Přírodovědecká fakulta
Faculty of Science

Jihočeská univerzita v Českých Budějovicích
University of South Bohemia in České Budějovice

OPPONENT'S REVIEW ON BACHELOR THESIS

Name of the student: Clemens Eichler

Thesis title: Oximation in LC-MS analysis of ecdysteroids
Supervisor: Stanislav Opekar, Ph.D., Petr Šimek, Ph.D.

Referee: Pavla Fojtíková, Ph.D.
Referee`s affiliation: Faculty of Science, USB

	Point scale[1]	Points
(1) FORMAL REQUIREMENTS		
Extent of the thesis (for bachelor theses min. 18 pages, for masters theses min. 25 pages), **balanced length of the thesis parts** (recommended length of the theoretical part is max. 1/3 of the total length), **logical structure of the thesis**	0-3	3
Quality of the theoretical part (review) (number and relevancy of the references, recency of the references)	0-3	3
Accuracy in citing of the references (presence of uncited sources, uniform style of the references, use of correct journal titles and abbreviations)	0-3	3
Graphic layout of the text and of the figures/tables	0-3	2
Quality of the annotation	0-3	1
Language and stylistics, complying with the valid terminology	0-3	3
Accuracy and completeness of figures/tables legends (clarity without reading the rest of the text, explanation of the symbols and labeling, indication of the units)	0-3	2
Formal requirements – points in total		17
(2) PRACTICAL REQUIREMENTS		
Clarity and fulfillment of the aims	0-3	3
Ability to understand the results, their interpretation, and clarity of the results, discussion, and conclusions	0-3	3
Discussion quality – interpretation of the results and their discussion with the literature (absence of discussion with the literature is not acceptable)	0-3	3
Logic in the course of the experimental work	0-3	3
Completeness of the description of the used techniques	0-3	2
Experimental difficulty of the thesis, independence in experimental work	0-3	3

[1] Mark as: 0-unsatisfactory, 1-satisfactory, 2-average, 3-excellent.

Quality of experimental data presentation	0-3	2
The use of up-to-date techniques	0-3	3
Contribution of the thesis to the knowledge in the field and possibility to publish the results (after eventual supplementary experiments)	0-3	3
Practical requirements – points in total		25
POINTS IN TOTAL (MAX/AWARDED)	48	42

Comments of the reviewer on the student and the thesis:

The submitted bachelor thesis of Clemens Eichler contributes to the research in the field of metabolite analytics. The thesis is well structured, the issue of this work is very complex. Student was able to fulfill the aims of the theses.

The theoretical background of this work is described in details. Given reaction schemes help readers to understand. The methodology of this work is well-arranged. Student is able to evaluate and present obtained experimental data. Results are explained and discussed, references to the literature are provided. The author is able to conclude and gives perspectives of his work for further research and applications.

The weakness of this work is mainly in formal requirements (e.g. missing data in Appendix for determination of derivatization recovery, wrong designation of axis (Figure 9 and Figure 10), unreadable designation of axis Appendix B, Appendix C ...). I miss more details about processing and evaluation of measured data (e.g. calculation of ionization efficiency, derivatization recovery).

The overall impression of the presented work is positive. The student was able to work on experimentally challenging topic, to understand and use sophisticated analytical methods (i.e. HPLC, MS, NMR-spectrometry) as well as to analyze and interpret results.

Suggestions and questions, to which the student has to answer during the defense. Mistakes, which the students should avoid in the future:

Questions:

1. How did you calculate the last step of gradient programs in the chromatography analysis? Why are there the same times for different flow rates and various values for the identical flow rates?
2. Is there any difference in the used designations "peak areas" and "signal intensity" (Appendix A)?
3. Could you please explain the calculation of signal improvement factor (ionization efficiency)? Did you take into account the reactivity of ecdysteroids?
4. Relative recovery of oximation procedure is presented only for 20-hydroxyecdysone. Did you also determine relative recovery for other ecdysteroids standards?

Conclusion:

In conclusion, I

r e c o m m e n d

the thesis for the defense and I suggest the grade excellent .

In České Budějovice date 29th May 2019

Pavla Fojtíková Pavla Fojtíková

signature