



**Confidential**

**Review of USB FFPW PhD Thesis**

<b>First name(s), surname, titles of the PhD student:</b> Sarvenaz KhaliliTilami, M.Sc.	<b>First name(s), surname, titles of supervisor:</b> doc. Ing. Jan Mráz, Ph.D.
<b>Title of PhD thesis:</b> Factors influencing nutritional value of fish	
<b>REVIEWER:</b>	
<b>Surname:</b> Adámková	<b>Institution:</b> Institute for Clinical and Experimental Medicine, Prague, Czech Republic
<b>Name:</b> Věra	
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<b>Please describe your professional relationship to the PhD student:</b> reviewer	<b>Please describe your field of expertise:</b> Public health, Preventive cardiology

**QUESTIONNAIRE**

**Originality, scientific importance, perspectives and impacts of results presented in the PhD thesis for basic and/or applied research**

Evaluate competitiveness of the PhD thesis in the international context and compare its level with the current state of the art in the field (**extent ¼ – ½ page**):

The present dissertation contains 149 pages of text (including tables and references to literature). The thesis is divided into 7 chapters, part of the work is published articles related to the given topic. The thesis deals with the very topical issue of the quality of fish meat. In the Czech Republic is consumption of fish and fish products is very low, although the availability of these products is easy all year round.

The original theme is the study of the quality and taste properties of fish meat when feeding fish with selected insect species. It turns out that this route will probably be interesting, but it is not easy because it changes the taste properties of fish meat, which can be a very important factor for our consumers. The dissertation works with recent links.



### ***Elaboration of the PhD thesis, objectives of the work and deliverables***

Evaluate the overall level of elaboration of the PhD thesis (structuring of the main text, comprehensibility, logicity of the chapters and their ordering) and the originality of the selected approaches to solve the objectives; evaluate publications and whether the results described correspond to objectives of the PhD thesis (**extent ¼ – ½ page**):

This dissertation is structured in the usual way, written in standard English. Presented published articles in journals with the IF have been reviewed and accepted for publication on the basis of a positive reviewer's recommendation.

Tables are clearly broken down and supplemented with explanatory notes as required. All articles are finished by a good discussion of the topic using appropriate literary sources. Chapter 7 summarizes the general discussion on the topic as a whole, and also contains an English and Czech summary. There are some minor grammatical inaccuracies that do not reduce the quality of work.

### **OVERALL COMMENTARY ON THE PhD THESIS**

**Please write comments in extent of 1-2 pages:**

Consumption of fish and fish products is very important for the content of unsaturated fatty acids, especially omega 3 FA. The work deals with the composition of fats in fish meat also during the winter season. The availability of omega 3 FA for humans is limited in source, except for fishmeal, we can draw from vegetable oils, the FDA recommended the consumption of rapeseed oil like the best way to prevent cardiovascular diseases as is rightly noted on page 14.

The aims of the work were determined in real terms and important issues were also chosen – first: the influence of the nutritional value of fish and the second aim was: to develop and examine the effect of partial replacement of novel feed ingredients for FM and VO in the diet or feed of the carnivorous fish. For the Czech population is the most beneficial result of research, published in the article Nutritional value of several commercially important river fish species from the Czech Republic (2018). Samples of meat were taken from fish from the rivers: Dyje, Labe and Vltava. The results of the research revealed differences in the composition of fatty acids in selected seven species of monitored Czech fish. Exploring the possibilities of alternative feed types for fish has produced interesting results. A house cricket (*Acheta domestica*) and the Brazilian beetle (superworm-) (*Zophobas morio*) were added to the feed. The addition of insects to the feed was associated with a lower omega 3 FA content and a change in the taste properties of fish meat.

I do not have an explanation why these insects were chosen. I believe that the area of the Berounka and Lužnice River, where there is a large number of sport fishermen, is also likely to be examined, and there is also the consumption of fish from this source.

The work is a statement on the change in the flavor properties of fish meat after adding more insects to the feed, but more needs to be discussed and explained which other insects could be part of the fish food chain and why.



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a ochrany vod  
Faculty of Fisheries  
and Protection  
of Waters

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

The student has demonstrated the ability of independent scientific work and after the successful defense of the submitted doctoral thesis I recommend the title of PhD.

**FINAL RECOMMENDATION**

x PhD Thesis can be recommended for defence

Prague, 2018, December 21,  
Date and place

Věra Adámková  
Name and signature


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<b>Title of PhD thesis:</b> Factors influencing nutritional value of fish	
<b>REVIEWER:</b>	
<b>Surname:</b> Parviz Salati	<b>Institution:</b> Khorramshahr University of Marine Science and Technology
<b>Name:</b> Amir	
<b>Titles:</b> Associate Professor	<b>E-mail:</b> salatia@gmail.com
<b>Please describe your professional relationship to the PhD student:</b>	<b>Please describe your field of expertise:</b>

**QUESTIONNAIRE**

***Originality, scientific importance, perspectives and impacts of results presented in the PhD thesis for basic and/or applied research***

Evaluate competitiveness of the PhD thesis in the international context and compare its level with the current state of the art in the field (extent ¼ – ½ page):

In recent decades, the use of fish and sea products as a source of human protein has become commonplace because it does not have harmful effects on the body, unlike red meat. In this study, the effects of different diets on the quality of fish meat were assayed to reduce the cost of production and also, improve the quality of carcasses, especially fatty acid profile. Also, the characteristics of fish in the rivers with the aim of identifying food-grade species were assayed. In conclusion, the information available in this thesis can be used not only in aquaculture, but also in human nutrition. The use of insects to replace animal sources in fish diet is a new idea used in two common commercial species.

***Elaboration of the PhD thesis, objectives of the work and deliverables***

Evaluate the overall level of elaboration of the PhD thesis (structuring of the main text, comprehensibility, logicity of the chapters and their ordering) and the originality of the selected approaches to solve the objectives; evaluate publications and whether the results described correspond to objectives of the PhD thesis (extent ¼ – ½ page):

The text of the thesis is well written and has no typographical errors.



The chapters are well organized and arranged correctly.

The purpose of the study is well-defined in the articles and the methods used to achieve these goals are well-defined. The results are described carefully and the final conclusion is complete and comprehensive.

The articles have been published in very high quality journals on aquaculture.

The innovation in this study is very high and appropriate methods have been used according to previous studies to conduct the study.

The reported results are consistent with the objectives of the dissertation.

### **OVERALL COMMENTARY ON THE PhD THESIS**

**Please write comments in extent of 1-2 pages:**

In section 1.1. NUTRITIONAL VALUE only changes in lipid composition focused. It is advised to add some data about effects of feeding on other parameters of fish especially protein content.

It is advised to describe nutritional value of species completely in part 1.1.2. Species and nutritional value, as your idea is to describe influence of feeding on fish quality so it is better to describe this section with more details.

Section 1.2. FISH CONSUMPTION... needs some new references. If no new references is not available it should be included in the text that there is no new data.

In the aim of the study name of the species should be included.

### **FINAL RECOMMENDATION**



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Czech Republic

- PhD Thesis can be recommended for defence  
 PhD Thesis can be recommended with reservations for defence  
 PhD Thesis can not be recommended for defence

15th December 2018  
Date and place

Amir Parviz Salati  
Name and signature