Report on a JICA Project Site Visit

February 19th, 2025 Niigata University G-DORM program team

We visited Faculty of Science, Kasetsart University, which conducts one of the JICA's SATREPS projects "Development of the Duckweed Holobiont Resource Values towards Thailand BCG(Bio-Circular-Green) Economy". First, professors involved in this project explained the contents of the project for us. This project aims to study applied methods of a freshwater floating aquatic plant, duckweed, which has been consumed as food in Thailand. Duckweed can survive in an environment with high carbon dioxide concentration or in contaminated water. Due to this feature, they can collect carbon dioxide on the earth, improve the quality of water, and manufacture biofuels. Bacteria can promote their growth, contributing to the food shortage. After the introduction to the project, the professors showed us a room in which a variety of duckweeds are grown and some water tanks in which experiments are performed with different conditions. In addition, they served us cookies made with duckweed. The cookies did not have much of a grassy flavor but rather a matcha flavor, so we enjoyed eating them.

Figure 1. Group photo in front of Kasetsart University

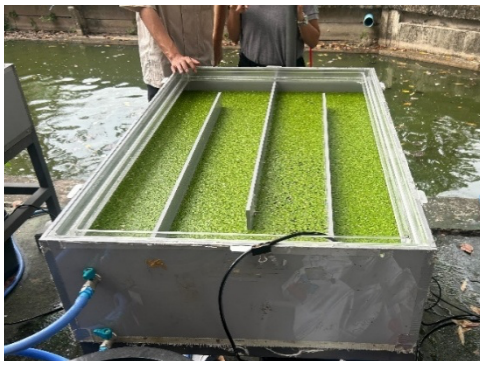
Figure 2. Water tank in which duckweed is grown

Figure 3. Experimental facility presented by JICA

After the visit, three things particularly left a lasting impression. The first one is that several Japanese universities headed by Hokkaido University have been participating in this

project. JICA has a recognition that our lives are supported by mutual reliance with other countries and it is working with an ideal, “Make international cooperation Japanese culture”. We learned that JICA is doing the project with Thai universities beyond boundaries to solve global issues based on this ideal. Some of the experimental facilities used in this collaborative research are donated by JICA, representing Thai high studying level and a close relationship with Japan. The second one is the ecology and high potential of duckweed. We have not known about duckweed before, but we could understand more about it through the research explanation from the professors. We learned that there are several species of duckweed with different sizes, and some of them are edible but some are not edible, and some of them have roots but some do not have them. We have realized that we can find duckweed in Japan such as in ponds and they are familiar to us too. Furthermore, we found that growing duckweed leads to better water quality and more nutritious eggs are produced by chickens fed with feed containing duckweed. From this new knowledge, we came to understand the usefulness of duckweed. The third one is the delicacy of experiments. There was much duckweed grown with different conditions in the room in which they are kept for experiments. One of the species of duckweed is the smallest flowering plant growing in environmental water and it has a long diameter of less than 1mm. Since researchers nurture such tiny duckweed while varying growing environments, we think that they cannot get accurate results without their careful work.

Figure 4. Room keeping various duckweed

Through this observation of JICA project, we could learn JICA’s initiatives and a connection between Thailand and Japan. Duckweed can be helpful for realization of BCG economy in several ways, so we hope that there will be more progress in research on how to cultivate duckweed effectively in future and use of them will expand even more. We will remember the knowledge gained from this opportunity and significance of JICA’s existence and will work hard on future studies and research activities.