Name: Guanhua Wang
Email: Guanhuawang17@163.com
Date of birth: 18, May, 1998
Expectation: Ph.D (CSC)

EDUCATION

M.S., Biology, Shanghai Ocean University **2021. 09 - 2024. 06**

- Thesis: Diversity of Ciliate in Yangtze River Estuary and Its Symbiotic Bacteria

Keywords: Ciliate, Molecular Phylogenetics, Taxonomy, DNA Sequencing, Species Diversity, Endosymbiotic

B.S., Environmental Ecological Engineering, Pingdingshan University **2017. 09 - 2021. 07**

- Thesis: Study on soil microorganisms and enzyme activities in silvopasture system

Keywords: Low mountain and hilly areas; Silvopasture system; Soil microbial quantity; Soil enzyme activities

Major Courses:

Ecological Restoration of Waters (90/100), Protistology (93/100), Introduction to Animal Taxonomy (91/100), Ecological and Environmental Planning (92/100), Agroecological Engineering (84/100), Ecosystem and conservation biology (90/100), Meteorology and Climatology (87/100), Introduction to Remote Sensing (94/100).

PUBLICATIONS

Wang Guanhua., Han Kun., Jiang Jiamei. Taxonomy and SSU rRNA gene-based phylogeny of two new *Euplotes* species (Ciliophora, Euplotida) from China. *European Journal of Protistology* (Under Review)

Ye Huajian., **Wang Guanhua**., Li Chenhong., Jiang Jiamei., Pan Hongbo. Seasonal succession pattern of plankton community structure and its relationship with environmental factors in Chongming Island. *Environment Science*. (in Chinese, Under Review)

Wang Guanhua., Li Chenhong., Jiang Jiamei., Pan Hongbo. Spatio-temporal variations of functional diversity of ciliate communities in Yangtze River Estuary. (In preparation)

ACADEMIC CONFERENCE

1. Training course on **scientific data analysis** based on **R language** by the **Institute of Botany, the Chinese Academy of Sciences (Lai Jiangshan).** **2022. 07**
2. Training course on **Protozoan Ecological Analysis** by **Chinese Ocean University** **2022. 11**
3. Proceedings of the 22nd Symposium of the Chinese Protozoological Society, making a poster: **"Taxonomy and SSU rRNA gene-based phylogeny of two new *Euplotes* species".** **2023. 07**

PROFICIENT SKILLS

Programming **R, Qiime2**

➢ α, Function, β Diversity Analysis ➢ Redundancy Analysis	➢ Principal Coordinates Analysis ➢ Molecular Ecological Network
➢ Indicator Species Analysis	➢ Functional Prediction (PICRUSt2, FUNGuild)

Laboratory techniques

<table>
<tr><td rowspan="2">Aquatic sampling</td><td colspan="3">• Micropipettes;
• Identification and Cloning Cultivation of Planktonic Organisms;
• Microscopic observation;
• Scanning Electron Microscope (SEM)</td></tr>
<tr><td>• DNA extraction
• (q)PCR</td><td colspan="2">• Protargol
• (Quantitative protargol stain) QPS
• (Fluorescence in situ hybridization) FISH
• (Quantitative protargol stain) DAPI</td></tr>
<tr><td>Environmental Factor</td><td>(Total Nitrogen) TN
(Total Phosphorus) TP
NO_3^--N, NO_2^--N</td><td>(Secchi disc) SD
(Chlorophyll a) Chl</td><td>Algal toxin
Soil Enzyme Activity</td></tr>
</table>

Lab Equipments

(Fluorescence) Microscope, YSI professional plus, FluoroSense™ Handheld, Refrigerated Centrifuge, Thermal Cycler, (High-Performance Liquid Chromatography) HPLC, (Mass Spectrometer) MS, UV-Visible Spectrophotometer.

Other Software

Adobe Photoshop, Adobe Illustrator, PaintTool SAI, Figtree, Mega, Seqman, ArcGIS, SPSS

AWARDS

Third Prize in the National College Student Life Science Competition. **2018. 09 - 2019. 10**

The First Prize Scholarship, Outstanding League Cadres, Merit Student, Outstanding Volunteer. **2022. 09 - 2023. 10**

RESEARCH EXPERIENCES

Participation in National Natural Science Foundation Projects **2021. 09 - 2024. 06**

- Ciliate Protozoa Biodiversity and Resource Archives in the Yangtze River Estuary Wetlands (Project Number: D-8000-17-0122；2018-2021)
- Ciliates of Lower Taxa in the Yangtze River Estuary Brackish Water System: Taxonomy, Diversity, and Gene Library Construction. (Project Number: D-8101-21-0170; 2022-2025)
- Detection of zooplankton samples from typical rivers and lakes reservoirs in Zhejiang Province (Project Number: D-8006-23-0196; 2023-2025)

✓ Assisted the Institute of Applied Ecology, Chinese Academy of Sciences, in the Changbai Mountain forest survey and the collection and processing of root and soil samples. **2019. 07 - 2019. 09**

✓ Assisted a professor from the Institute of Botany, Chinese Academy of Sciences, in translating relevant content for the book 'Flora of the United States.' **2019. 10 - 2020. 07**

✓ As a team leader, assisted undergraduate advisors in compiling the 'Catalog of Germplasm Resources of Forest Trees in Pingdingshan City' and the 'Illustrated Atlas of Germplasm Resources of Forest Trees in Pingdingshan. '

2018. 10 - 2020. 07

Collected water samples and conducted the following research in different salinity zones at the Yangtze River Estuary (Chongming, Nanhui, and Qidong). **2021. 06 - 2024. 06**

✓ **Expand the species database, investigate their evolutionary relationships, and clarify the previous ambiguous identifications**: Isolated and cultured protozoa from samples, and using both morphological analysis and SSU rRNA sequencing technology to identify these organisms. **Identified 25 species, including six new species and four species never recorded in China.**

✓ **Explore protozoan alpha-diversity, beta-diversity, and functional feeding diversity distribution patterns across different months within a year**: Compiled a species list and abundance data by QPS and eDNA sequencing and collected relevant environmental factors related to water quality in this area. I examined how both biological factors and non-biological factors drive protozoan species diversity, functional feeding diversity, and community structure. By identifying dominant groups and indicator species among protozoa to pinpoint species that can serve as indicators of water quality, particularly nutrient levels.

- **Elucidating the diversity of symbiotic bacteria in protozoa and their relationship with their hosts:** Determining the symbiotic bacteria within protozoa using third-generation sequencing and FISH fluorescent labelling methods, using diversity analysis and functional predictions to investigate whether symbiotic bacteria are related to the ability of unicellular eukaryotes to thrive in regions with a wide range of salinity. Simultaneously, determined their position in the phylogenetic tree and their phylogenetic relationships. **In progress**

SUMMARY

- Mastered the fundamentals of **Taxonomy**, Molecular Phylogenetics, and the relationship between **environmental factors** and the **community structure** of plankton protist.
- Proficient in **bioinformatic tools**, and capable of applying bioinformatic methods in research effectively.
- Rich experience in **designing and conducting experiments,** as well as project team **management** (project design, tasks allocation etc) experience as one of the lab managers.
- Approaching life and scientific research with patience, using reading and exercise as stress-relief methods, and maintaining a **healthy mental and physical state.**
- **Communicating** with supervisors, reporting progress **actively**, and efficiently advancing research projects. Collaborating and assisting fellow students, fostering a **harmonious** atmosphere.