



Přírodovědecká
fakulta
Faculty
of Science

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

STATEMENT OF THE BACHELOR/DIPLOMA* THESIS REVIEWER

Name of the student: Dagmara Vašková

Thesis title: THE IMPORTANCE OF ACTINOBACTERIA IN ARCTIC SOIL

Supervisor: Ing. Jiří Bárta, Ph.D.

Reviewer: Dr. Martina Kyselková

Reviewer` affiliation: Biology Centre of the Academy of Sciences of the Czech Republic,
Institute of Soil Biology, České Budějovice

	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	2
Accuracy in citing of the references (presence of uncited sources, uniform style of the references, use of correct journal titles and abbreviations)	0-3	2
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	2
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	1
Formal requirements – points in total		14
(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 results and their discussion with the literature (absence of discussion with the literature is not acceptable)	0-3	1
Logic in the course of the experimental work	0-3	2
Completeness of the description of the used techniques	0-3	2
Experimental difficulty of the thesis, independence in experimental work	0-3	2
Quality of experimental data presentation	0-3	2

* Choose one

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

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	2
Formal requirements – points in total		19
POINTS IN TOTAL (MAX/AWARDED)	48	33

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

- p. 4, last sentence - Actinobacteria represented more than 50% of what (Gittel et al., 2014)?
- p. 4-5 - Which actinobacteria were revealed in Arctic regions by metagenomics (Gittel et al., 2014)? Are *Streptomyces* and *Arthrobacter* prevailing actinobacterial genera in this study?
- What were your hypotheses on the relation between actinobacterial growth in Arctic soils and the different temperature/oxygen conditions?
- p. 6 - What is the reference for the growth of *Arthrobacter* at harsh conditions and low temperatures?
- p. 10 - Provide more details about soil sampling, and also how the replicates were done (one site/more sites sampled to obtain the replicates, samples mixed/sieved...).
- p. 10 – How and why gasses were measured?
- Tab. S1 – Why did you analyze only 2 replicates? Did you perform any statistical test to evaluate your results?
- p. 11 – Which PCR product from *Micrococcus luteus* was used as a standard for qPCR?
- p. 11 – What do you mean by annealing temperature 55-65°C?
- What were the concentrations of primers, BSA, DMSO and DNA for your qPCR?
- p. 12 – You report that the initial amount of Actinobacteria did not significantly differ between the aerobic and anaerobic conditions. Is this supported by any statistical test? (The same question applies for all the results.)
- p. 15 – What is your explanation on the different temperature dependences (4 °C vs. 12 °C) under aerobic vs. anaerobic conditions? Do you have any extra data on the composition of actinobacterial communities that could explain this?

Eventual mistakes, which the students should avoid in the future:

Volume of reaction compounds, instead of their concentrations, reported in qPCR protocol (e.g. 0.5 µl DMSO)

Unsatisfactory presentation of figures, e.g.

- Fig. 1 - the scale is too small to read
- Fig. 5 – missing legend in the figure (ladder bands, sample numbers)
- Fig. 6 – unsatisfactory legend and graph title

Missing references in the reference list, e.g.

- Kobabe at al. 2004
- Liebner et al. 2008
- Hansen et al. 2007

Typos in the text, e.g.

- p. 4 - Gilichinsky et.al., Gittel et.al., and many others reference
- p. 6 – Arthobacter
- p. 5 and other pages - missing space after commas in the last sentence...

Eventual additional comments of the reviewer on the student and the thesis:

The topic of the thesis is interesting and the used methodology is appropriate. The weakest point of the thesis is the lack of formulation of hypotheses at the beginning, which would guide for proper sampling (more sites should have been analyzed as independent replicates) and data analysis and interpretation. Consequently, the discussion is rather poor and includes only little confrontation with published literature.

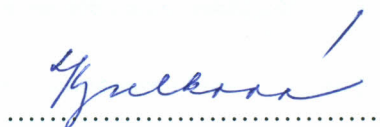
Conclusion:

In conclusion, I

r e c o m m e n d

the thesis for the defense and I suggest the grade 2 .²

In **České Budějovice** date **June 5th, 2014**



signature

² 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.