



## OPPONENT'S REVIEW ON BACHELOR THESIS

**Name of the student:** Maximilian Kropf

**Thesis title:** Studies on the toxicity of glyphosate and the effect of spermidine in conferring resistance to induced toxicity in *Drosophila melanogaster*

**Supervisor:** RNDr. Andrea Bednářová, Ph.D.

**Referee:** Ing. Helena Zahradníčková, Ph.D.

**Referee's affiliation:** Biology Centre of the Czech Academy of Sciences, Institute of Entomology, Laboratory of analytical biochemistry and metabolomics, České Budějovice and Faculty of Science, University of South Bohemia, Institute of Chemistry and Biochemistry, České Budějovice

	Point scale <sup>1</sup>	Points
<b>(1) FORMAL REQUIREMENTS</b>		
<b>Extent of the thesis</b> (for bachelor theses min. 18 pages, for masters theses min. 25 pages), <b>balanced length of the thesis parts</b> (recommended length of the theoretical part is max. 1/3 of the total length), <b>logical structure of the thesis</b>	0-3	3
<b>Quality of the theoretical part (review)</b> (number and relevancy of the references, recency of the references)	0-3	2
<b>Accuracy in citing of the references</b> (presence of uncited sources, uniform style of the references, use of correct journal titles and abbreviations)	0-3	2
<b>Graphic layout of the text and of the figures/tables</b>	0-3	3
<b>Quality of the annotation</b>	0-3	2
<b>Language and stylistics, complying with the valid terminology</b>	0-3	2
<b>Accuracy and completeness of figures/tables legends</b> (clarity without reading the rest of the text, explanation of the symbols and labelling, indication of the units)	0-3	2
<b>Formal requirements – points in total</b>		16
<b>(2) PRACTICAL REQUIREMENTS</b>		
<b>Clarity and fulfilment of the aims</b>	0-3	3
<b>Ability to understand the results, their interpretation, and clarity of the results, discussion, and conclusions</b>	0-3	3
<b>Discussion quality – interpretation of the results and their discussion with the literature</b> (absence of discussion with the literature is not acceptable)	0-3	2
<b>Logic in the course of the experimental work</b>	0-3	3

<sup>1</sup> Mark as: 0-unsatisfactory, 1-satisfactory, 2-average, 3-excellent.

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	41 <sup>2</sup>
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### Comments of the reviewer on the student and the thesis:

The present work has a very current and important topic, clearly defined hypotheses and goals. From the theoretical part, it is obvious that the student has been able to work well with literary references. The experimental part contains a considerable number of experiments demanding time and practical skills. The results are processed by suitable methods and presented in a clear manner. The goals of the work were fulfilled, the discussion is concise, but accurate, with the suggestion of other supplementary studies. The finding, that glyphosate itself exhibits less dangerous effects on test insects than herbicidal commercially available preparations with the studied substance as an active ingredient (with other adjuvants), is very interesting.

There are some formal shortcomings in the work:

- 1) Information about the used literature is presented in the text by authors, not by using numbers as correctly used in the chapter 7 References. For the reader, it is more difficult to track references.
- 2) Page 2: Non-correct name of phenylalanine (phenilalanine) in Figure 2.
- 3) Punctuation errors (missing comma in sentences - p. 3, missing dots at the end of the paragraph and sentences – p. 8, 10, references, missing spaces in text – references, the reference style is not completely unified, etc.).
- 4) Page 4: Unexplained abbreviation RNS was used in the text.
- 5) Page 5: Re-presented the information already provided on page 1 about the effects of glyphosate on the inhibition of chorismate biosynthesis, unnecessarily again explained acronym ROS.
- 6) Page 6: Redundantly repeated that spermidine is a natural polyamine.
- 7) Page 10: The description of the test (Protein Carbonyl Assay) does not indicate the amount of insect samples used nor the reagents used (solutions of dinitrophenylhydrazine and 2M HCl).
- 8) Page 18: Figure 8 consists from three unmarked parts.
- 9) It would be appropriate to add a list of abbreviations used in the text.

<sup>2</sup> Enter the number of points awarded.

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

- 1) Why were used for dose-mortality responses only males of *Drosophila melanogaster*, when males and females were used in other tests?
- 2) The text on the page 10 concerning Protein Carbonyl Assay says that the results are expressed in ng/mg, but the Figure 9 presents nmol/mg of protein. Please, explain.
- 3) By careful final revision of the text, remove formal errors.

**Conclusion:**

**In conclusion, I r e c o m m e n d the thesis for the defence and I suggest the grade excellent (1).**

In České Budějovice      date      13. 9. 2018



Signature

