



Review of diploma thesis – opponent evaluation protocol

Author of the thesis: Bc. Milena Maryšková
Title: Enzyme immobilization on microfibrinous or nanofibrous materials and their applications in biotechnology
Name of the opponent: Inés Ardao Palacios
Affiliation of the opponent: Center for Research in Molecular Medicine and Chronic Diseases (CiMUS), University of Santiago de Compostela (Spain)

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|---|---------------------------------|
| A. Abstract, key words quality. | classification ¹ . 1 |
| B. Quality of literature overview. | classification ¹ . 1 |
| C. Theoretical preparedness. | classification ¹ . 1 |
| D. Appropriateness of methods used. | classification ¹ . 1 |
| E. Quality of results and discussion. | classification ¹ . 1 |
| F. Student's own input/effort. | classification ¹ . 1 |
| G. Formulation of conclusions. | classification ¹ . 1 |
| H. Fulfillment of the objectives. | classification ¹ . 1 |
| I. References – accuracy and quality. | classification ¹ . 1 |
| J. Typography and language quality. | classification ¹ . 1 |
| K. Formal precision – structure of the text, chapters, figs and tables. | classification ¹ . 1 |

L. Comments to above classification (if any):

This diploma thesis attained an Excellent level in all the aspects described above (see next point for more details)

¹ Please use the following classification:

1 Excellent, 1- Excellent minus, 2 Very good, 2- Very good minus, 3 Good, 4 Failed.





M. Overall comments of the diploma thesis:

e.g.: indicate strong/weak points of the work, importance for scientific community, methods used, whether is the research up to date, whether the area is/it is not promising for further study.

The present diploma thesis covers several current burning issues in Nanobiotechnology, Bioprocess Engineering and Environmental Technology. The development of Nanobiomaterials for industrial applications as well as the development of green technologies for the removal of micropollutants in water both represent hot topics in the field. This diploma thesis combines both approaches and, therefore, it is of current scientific interest.

This diploma thesis represents a thorough and extensive research work done in order to develop a nanobiomaterial suitable for removal of endocrine disrupting chemicals in water. The screening and optimization of enzyme immobilization conditions and the material preparation was carried out with a systematic approach and thoroughly documented in the thesis. The "proof-of-concept" experiment to test the materials for the final application was correctly planned and performed. Furthermore, the thesis is well structured and organized, the introduction covers all relevant aspects of the thesis, the materials and methods are complete and thoroughly explained, the results section is well written, understandable and well presented in the form of extensive tables, and the bibliography is complete and up-to-date.

For the reasons stated above, I strongly recommend the maximum qualification for this diploma thesis.

N. Questions for defense:

1. Which were the main difficulties that you encountered during the immobilization of laccase on nanofibers?
2. Which strategy for initial screening of immobilization conditions with another enzyme/nanofiber system would you suggest? Would you recommend starting with a particular immobilization technique?
3. Which further applications of nanobiomaterials made of enzyme immobilized on nanofiber do you think could be of industrial interest?

O. Final classification of the diploma thesis:

The author of diploma thesis fulfilled requirements for academic title and I recommend it for defense².

My recommendation for classification is 1¹.

In Santiago de Compostela

Date 27. 05. 2015

I hereby declare that I am not in any personal relationship with the author of this diploma thesis.


Dr. Inés Ardao Palacios

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Medicine and Chronic Diseases (CiMUS)
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² Please select appropriate statement and delete the other.