OPPONENT ASSESSMENT 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)

Opponent: MSc. Manikandan Sivan

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 assessment 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

The current thesis topic, 'Production of vascular grafts for tissue engineering' is up to date. The thesis has standard parts – abstract, introduction, theoretical part, experimental part, conclusion, and reference (68 pages and 26 figures).

Abstract

In the first paragraph, the author provided a basic introduction, which is quite well written. However, in the following paragraphs, information regarding the achieved main results and conclusions are not mentioned.

Introduction

The author clearly stated the purpose and the aim of the thesis. Still missing the information about the vascular graft fabrication method as well as ideal polymeric solution.

Theoretical part

This part is divided into 8 subparts which are logically arranged. Some of the parts could not be able to understand due to miss arrangements of the words, punctuation errors, and unnecessarily capitalized and/or uncapitalized words. Abbreviations for polymers are not properly used. In 2.5.3, the author has written that

the structure of urethane can be seen from Fig.7 and 8; in my opinion, it should be written as Fig.11 and 12. In section 2.6 author stated that surface modification is also one of the basic steps for producing vascular grafts in addition to material selection, fabrication techniques, mechanical properties, and bioactivity. Nevertheless, there is no information about the surface modification of vascular grafts in the thesis. The author mentioned that polyurethane was chosen as a starting material for vascular graft (2.5.3 last paragraph), but in section 2.7 author discussed polycaprolactone-based electrospun fibers instead of polyurethane.

Experimental part

This part as well contains only theoretical studies, which is also more general. The author could have included detailed, thoughtful information about the material, solvent system, ideal polymeric solution, and processing technology (electrospinning technology). The author generally mentioned about few polyurethane-based materials. However, the explanation about polyurethane-based electrospun fibers and their characterization is poor due to language errors.

Conclusion

The author clearly mentioned the aim and purpose of the thesis in the conclusion section. The required finalized information regarding the polymer variant, solvent system, solution properties, and technological properties are still missing.

3. Questions regarding diploma thesis

1) Why polyurethane-based polymer is better than the other polymers?
2) What are the advantages and disadvantages of using electrospinning technology than 3D printing for fabricating the vascular scaffold?
3) How will you overcome the problem regarding removing the vascular scaffolds from the mandril (collector)?

4. Opponent's statement whether the diploma thesis meets the requirements for the award of an academic degree and whether it is recommended for defense
   Recommended for defense

5. Classification of the opponent of the diploma thesis
   Good

In Liberec, on   **09/09/2021**

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signature of the opponent of the diploma thesis