



Confidential

Supervisor's Review of USB RIFCH PhD Thesis

Surname of the PhD student: Malinovska	Name of supervisor: Prof. Ing. Pavel Kozák, Ph.D.
Title of PhD thesis: Monitoring of crayfish reaction to the different stimuli: are the crayfish good bioindicators?	

OVERALL COMMENTARY ON THE PhD THESIS

The Scientific value, originality, and quality of processing of PhD thesis are of good quality. It is a complex of review, laboratory, and field studies focused on evaluating crayfish as a good bioindicator to detect selected psychoactive compounds in relatively low concentrations in the aquatic environment. The thesis is logically divided into 5 Chapters, of which three are practical results, with two already published papers and one in the review process. The introduction (Chapter I) consists of a review summarizing the problematics, which is ready for submission. In **Chapter 2**, the cardiac and locomotor responses of crayfish *Pacifastacus leniusculus* to short-term pulse exposure to environmentally relevant concentrations of three pesticides (metazachlor, terbuthylazine, and thiacloprid) were evaluated with a significant increase in heart rate, and distance moved in metazachlor-exposed specimens compared to controls. In **Chapter 3**, the effects of UV filters were investigated, resulting in higher distance movement and more time in locomotion. Such behavioural and physiological alterations of crayfish detected in both studies can potentially impair crayfish ability to respond to predators and consequently affect the abundance and the functional properties of macroinvertebrate communities.

The practical case study under operating conditions in a local brewery was performed where the crayfish were used as an early warning system for monitoring water quality (**Chapter 4**). The disruption of cardiac rhythmicity was detected with chaotic increases and decreases in heart rate regardless of the time of day as a reaction to water disinfected with chlorine dioxide in long-term monitoring.

I evaluate this PhD thesis as highly successful. The crayfish was evaluated as a suitable model object for biomonitoring.

Besides, I would like to point out some words about Victoria herself and her character. Viktoria worked on her topic independently, from planning methodology to evaluating and compiling the publications. We only discussed the main idea and direction of the research together, and she could solve the problems independently, thoroughly, and deeply. She was able to finish her PhD thesis mostly on time even though she had to break her scientific career for half a year of maternity leave, and the second part of her PhD period had the responsibility to take care not only of the scientific aspect of her life but also about her son Stefan. To finish, Viky has an excellent ability in human relations, ready to help other colleagues and me anytime, and it was an absolute pleasure to be her supervisor.

FINAL RECOMMENDATION

- X ☐ can be recommended for defence of PhD Thesis
☐ can be recommended with reservations for defence of PhD Thesis
☐ can not be recommended for defence of PhD Thesis

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Date and place

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surname and signature