



Confidential

Supervisor's Review of USB RIFCH PhD Thesis

Surname of the PhD student: MSc. Azadeh Mohagheghi Samarin	Name of supervisor: doc. Ing. Tomáš Polícar, Ph.D.
Title of PhD thesis: Alteration of mRNA abundance, oxidation products and antioxidant enzyme activities associated with fish oocyte ageing	

OVERALL COMMENTARY ON THE PhD THESIS

The Ph.D. thesis with the title "Alteration of mRNA abundance, oxidation products and antioxidant enzyme activities associated with fish oocyte ageing", written by M.Sc. Azadeh Mohagheghi Samarin, brings very interesting scientific view related to the evaluation of fish oocyte quality. The exact subject of the mentioned thesis is the ageing of fish oocyte and their changes with characterization of potential indicators such as: oxidative stress, mRNA abundance of the selected genes associated with mitochondrial dysfunction, cell cycling and apoptosis, changed level of fatty acids, lipid classes, activity of antioxidant enzymes and oocyte phenotype and function. The Ph.D. thesis also investigated oocyte and fresh hatched larvae originated from different aged oocytes at level of transcriptome, lipid and protein oxidation and antioxidant enzyme assays in several selected commercially used fish species such as: African catfish (*Clarias gariepinus*), tench (*Tinca tinca*), common carp (*Cyprinus carpio*) and gold fish (*Carassius auratus*). From this point of view, I can state that this Ph.D. thesis brings the complex of new knowledge about oocyte ageing and quality which can be used for the future development of controlled fish reproduction and hatchery management with the aim to get a synchronized high quality larval production of mentioned fish species.

In total, the whole Ph.D. thesis includes 6 chapters with 109 pages. Chapter 1 is the general introduction which contains excellent accepted scientific papers describing the cellular and molecular changes associated with fish oocyte ageing in details. Chapters 2 – 5 are specific parts of this thesis where the process of oocyte ageing and the description of its indicators were investigated in the mentioned four fish species after their artificial oocyte stripping. Obtained oocytes were stored under different *in vitro* conditions which were suitable for each selected fish species. Chapter 6 is general discussion combined with English and Czech summary, acknowledgments, list of publications, training and supervision plan during study and *Curriculum Vitae*.

In total, two published and two accepted scientific papers, and two prepared scientific manuscripts



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are included and discussed in this evaluated Ph.D. thesis.

According to my opinion, the evaluated Ph.D. thesis brings new, original and interesting scientific information and knowledge related to oocyte ageing and the evaluation of oocyte quality for next scientific development and progress which can be used not only in fish reproduction but also in the reproduction of higher vertebrates.

At the end of my supervisor's report, I can note that Ph.D. thesis written by M.Sc. Azadeh Mohagheghi Samarin is interesting scientific work which indicates very good scientific and expert knowledge and skills of the candidate. I recommend this work for final defence.

FINAL RECOMMENDATION

- 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

4.6.2018 Vodňany

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Date and place

Tomáš Poláček

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surname and signature