



STATEMENT OF THE BACHELOR THESIS REVIEWER

Name of the student: Lukáš Rottner

Thesis title: Importance of denitrifying microorganisms in terrestrial ecosystems – focus on soil micromycetes

Supervisor: Ing. Jiří Bárta, Ph.D.

Reviewer: RNDr. Jiří Jirout, Ph.D.

Reviewer` affiliation: Institute of Soil Biology, Biology Centre AS CR, v. v. i.

	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	0
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	0
Formal requirements – points in total		11
(2) PRACTICAL REQUIREMENTS		
Clarity and fulfillment of the aims	0-3	2
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	-
Logic in the course of the experimental work	0-3	-
Completeness of the description of the used techniques	0-3	-
Experimental difficulty of the thesis, independence in experimental work	0-3	-
Quality of experimental data presentation	0-3	-
The use of up-to-date techniques	0-3	-

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

Contribution of the thesis to the knowledge in the field and possibility to publish the results (after eventual supplementary experiments)	0-3	1
Formal requirements – points in total		5
POINTS IN TOTAL (MAX/AWARDED)	48	16

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

The thesis presented by Lukáš Rottner represents a review thesis aimed at denitrification with focus on fungi. My questions are:

- 1) Why is the work not dealing with biotic factors affecting the denitrification activity? At least, one paragraph aimed at the effect of microbial community composition and its effect on denitrification could enhance the thesis. Especially, with respect to the thesis title: **Importance of denitrifying microorganisms** (not abiotic factors)!
- 2) Why the work deals with (as you wrote) only some of the methods used for measurement of denitrifying activity and not all possible methods?
- 3) Which parameter was used for evaluation of "the most efficient denitrifying fungi"?
- 4) In the chapter 3.3 and 3.4, there is a lot off missing information. Can be the ratio of N_2/N_2O affected by soil pH - directly or indirectly? Why there is no discussion about NO_2^- even when it is mentioned in the title of the paragraph 3.4?
- 5) The thesis is focused on fungal denitrification, but there is no discussion about possibility for detection of fungal gene (CYP55) for P450nor by molecular biology methods. You discuss only detection of bacterial genes.
- 6) How is it possible to enhance the resolution of DGGE?

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

The student should put much more effort to the work with references, both in text and in the reference list. There is 26 references present in the reference list, but not cited in text. On the other hand, 12 references is cited in text, but is missing in the list. That is an unacceptable for qualifying work as well as for other scientific articles.

The citation in the text and in the list are not uniform, quite often incorrect (missing *et al.*, missing second author, etc.).

While writing a review thesis, I think there is still a lot of missing information and/or methods. Particularly, there is an increase in number of articles dealing with fungal denitrification published in scientific journals in last two years.

Figure captions are also highly unsatisfactory - figure legends must be self-explanatory without reading the text - in this thesis, the most figure legends do not fit with that statement. The references of figures 2 and 4 are missing in the text.

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

The thesis omits some important methods used for denitrification measurement (e.g. substrate-induced respiration), the newest articles published in the literature is also neglected, even when it is highly connected with the work and could strongly help to achieve better review thesis.

It appears that Lukáš Rottner just put literature data together, without any or very limited input from the student. Review thesis like this should contain more interconnectivity between factors, organisms and environment effects, especially in such diverse and important topic as denitrification.

Overall, the thesis is at the lowest recommendable limit for satisfactory grade.

Conclusion:

In conclusion, I

r e c o m m e n d

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

In České Budějovice date 14.6.2014

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