



Supervisor's Review of USB RIFCH PhD Thesis

Name of the PhD student: Zhao Jinfeng	Name of supervisor: Kocour Martin
Title of PhD thesis: Broader insight into mutual genetic and phenotypic relationships of production-related quantitative traits in common carp	

OVERALL COMMENTARY ON THE PhD THESIS

Introductory words

The PhD thesis of Jinfeng Zhao aims to describing deeper insight into phenotypic and mainly genetic correlations among various quantitative traits related to production. Knowledge about mutual relationships among quantitative traits is important with respect to selective breeding programs as selection to one trait may affect other important traits. So, knowledge about mutual genetic correlations among as many traits as possible is crucial for estimating of effectiveness of selection programs. As selection is perspective breeding method widely and routinely used in many fish species except common carp, I think that this PhD. thesis may be helpful for supporting application of selection programs in this species.

Structure of the thesis

Thesis is divided into i) general introduction part, ii) chapters presenting results in the form of published papers and manuscripts prepared for publication, iii) general discussion part and iv) additional information. The structure overall fulfils standards given by the faculty rules even if extend of general introduction and discussion chapters is shorter than recommended or at the lower recommend value. However, it must be stressed that the extent of the work must not necessarily show on its quality.

Content of the thesis

The introductory part summarizes in a logically organized order the state-of-art of i) fish breeding with emphasis to common carp, ii) importance of molecular markers for breeding, iii) knowledge about genetic variation in common carp and iv) the most important traits or groups of traits in common carp breeding. Presented information includes the key or the most recent literature sources and it is well interpreted. I think that the chapter gives sufficient introduction to the present knowledge, it highlights well gaps in knowledge which the thesis focuses on and underlines the set objectives of the thesis.

Findings of the thesis are summarized in four published papers (or paper in press) and one manuscript that is presently under review process. The student is the first author in one published paper, one paper in press and co-author in two published papers and one manuscript under review process. The published papers or papers in press are according to Web of Science (WoS) in journals that are ranked in Q1 or Q2 of the field they belong to. Three of the papers are published in Aquaculture journal (IF 2019 = 3,225, Q1) that is very highly valued journal for kind of research presented in the dissertation. All papers or manuscripts presented bring new knowledge that have clear relation to the topic of Ph.D. thesis and that might help another



development of selective breeding in common carp. The important information is that most of the results presented arose from work on EU project under 7th Framework program (FISHBOOST) under cooperation with top European institutions dealing with fish selective breeding. This ensures relevance, quality and potential impact of the results.

In the general discussion chapter presented results are discussed in the context of main performance traits defined in common carp. Thus, it can be seen how selection for those important traits may affect the others or if other correlated traits may be used to indirectly support the main performance traits. Overall, this chapter is compact and well related to aims of the thesis. The presented information is adequate, and the most important findings were discussed. Student also tried to avoid excessive repeating of text included in the discussion parts of individuals papers/manuscript. Thus, despite a bit shorter extend, the presented discussion of the thesis fulfils the criteria given by the faculty rules. Still, the findings could have been discussed in a more comprehensive way.

Language and graphical processing

To me, the text is understandable, logical and fluent. The student showed ability to write scientific text. However, some recommendations, revisions and hints from supervisor were necessary so that the thesis could be completed. Still, the students' skills to write scientific text are sufficient. Regarding the graphical formatting the student followed well the faculty guideline.

Brief summary of student performance during study

Jinfeng Zhao has been hard working person that has been always ready to work not only on her thesis but also on other activities of the team she has worked in. After training she managed many skills as histology, chemical analysis of energy reserves in muscle and hepatopancreas, statistical analysis to estimate genetic parameters (heritability, correlations) based on phenotypes and pedigree / GWAS information. She helped repeatedly also during artificial spawning of common carp and tench, group and individual tagging the fish, sorting the fish and collecting phenotype data in the field. She also passed all required courses and fulfilled all duties given by doctoral study program (DSP) of Fishery at our faculty. Unfortunately, she needed five years (one year more than standard) to complete the study. She needed longer time to get understood properly all problems and relationships concerning quantitative genetics and to get sufficient skills in order to prepare adequate manuscripts to be submitted. Jinfeng is also too shy in some aspects and even if having FCE certificate she has sometimes problem to express exactly her thoughts and to use proper level of English when talking about topic of her thesis. However, she is gradually improving, and I am sure she is able to become good professional in fishery field.

Overall evaluation of the Ph.D. thesis

The presented Ph.D. thesis represents very good scientific work in the international context with important scientific results and possible practical applications. The thesis fulfils all criteria given




by faculty rules. I can congratulate the student and hope that she will manage last step in her study – the defence of her PhD thesis.

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

May 31, 2021

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Date and place


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Surname and signature