



Přírodovědecká
fakulta
Faculty
of Science

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

OPPONENT'S REVIEW ON BACHELOR/DIPLOMA* THESIS

Name of the student: Julie Krátká

Thesis title: Expression and characterization of defensins from the hard tick *Ixodes ricinus*

Supervisor: Ryan O.M. Rego, PhD

Referee: Dr Miray Tonk

Referee's affiliation:

Justus-Liebig University Giessen
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	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	2
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	3
Language and stylistics, complying with the valid terminology	0-3	1
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	3
Formal requirements – points in total		17

* Choose one

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

(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	2
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
Quality of experimental data presentation	0-3	3
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) ²

Comments of the reviewer on the student and the thesis:

The study was carefully designed and performed. Taking into consideration of not being able to repeat the experiments and difficulties to express defensins, possible reasons and solutions to that are clearly explained in the thesis.

However, there are some points which needs to be mentioned in the following “Corrections and Suggestions” section.

Suggestions and questions, to which the student has to answer during the defense.

Mistakes, which the students should avoid in the future:

Questions:

- 1- Could student please elaborate, how many categories of AMPs can be assigned based on the structure? Because this part is not correctly stated in the “Antimicrobial Peptides” section in the thesis.
- 2- It was clearly stated in the discussion section that it was not possible to clone DefMT3, (but instead preprodefensin), due to several reasons, how student could verify what went wrong?
- 3- What other expression systems can be used for protein production?
- 4- What was a big challenge for student while performing the experiments and how did student overcome the issue?

² Enter the number of points awarded.

Corrections and Suggestions:

- 1- First of all I strongly recommend student to revise the language and style of the sentences in her next scientific writings. Because, it was not easy to follow some sentences especially in Materials and Methods, and Result sections.
- 2- "Aim of the work" or "Objectives of the study" should have been presented before the Materials and Methods.
- 3- Incorrect statements should be avoided.
E. g. in 1.4. Defensin: "The functional part of the defensin is found in γ -core motif, C-terminal β -sheet domain". The functional region located in the C-terminal- β -sheet domain, called the ' γ -core motif', therefore the functional region of the defensin is not found in γ -core motif.
- 4- The literature review part (1.4.) is not consistent; there are constant switch between following terms; AMPs, defensins, tick defensins and arthropod defensins. Therefore, I recommend student to be more consistent on this regard for her future scientific writings.
- 5- Numbers from 0-9 have to be always written out in the text (e.g., 5 $\rightarrow$ five).
- 6- Scientific terms, e.g. protein, gene names have to be written correctly as they are stated in the publications, e.g. defMT2, MT2 $\rightarrow$ DefMT2
- 7- I recommend student to be more precise in details. For example in 1.4.1. DefMT2; in the following statement "it successfully reduced the concentration of the pathogen in the animal (Couto et al., 2018)", "animal" has to be clear, which animal used for the *in vivo* studies!
- 8- When species name first mentioned in the text, the complete name has to be written.
For example in section 1.4.4. DefMT6, *Staphylococcus epidermidis*, *Fusarium culmorum* and *Fusarium greminearum* mentioned as a first time in the text however stated as *S. epidermidis*, *F. culmorum* and *F. greminearum*.
- 9- Materials and Methods, 2.1.1: Table 1 should be mentioned in the text first before Table 3.
- 10- In the section 2.3.1., it should have been clearly stated which bacteria were used in the study instead of "relapsing fever Borrelia and Lyme disease Borrelia".

Conclusion:

In conclusion, I recommend the thesis for the defense and I suggest the grade 1.³

In Giessen, Germany

date 21.01.2022



³ You can suggest a grade, which can be modified during the defense based on the presentation. However, if the reviewer is not present at the defense, the grade will not be counted. Grades: excellent (1). Very good (2), Good (3), Unsatisfactory/failed (4).

