

Kelvin Zhao Kang Ong

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Aquaculture researcher with experience in shrimp nutrition, functional feed additives, microbial-based aquaculture applications and sustainable feed ingredient development. My research background focuses on evaluating organic acid salts, denitrifying bacteria and BSFL meal as a replacement ingredient in aquatic species. I am particularly interested in translating aquaculture R&D findings into practical solutions.

EDUCATION

M.Sc. in Aquaculture

Shanghai Ocean University (SHOU) • GPA: 3.61

Shanghai, China • 09/2023 – 06/2026

B.Sc. Applied Biology in Aquatic Biology

Universiti Sains Malaysia (USM) • GPA: 3.61

Penang, Malaysia • 09/2018 – 09/2022

WORK EXPERIENCE

SATREPS, USM

Research Assistant • Full-time

11/2021 – 06/2023

Penang, Malaysia

- Conducted laboratory-scale synthesis of polyhydroxyalkanoates as well as supported 1 tonne of large-scale production initiatives in SIRIM and contributed to ongoing biopolymer research projects.
- Conducted downstream production and purification of PHA through freeze drying or drum drying for subsequent chemical and biological recovery.
- Supported design and execution of shrimp feeding trials and *Vibrio* sp. disease challenge studies utilising standard laboratory protocols and microbial techniques.

Star Feedmills (M) Sdn Bhd

Laboratory Assistant • Internship

08/2021 – 10/2021

Perak, Malaysia

- Sample and material preparation from specimen provided by farmers
- White leg shrimp and tiger shrimp genome extraction for disease detection
- Assisted the PCR laboratory officer to carry out q-PCR

SKILLS

Fermentation: Shake-flask cultivation, Batch fermentation, Fed-batch fermentation, PHA production, Downstream recovery and purification, Microbial culture handling

Insect bioconversion: Black soldier fly larvae rearing

Aquaculture nutrition: Feeding trial design and management, Growth performance analysis, Disease challenge studies, Proximate analysis, Apparent digestibility, Fatty acid composition, Amino acid profile, Non-volatile flavour profile, Histology, Gut microbiota metagenomics

Data analysis: Basic statistical analysis, AHP-CRITIC-TOPSIS analysis, Pearson correlation analysis

PROJECTS

Study on the Promoting Effects of Organic Acid Salts Supplementation in High Corn Gluten Meal Diets on Growth Performance, Health Status and Flavour Profile of *Penaeus vannamei*

04/2025

– 02/2026

Designed and conducted an 8-week shrimp feeding trial to evaluate sodium propanoate, sodium butyrate, sodium fumarate and calcium α -ketoglutarate as functional additives in high corn gluten meal diets. Investigated the potential effects of organic acid salts for mitigating the effects of high corn gluten meal inclusion through growth performance, physiological health, flavour profile and comprehensive AHP-CRITIC-TOPSIS analysis to identify suitable feed additives in *P.vannamei*.

Utilisation of denitrifying bacteria, *Stutzerimonas stutzeri* OS3 in high stocking density of *Penaeus vannamei* cultivation 04/2024 - 11/2024

Evaluated the application of the aerobic denitrifying bacterium, *Stutzerimonas stutzeri* OS3 as a biological intervention mitigating the accumulation of toxic nitrogenous compounds under oxygenated intensive Pacific white shrimp (*Penaeus vannamei*) farming conditions. This work enhanced my understanding of microbial-based environmental management, nitrogen transformation processes, bioaugmentation strategies and the use of beneficial microorganisms to support sustainable aquaculture production.

Utilisation of Red Palm Oil (RPO) By-product As Carbon Source in Production of Polyhydroxyalkanoates (PHAs) Using *C. necator* Re2058/pBG8 01/2023 - 06/2023

Evaluated the potential of two non-edible red palm oil (RPO) by-products as sustainable carbon feedstocks for microbial PHA production. The project involved upscaling from shake-flask culture to 5L batch fermentation and 13L fed-batch fermentation to achieve cultures exceeding 100 g/L wet cell weight. This project developed my experience in microbial bioconversion, fermentation scale-up, substrate valorisation, and downstream biopolymer production.

Influences of Black Soldier Fly Larvae (BSFL) Meal as Food Ingredient for Redclaw Crayfish, *Cherax quadricarinatus* (Von Martens, 1868) on Growth Performance and Moulting Rate 01/2021 - 01/2022

Investigated the bioconversion of palm kernel cake (PKC) as an agro-industrial by-product substrate for BSFL-mediated bioconversion as a pathway for sustainable feed development and the advancement of a circular economy. Managed BSFL from egg to the pupal stage to produce nutrient-rich biomass that was subsequently evaluated as a feed ingredient for redclaw crayfish (*Cherax quadricarinatus*). This project strengthened my practical experience in insect rearing, substrate valorisation, circular feed development and biological conversion of low-value by-products into functional biomass.

PUBLICATIONS

Organic acid salts mitigate the adverse effects of high corn gluten meal inclusion in *Penaeus vannamei* 05/2026

Aquaculture (Under review)

Polyhydroxyalkanoates Production Using non-edible Red Palm Oil 10/2024
ISBP conference 2024

This study evaluates the potential of non-edible Red Palm Oil (RPO), a low-cost byproduct priced at approximately 80% of crude palm oil as a sustainable carbon feedstock for producing Polyhydroxyalkanoates (PHAs). Using recombinant strains of the bacteria *Cupriavidus necator*, researchers aimed to achieve high-cell density cultures and characterize the resulting P(3HB-co-3HHx) copolymers.

AWARDS & SCHOLARSHIPS

CSC scholarship 06/2023
China Scholarship Council

Best Group Award 01/2022
UGM Summer Course on Tropical Aquaculture and Fisheries Management (2022)

Dean's List Award 01/2020
Universiti Sains Malaysia

CERTIFICATIONS

IELTS 7.5

HSK level 3

PADI Open Water Diver