Fakulta rybářství
a ochrany vod
Faculty of Fisheries
and Protection
of Waters

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

Review of USB FFPW PhD thesis

First name(s), surname, titles of the PhD student: Hung Quang Tran, M.Sc.	**First name(s), surname, titles of supervisor:** Assoc. Prof. Dipl.-Ing. Vlastimil Stejskal, Ph.D.
Title of PhD thesis: Insect meal as feed source in nutrition of percids, Eurasian perch (*Perca fluviatilis*) and pikeperch (*Sander lucioperca*)	

REVIEWER:

Surname: Estévez Garcia	**Institution**: - Institute of Agrifood Research and Technology, Barcelona, Spain
Name: Alicia	
Titles: Dr.	**E-mail**: alicia.estevez@irta.es
Please describe your professional relationship to the PhD student: No relationship. He attended a course organized by myself & Mari Moren (Nofima) and by the CIHEAM	**Please describe your field of expertise:** Aquaculture, larval rearing (new species) and nutrition. Use of new ingredients in aquafeeds.

QUESTIONNAIRE

OVERALL COMMENTARY ON THE PhD THESIS

Please write in the box specific comments concerning the PhD thesis in extent of 1-2 pages:

The thesis is very well organised and written. The first 2 chapters are related with the use of insect meal in animal nutrition and feed formulation from 1990 to 2021 and in the environmental imapct of the insect meal utilisation in feeds sutdying something very innovative and on fashion that is the life cycle assesment (LCA) of the insect meal and the ratio fish in fish out (FIFO) to assess the economic and environmental cost of insect meal use. The other chapters (7 more, total chapters =9) are related to the use of insect meal produced from 2 different species (Tenebrio molitor and Hermetia illucens) in the ongrowing of Perca fluviatilis and Sander lucioperca, two freshwater fish species very important in freshwater aquaculture in Central Europe. The studies were mostly centered in the effects of the feeds formulated with different inclusion levels of the insect meal on growth, food conversion, physiological response and final composition of the 2 fish species as well as their effects on swimming capacity. They also include an economico conversion rate and economic profit

index of the use of the diets formulated with insect meal that is something quite novel.
All the experiments were very well designed and carried out and the results very well presented and credible. The publications generated are of high quality and they have been published in high scientific level journals such as Reviews in Aquaculture (2 publications), Aquaculture (3 publications), Animals and Frontiers in Marine Science (1 each, these 2 journals in open access).
In general the quality of the thesis is very high, with very good collaborations with researchers from other countries (including Laura Gasco one of the specialists in insects - production, nutritional value, use of defatted and non defatted insect meal, use of different species of insects- in Europe) and with very high quality publication level. It deserves to be defended and the publication record (7 publications generated) shows clearly the quality of the thesis.

FINAL RECOMMENDATION

- ☒ **PhD thesis can be recommended for defence**
- ☐ **PhD thesis can be recommended for defence with reservations**
- ☐ **PhD thesis cannot be recommended for defence**

San Carlos de la Rápita, Tarragona, Spain
14 June 2022
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Date and place

Alicia Estevez
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Data: 2022.06.14 10:45:35 +02'00'
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