

Ziwei(Zoe) Wu

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Education

Sun Yat-Sen University (SYSU)

Aug. 2021 - Present

Master in Science

Major: Ecology (honors program: Evolutionary Ecology)

GPA: 85.65/100

Core Courses: Evolutionary Ecology, Seminar in Ecology and Evolution, Data Analysis in R

Fujian Agriculture and Forestry University (FAFU)

Sep. 2017 - Jun. 2021

Bachelor of Agriculture, summa cum laude

Majors: Plant Science and Technology

GPA: 3.5/5 (85/100)

Relevant Courses: Microbiology, Genetics (Bilingual Course), Molecular Genetics, Biological Data Analysis, Organic Chemistry B, Plant Physiology A, Biochemistry B, Probability Theory, Experimental Designs and Statistical Analyses, Plant Cell Biology, Agroecology, Plant Biotechnology

Research Experience

1. Multi-omics study on the lignocellulose degradation by holobionts in mangrove sesarmid crabs: a game-changer for terrestrialization

Nov. 2022 - Present

Co-first author, in progress, in collaboration with The Chinese University of Hong Kong

- Led the assembly of three Sesarmidae genomes.
- Conducted gene functional annotations, focusing on CAZymes, using public databases.

- Analyzed genomic collinearity, evaluated CAZymes families, and identified unique gene families and expansions/contractions.
 - Combined metagenomics to uncover crab lignocellulose degradation mechanisms and evolution.
2. **Evolution of terrestrialization in Land Crabs:** Sep. 2022 - Present
exploring at the genomic level
First author, in progress, Master thesis
- Performed chromosome-genome assembly using ONT and Hi-C data.
 - Extracted RNA from five tissues(Heart, Hepatopancreas, Testis, Muscles, Gills), self-constructed RNA libraries, and full-length cDNA ONT sequencing.
 - Gene functional annotation.
 - Analyzed genomic collinearity and identified unique gene families, expansions/contractions, and positive selection to understand its adaptive terrestrial evolution.
3. **Uncovering influenza-like virus clades and new genera** Jun. 2022 - Jul. 2023
in invertebrates: Evolutionary insights into Orthomyxoviridae across metazoans
Co-first author, submitted to *PLOS Pathogens*, in collaboration with The Hong Kong Polytechnic University
- Constructed the phylogenetic tree for the newly recognized viruses alongside known members of Orthomyxoviridae.
 - Analyzed the ancestral states of the novel viruses and their host associations.
4. **Transcriptome Analysis of Pathogen-Induced Physiological Responses in Shrimp** Feb. 2022 - Jan. 2023
First author, completed
- Gathered nine RNA-Seq project datasets from the NCBI SRA and finally obtained 109 transcriptome expression profiles.
 - Data Quality Control, Differential Expression Analysis, and Enrichment Analysis (including Gene Ontology and Kyoto Encyclopedia of Genes Pathway Analysis)
5. **Microscopic Algae, “Macroscopic” Energy** Jun. 2018 - Nov. 2021
Student Leaders & Advisors, iGEM Project
- Constructed transgenic algal strains improve carbon dioxide fixation and lipid synthesis by overexpressing essential genes in the ascorbic acid metabolic pathway.
 - Managed mathematical modeling efforts, including:
 - Creation of a Logistic growth model for microalgae based on growth trends.
 - Optimization models using cost and time data to predict optimal cultivation conditions, cost-effectiveness, and profitability of a microalgae facility.

Skills and Hobbies

Software: Proficient in R (preferred for analysis and plotting), strong command of Perl programming (primary tools), familiar with Python (supplementary tools), limited exposure to Java

Hobbies: Avid Reader & Passionate Cook & Food Enthusiast & Animal Lover

References

Ka Yan MA, Associate Professor

School of Ecology

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Rongfeng Cui, Associate Professor

School of Ecology

Sun Yat-Sen University

cuirf@mail.sysu.edu.cn

Tsang Ling Ming, Assistant Professor

School of Life Sciences

The Chinese University of Hong Kong

lmtsang@cuhk.edu.hk

Stay curious forever, be willing to embrace everything, and excel at learning from scratch.