EVALUATION OF DIPLOMA THESIS

Student´s name: Ulhas Balasaheb Sangave

Title of thesis: Production of vascular grafts for tissue engineering

Thesis supervisor: Ing. Petra Honzíková (Harciníková)

1. Evaluation of diploma thesis

Evaluation	A	A-	B	B-	C	F
Fulfillment of aim and the assignment of work					x	
Choice of keywords			x			
Quality of the research part					x	
Methodology of the work					x	
Evaluation of the typographic level of the work. The correct division into subchapters					x	
Evaluation of the stylistic level of the work					x	
Consistency in explaining the meaning of abbreviations and symbols					x	
Correct quotation of the sources		x				

*Mark correct grade by using **x** in the corresponding cell.*
The overall subjective evaluation gives the final review of the supervisor of the diploma thesis.
The classification of work in point 5 is given verbally, not numerically, or by letter.

2. Comments and remarks on the diploma thesis

Due to the situation of Covid-19 and time-consuming practical procedures, this diploma thesis was written only theoretically. The student Ulhas Sangave and the supervisor Petra Harciníková agreed on this together.

In the introduction, the student introduced the topic, briefly described the term "tissue engineering" and also introduced the current situation. In the introduction, I lack a deeper acquaintance with the issue and an explanation of the reason for choosing polyurethane as a suitable material for the production of vascular prostheses. At the same time, the student did not mention anything about the method of vascular prosthesis production, which the work should deal with.

In the theoretical part, the student described the chapters quite clearly, most of the basic information is given here, and the order of the chapters is quite understandable.

The work was developed by the student in theoretical form and therefore the practical part should be processed as an overview of available polymers (specifically polyurethanes) and their solvents, which can be processed by electrostatic spinning and which could be used directly for vascular prostheses. However, chapter 3.1. The material and method, which was supposed to deal with this topic mainly, is confusing. Some types of polyurethanes are listed here, but it is not clear from where the student got the information and how they worked with these materials in the articles. At the same time, the text is sometimes confusing and the chapters provide different information than they should be, f.e.: on page 51: *DMF is commonly used as*

a solvent for PU Generally, DMF is used as a solvent for PU, DMF is shown cytotoxicity, and chapter *3.1.1 Material* should be only about polyurethanes but student mentioned here an article in which they were working with PEO, PCL and PLGA. Also chapter *3.1.2.1 DMF* where is shortly explained DMF but also THF.

In the conclusion, the student should summarize the overall knowledge and information that he found out thanks to the elaboration of the work. Unfortunately, the whole conclusion is again only a very general summary of the thesis. No particular polymer or solvent (solvent system) is mentioned. In some parts of the work, the student contradicts himself and overall the work affects me disorganized and generally, without much contribution to the topic.

The student communicated during the elaboration of the thesis, but sometimes in long time intervals and performed tasks after the agreed date. He did not correct some parts of the work as recommended by the supervisor. Unfortunately, he submitted the final version of the thesis himself and did not allow the supervisor to correct it. Therefore, as a supervisor, I am not quite satisfied with the overall result.

3. Questions regarding diploma thesis

1) Which kind of polyurethane (or combination of polyurethanes) you mentioned in the thesis would you choose for the next experiments and why?

2) Describe the process production of vascular grafts (from preparing the polymer solution to the final product)?

3) Why do you think (*in chapter 3.1.2.1 DMF*) that volatility is beneficial when using DMF as a solvent?

4) In the conclusion, you mentioned that the production of vascular grafts by knitting and weaving has some drawbacks, which ones and how does the electrospinning procedure deal with these drawbacks?

4. Statement of the supervisor of the diploma thesis. Commenting on the result of the inspection performed by the anti-plagiarism program in the STAG system

The plagiarism check of the diploma thesis according to IS / STAG took place on September 1st, 2021 with the result of 0% agreement.

5. Classification of the diploma thesis supervisor

"good"

In Liberec, on the 8th of September

Ing. Petra Honzíková (Harciníková)

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signature of the supervisor of the diploma thesis