Report

Course Title: Duckweed associated microbes research and comprehensive research reviews

Assoc. Prof. Dr. Kannika DUANGMAL

1 - 14 July 2025

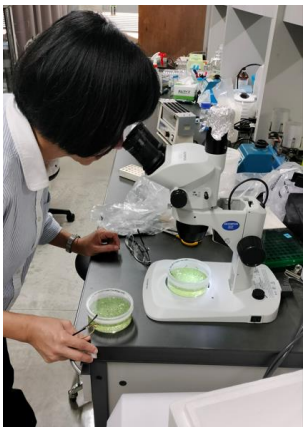
Knowledge Co-Creation Program under JICA Technical Cooperation Project,
Science and Technology Research Partnership for Sustainable Development (SATREPS)
entitled “The Project for Development ofthe Duckweed Holobiont Resource Values towards Thailand BCG Economy (Be-HobiD)”

Trainee Report of Assoc. Prof. Kannika DUANGMAL

1. At Kyoto University (1 - 5 July, 2025)

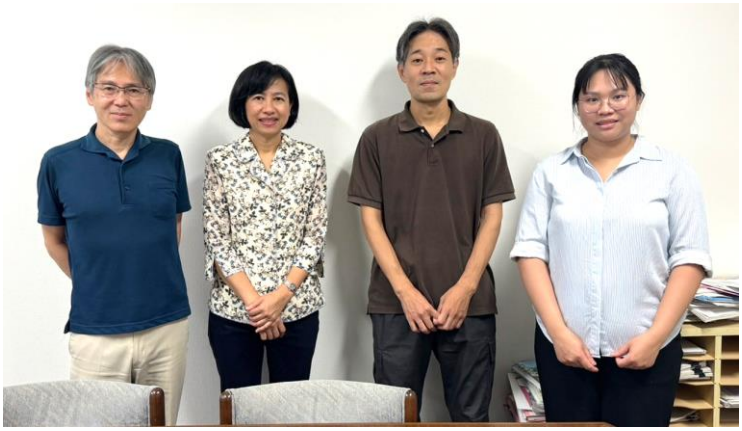
I have visited Prof. Dr. Tokitaka OYAMA at Department of Botany, Graduate School of Science, Kyoto University during 1 - 5 July, 2025. Prof. Dr. Tokitaka OYAMA and Assistant Prof. Dr. Shogo ITO gave an introduction for the laboratory facilities, the duckweeds culture collection, how to observe and characterize duckweed. I also had chance to observe several duckweeds ponds in the campus.

At Prof. OYAMA's Laboratory, I have learned about duckweed culture, preservation, and the method to identify duckweeds, both from morphological characteristics and their genotypic detection. Assistant Prof. Dr. Shogo ITO taught the method to identify duckweeds (*Spirodela*, *Lemna*, and *Landoltia*) into species and strain levels using tubulin-based polymorphism fingerprinting. Moreover, I also had a chance to exchange research experiences and discuss with Prof. Dr. Tokitaka OYAMA, Assistant Prof. Dr. Shogo ITO and students who study duckweed-microbes interaction, RNAseq data analysis, and experimental conditions for PGPB assay.



2. At The University of Osaka (6 - 8 July, 2025)

I have visited Prof. Dr. Michihiko IKE's laboratory at the Division of Sustainable Energy and Environmental Engineering at Osaka University during 6-8 July 2025. At Prof. IKE's laboratory, I have visited laboratory rooms to see the equipment and the laboratory's work with duckweeds. I also had a group discussion with students and researchers who are working on duckweed-microbe interaction and other research in the laboratory; the use of predatory bacteria to get rid of plant growth-inhibiting bacteria and the use of duckweeds in other applications.



3. At Hokkaido University (9 - 14 July, 2025)

I have visited Prof. Dr. Masaaki MORIKAWA, and Prof. Dr. Ken'ichiro MATSUMOTO's laboratories at Hokkaido University together with the visiting team from Thailand. We have visited the facilities in the laboratory, visited a duckweed pond in Hokkaido University, and attended the Be-HoBiD Symposium in the Annual Meeting of Japan Society for Environmental Biotechnology, JSEB.

In conclusion from this training program, I have learned many things, new ideas and experiences, including experimental methods that could be applied to my work and useful for future work on Be-HoBiD. Thank you very much for all of your warm welcome and hospitality. I also acknowledge the support from Knowledge Co-Creation Program under JICA Technical Cooperation Project.