Implantology. In connection with her dissertation, the candidate has published **3 full-text scientific papers**.

3. Relevance of the Topic and Appropriateness of the Objectives and Tasks

Peri-implantitis is classified among the late biological complications of implant treatment. Essentially, it represents a plaque-induced inflammatory process in the peri-implant tissues accompanied by bone resorption. The presence of an inflammatory focus and a retentive surface (the implant surface) conducive to persistent bacterial biofilm formation provides a potential trigger for distant adverse systemic effects, including cardiovascular pathology (CVP). Such effects may be provoked either by the direct translocation of pathogenic microorganisms or by the release of pro-inflammatory cytokines from the peri-implant inflammatory lesion into the bloodstream. PCR analyses of atherosclerotic plaques support both mechanisms.

Nevertheless, a definitive causal relationship between peri-implantitis and cardiovascular disease has not yet been established. Given the widespread use of implant treatment in adult patients, any approach capable of reducing the risk of initiation and progression of cardiovascular disease – and in particular, coronary artery pathology – should be considered. Therefore, I regard the chosen topic as highly relevant, and the aim and tasks formulated for its achievement as appropriate and justified.

4. Knowledge of the Problem

The literature review comprises 20 pages and is based on 179 references (1 in Cyrillic and 178 in Latin script). The candidate provides a systematic overview of the topic, including the etiology and pathogenesis of peri-implantitis, a comparison between peri-implant and periodontal infections, risk and modifying factors for peri-implantitis, as well as the microbiological composition of the purple and red Socransky complexes (Aggregatibacter actinomycetemcomitans, Porphyromonas gingivalis, Tannerella forsythia, and Treponema denticola). The review concludes with a discussion of the presumed link between coronary artery pathology (specifically atherosclerosis associated with peri-implant infection) and the hypothesized mechanisms that may associate peri-implantitis with cardiovascular disease.

5. Research Methodology

The aim is formulated as a working hypothesis, postulating a role of periodontal pathogens in the etiology of coronary stenosis in patients with dental implants. The four research tasks are logically selected and well described. The clinical material is sufficient, comprising 37 implantology patients (Group 1) and 51 periodontology patients (Group 2), all male, hospitalized at the Second Clinic of Cardiology of University Multiprofile Hospital for Active Treatment “St. Marina” – Varna. Task 1 is analysis of the patients’ general health status and peri-implant tissue condition, together with selective coronary angiography. Task 2 is investigation of the association between the presence (detected via real-time PCR) of Porphyromonas gingivalis, Aggregatibacter actinomycetemcomitans, and Treponema denticola and peri-implant inflammation. Task 3 is assessment of the correlation between peri-implant infection and the SYNTAX Score index. Task 4 is comparative analysis of the severity of coronary artery pathology between patients with peri-implantitis and those with periodontitis.
Data processing and analysis were performed using IBM SPSS Statistics version 25.0 (Chicago, IL, USA) and Jamovi Statistical Software, with MS Excel 2013 used for graphical analysis. The methods and research design are thoroughly described, and the statistical techniques are appropriately selected, ensuring the validity of the conclusions.

6. Characteristics and Evaluation of the Dissertation

The dissertation consists of 121 pages, illustrated with 60 tables, 10 figures, and 7 appendices. The bibliography includes 179 references (1 in Cyrillic, 178 in Latin script).

The dissertation begins with a literature review, which concludes with a concise outline of the presumed mechanisms linking peri-implantitis and cardiovascular disease, corresponding to the working hypothesis (research aim). Following the formulation of the aim and the four tasks, the candidate presents the materials and methods employed in the dissertation. The results from the clinical, paraclinical, and statistical investigations are clearly described and are supported by well-structured tables, figures, and appendices.

Based on the results obtained from the four research tasks and the conclusions drawn, it may be asserted that the dissertation provides new and significant evidence supporting the hypothesis of an association between the presence of peri-implantitis and coronary artery involvement, indicating an increased risk of myocardial infarction. The findings expand the existing knowledge in this field and provide directions for future studies (the conclusion regarding the association between peri-implantitis and early-stage kidney disease is of particular interest). The discussion and comparison of the obtained data with analogous findings from the literature are logical and well reasoned. The conclusions are reliable and reflect the contributions of the dissertation..

7. Contributions and Significance for Science and Practice

Twelve contributions in various categories are formulated, of which I partially accept. Among the original contributions, the most significant is the demonstrated correlation between specific microorganisms isolated from peri-implant tissues and the SYNTAX Score I. Contribution No. 3 from the “Original Contributions” section requires refinement.

8. Evaluation of the Publications Related to the Dissertation

In connection with her dissertation, Dr. Slavova has published three full-text papers. Since these were published in 2024–2025, no citation data are available yet, and their impact is yet to be assessed.

9. Personal Contribution of the Candidate

The doctoral candidate’s personal participation in the research, the obtained results, and the formulated contributions are unquestionable.

10. Author’s Abstract

The author’s abstract accurately and concisely reflects the structure and content of the dissertation.

11. Critical Remarks and Recommendations

The early-stage kidney disease identified by the candidate in both patient groups (peri-implantitis and periodontitis) is not accurately reflected in Contribution No. 3 from the "Original Contributions," where kidney disease is associated solely with peri-implantitis. Furthermore, the possible pathogenetic mechanisms of this kidney disease are not analyzed; in patients with arterial hypertension (as is the case in this study), it is unlikely that the kidney disease is solely attributable to periodontal/peri-implant infection.

12. Recommendations for Future Application of the Dissertation's Results

I believe that Dr. Slavova can and should continue her research on this topic. It is also important to maintain educational and awareness campaigns to engage dental professionals with this subject and to highlight the importance of integrated cardio-dental care for patients at increased inflammatory and vascular risk. This may take the form of lectures within the continuing education program at the Faculty of Dental Medicine – Varna.

CONCLUSION

The dissertation has resulted in **scientifically and practically significant findings that constitute a contribution to science** and **meet all the requirements** of the Act for the Development of the Academic Staff in the Republic of Bulgaria, its Implementing Regulations, and the regulations of MU – Varna. The submitted materials and dissertation results **fully comply** with the specific requirements of MU – Varna.

The dissertation demonstrates that DR. VELISLAVA DEYANOVA SLAVOVA possesses solid theoretical knowledge and professional skills and demonstrates the ability to conduct independent scientific research.

For these reasons, **I confidently express my positive evaluation** of the research, the dissertation, the author's abstract, and the contributions achieved, and **I recommend to the esteemed scientific jury that the educational and scientific degree Doctor be awarded** to VELISLAVA DEYANOVA SLAVOVA in the PhD Program in Therapeutic Dentistry.

07. 09. 2025

Reviewer: .....

Prof. Georgi T. Tomov, DDS, PhD