



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: Kateřina Malinová

Thesis title: Phycobilin pigments as building blocks of artificial light-harvesting structures

Supervisor: RNDr. Radek Litvín, Ph.D.

Referee: Heiko Lokstein

Referee's affiliation: Department of Chemical Physics and Optics, Charles University, Prague

	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	3
<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 labeling, indication of the units)	0-3	3
<b>Formal requirements – points in total</b>		18
<b>(2) PRACTICAL REQUIREMENTS</b>		
<b>Clarity and fulfillment 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	3
<b>Logic in the course of the experimental work</b>	0-3	3
<b>Completeness of the description of the used techniques</b>	0-3	2

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

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		26
<b>POINTS IN TOTAL (MAX/AWARDED)</b>	<b>48</b>	<b>(44)<sup>2</sup></b>

**Comments of the reviewer on the student and the thesis:**

The student (K.M.) has written a very interesting, experimentally challenging and entirely readable thesis in English language. Regarding a rather tricky scientific subject, the isolation, purification and chemical modification (esterification) of phycobilin pigments, the thesis represents a significant progress in biochemical science. Phycobilin pigments are intrinsically hard to handle due to their limited stability. Regardless, the student has obtained some significant new results that can be the basis for further investigations and may be used in the suggested applications for assembly of artificial light harvesting complexes.

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

English language use could have been improved, in particular the use of articles; some strange syntax also occurs. However, the student, not being a native speaker, and in an early stage of her career should not be criticized too much for that. Some refs. (with Irish names) in the text/list are somewhat flawed. Description of ordinary absorption spectroscopy is excessive. Excessive quotation of a single, secondary source (Šetlík, et al., 1998) should be avoided, but is somehow understandable ...

- Q: Are Phycobilins found in light-harvesting systems of cyanobacteria only in low light?
- Q: Any ideas where the moniker bilins comes from?
- Q: How can stabilisation of the reaction products be achieved?
- Q: Can you imagine other (bio)technological applications of bilins/phycobiliproteins?

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

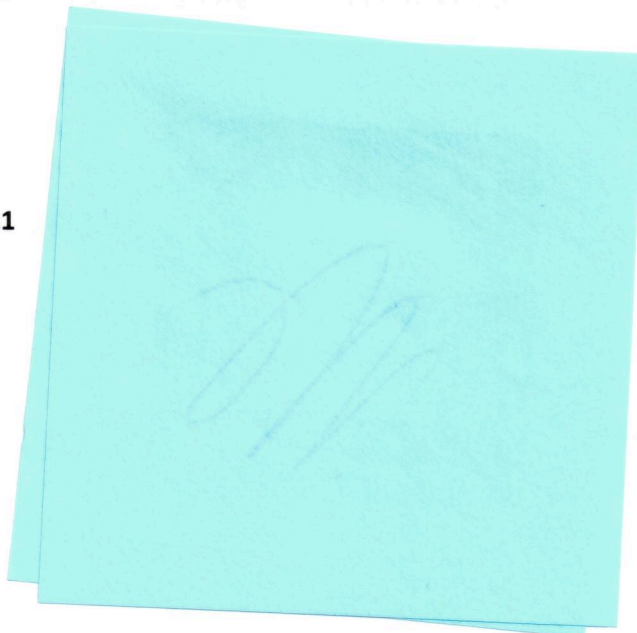
**Conclusion:**

In conclusion, I

**r e c o m m e n d**

**the thesis for the defense and I suggest the grade: very good (2).<sup>3</sup>**

In Prague/ date **21.01.2021**



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<sup>3</sup> 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).