



Confidential

Supervisor's Review of USB RIFCH PhD Thesis

Surname of the PhD student: Ewumi Azeez Folorunso	Name of supervisor: doc. Jan Mráz, Ph.D.
Title of PhD thesis: Integrated pest and disease management in aquaponics	

OVERALL COMMENTARY ON THE PhD THESIS

The thesis of Ewumi Azeez Folorunso is focused on the development of safe and effective use of integrated pest and disease management in aquaponics.

With the rapid aquaculture growth, environmental concerns related to waste generation and its use are rising. Aquaponics combining fish culture with plant production in hydroponics is considered a sustainable way to utilize waste from aquaculture. However, aquaponics has to solve some challenges to grow into a viable technology on a commercial scale. One is a safe and effective way to protect fish and plants against pests and diseases. Such protection strategies are not established for aquaponics, and only a few studies focus on this area.

Ewumi Azeez Folorunso well addressed these issues in his thesis. He summarized the review of different integrated pest and disease management strategies and assessed the applicability and risks of different approaches in the paper I (published in Reviews in Aquaculture; IF 2020 = 10.618; top 1). In paper II, the potential use of entomopathogenic and mycoparasitic fungi to treat powdery mildew in aquaponics was assessed in paper II (published in the Frontiers in Marine Science; IF 2020 = 5.247, Q1). The paper shows that such fungi can be an effective natural way how to protect plants against disease without the use of synthetic fungicides. Paper III (published in the Frontiers in Marine Science; IF 2020 = 5.247, Q1) applied a holistic approach to assess risks related to the application of botanical and microbial pesticides in aquaponics. It showed that even the considered "safe" natural pesticides, such as azadirachtin, could negatively influence nitrification processes in the biofilter. It, therefore, urges the need to scan potential candidate pesticides for potential negative effects on the biofilter instead of relying on "natural means safe" beliefs. Paper IV is a manuscript studying the effects of natural and synthetic fungicides in the aquaponic setup. Despite being considered safe, this study showed that some natural fungicides could cause havoc in the aquaponics system.

Thus, the thesis comprises three published articles in excellent journals and one manuscript. In addition to these included papers, Ewumi Azeez has published five articles in journals with impact factors. Overall, he has published eight papers in prestigious scientific journals. In conclusion, I strongly recommend his thesis for defense.

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

3rd May, České Budějovice
Date and place

Mráz.....
surname and signature