

STATEMENT

from

Assoc. Prof. Ilian Vangelov Hristov, DMD, PhD, Department of Prosthetic Dentistry, FDM - Plovdiv, internal member of the Scientific Jury, elected by a decision of a meeting of the Faculty Council at FDM at MU - Plovdiv under Protocol № 5/23.072021г. and by order of № P –1442/07.09.2021г. of the Rector of MU - Plovdiv, regarding a dissertation on the topic:

Comparison of two types of presceramics with different composition of the crystalline phase

for awarding the educational and scientific degree "Doctor" under the doctoral program "Prosthetic dental medicine" in the professional field 7.2. Dental medicine in the field of higher education 7. Health and sports.

PhD student in self- study **Dr. Elena Kostadinova Vasileva**, assistant-professor in the Department of Prosthetic Dentistry, SPF, MU - Plovdiv.

Scientific supervisor: **Prof. Dr. Angelina Vlahova, DMD, PhD**

General presentation of the procedure and the doctoral student

The presented set of materials on paper and electronic media is in accordance with the procedure and regulations for acquisition of ONS "Doctor" of MU - Plovdiv.

Dr. Elena Kostadinova Vasileva was born on July 7, 1985 in the town of Asenovgrad. She graduated the Vasil Levski Secondary School in Smolyan with a degree in biology, chemistry and German in 2004. In 2010 she graduated the Medical University of Plovdiv with a degree in Dental Medicine. Since 2012 she has been practicing the profession in private practice. In 2016, after passing a competitive exam, she started working as an assistant-professor in the Department of Prosthetic Dental Medicine, MU - Plovdiv, where she still works today. Her interests are focused on removable and non- removable prosthetics, the problems is dental materials science, in particular the new ceramic masses, their production, processing and application. She has successfully passed a doctoral school at MU - Plovdiv. Active member of BDU.

Structure of the dissertation

The dissertation presented to me for review is written on 178 pages, includes 10 tables, 68 figures. 291 literary sources are cited, of which 33 in Cyrillic and 158 in Latin.

Relevance of the topic, purpose and tasks

The topic of the dissertation is undoubtedly relevant, as ceramic masses are an interesting, increasingly popular material because of their superior aesthetic qualities. The problems with the mechanical strength indicators are solved in different ways and one of them is by adding an additional amount of zirconium dioxide, without affecting the optical properties. The goal and tasks are correctly and precisely formulated. With the implementation of the five tasks set by the doctoral student, some of the gaps in the previous research of other authors are filled .

Analysis of the literature review

The literature review is quite voluminous and detailed, covering 54 pages. Starting with a historical review, going through a detailed classification, taking into account the mechanical and optical properties, the dissertation emphasizes the indications and contraindications of different types of ceramic masses. A basic review of an interesting method for detecting micro-roughness on the surface of materials, namely profilometry, was made. **Dr. Vasileva** also applies this method in solving the tasks set in the dissertation.

Analysis of the set goal and related tasks

After a critical analysis of the literature review, the doctoral student sets a precise and clear goal, namely: to make a laboratory comparative evaluation of presceramics systems with crystalline phase of lithium disilicate and lithium silicate. To fulfill the main goal of the dissertation, **Dr. Vasileva** sets four tasks. The materials and methods used in the research are described in details.

In the first task: There is a serious deficit in the knowledge of DMD about the types of ceramic masses, their properties and origin. The use of ceramics as a material for making single crowns, bridges and veneers is poorly represented. It turns out that an adjustment already cemented structure is difficult and impossible

task for most DMD and when required and is limited solely to the coating and polishing.

In the second task: A key to better compressibility of LSC is the smaller particle size. This sets and better accuracy of structures. It is found that: LSCs have better compressibility than LDCs.

Third task: From an aesthetic point of view, both types of studied ceramics have similar indicators. Values for the reflection coefficient and the degree of light absorption are lower in LSC.

In the fourth task: 2D measurement of roughness parameters was made with the help of a classical profilometer . The aim of the study was to evaluate the effect of the polishing protocol on the smoothness of glass-ceramic structures after correction with two types of burs. It has been found that no polishing protocol can achieve the smoothness of the glazed surface. The type of the used bur, the addition of a diamond polisher paste and time spent polishing affect the topography of the ceramic surface .

The fifth task confirmed that: and the use of a fine-grained bur produces a smoother surface after polishing. The use of diamond paste improves the polishing result. It is also important to note that regardless of the polishing protocol, a maximally smooth surface can only be obtained by adjusting the corrected ceramic surface under laboratory conditions. An important conclusion from a practical point of view is that LSCs have a better ability to polish than LDCs !

Contributions:

The doctoral student completes the dissertation with seven contributions of a confirmatory and three of a scientifically-applied nature. The most important of them are: for the first time in our country a method for determining the compressibility of press ceramics is created , as well as a methodology for studying the optical and mechanical properties of LSC; confirmed the finding that the particle size in the composition of the ceramic material has influence on its properties ; LDSC and LSC demonstrate similar optical properties, determining their high aesthetic performance.

Publication activity of the doctoral student

Four full-text publications are presented / one in print / two in Bulgarian, one in Russian and one in English. PhD student has taken part in three Scientific forums, based on successfully implemented universitetski project BUT - 10/2020.

Abstract

The presented abstract contains 67 pages and meets all requirements and reflects the goals, objectives, conclusions and contributions related to the dissertation.

CONCLUSION

The dissertation on "Comparison of two types of presceramics with different composition of the crystal phase" contains scientific and applied results, representing an original contribution to science and fully meets the requirements of the Law on the Development of Academic Staff in the Republic of Bulgaria / ZRASRB / for application of ZRASRB and the Regulations of MU - Plovdiv.

From the provided material it is clear that the doctoral student has made a detailed and comprehensive analysis of the literary facts. She got acquainted thoroughly with the materials and methods of research. The contributions are significant and with a high practical application. The dissertation indisputably proves that **Dr. Elena Kostadinova Vasileva** has in-depth theoretical knowledge and practical skills in the specialty "Prosthetic Dentistry" by demonstrating qualities and skills for independent research and interpretation of the results.

As a result of the above mentioned, I will vote convincingly and categorically "**Possitive**" the award of the educational and scientific degree "**PhD**" to **Dr. Elena Kostadinova Vasileva** in the doctoral program "Prosthetic dental medicine" in the professional field 7.2. Dental medicine in the field of higher education 7. Health and sports.

Prepared the statement:



16.09.2021г.

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