

Activity report after attended the short-term visit to Malaysia

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The short-term visit program to Malaysia of students from University of Tsukuba was held from 3-9 March 2016. Our plan was to visit several academics in Kuala Lumpur. Firstly, we visited Malaysia-Japan International Institute Technology (MJIT) on March 4th, which is officially set up by Universiti Teknologi Malaysia (UTM). We attended the seminar of Metabolic Engineering & Molecular Biology (MemBio) Research Lab. Two Malaysian students of this lab presented her research work and paper review, respectively. Their works focused on the degradation of chemical contaminants and pollutants such as Polychlorinated Biphenyl (PCB) to solve the environmental issues by using the function of microorganisms. Moreover, a Japanese student of our program also presented his study on eutrophication control by using Oxygen Productive Electrode (OPE). The question-answer time and discussion between teachers and students were held on after each presentation finished. I thought that these activities are good strategies for improving the students' comprehension. In addition, we visited Institute of Tropical Agriculture (ITA) at Universiti Putra Malaysia (UPM). Research program of ITA is to develop the sustainability of crops production and protection, and to produce high value of vegetables. Natural enemies such as parasitoids, predators and microorganisms were used for control pests and plant diseases in environmental friendly ways in terms of plant protection. Furthermore, ITA emphasized to develop and produce biocontrol products from bacteria that can work towards fertilizer.



Figure1: Seminar in MemBio Lab



Figure2: We and MemBio Lab's students



Figure3: Stock cultures in Plant Protection Lab, ITA

On March 5th and 6th, we spent the weekend with Malaysian friends for sightseeing in Malaka and Kuala Lumpur. They were so kind to us and guided us to interesting places. The cultural diversity and activities such as foods, religions and languages within ethnic groups in Malaysia are important things that I learned from these trips.



Figure4: Dutch Square, Malaka



Figure5: Buta Cave, Kuala Lumpur



Figure6: Merdeka Square, Kuala Lumpur

On March 7th, we went to Forest Research Institute Malaysia (FRIM) for visit Paper Testing Lab. For this lab, timber woods of *Acacia* species are general plant sources for paper and nanocellulose productions. Several machine types and laboratory instruments were used in paper refining processes and paper quality testing. Moreover, they also have consultant projects with the companies to solve the problems of paper industry. Afterwards, we visited FRIM Gallery & Museum and had a good journey in FRIM forest. FRIM forest regards as a plentiful forest and a good habitat for many animal and insect species although this forest was established by human made.



Figure7: Paper Lab, FRIM



Figure8: FRIM forest journey



Figure9: "Crown Shyness" in FRIM forest

Then, we visited Institute of Algae Research Laboratory at Ocean and Earth Sciences (IOES), University of Malaya (UM). Algae have increased in importance in recent years due to their applications in the fields of nutrition, chemical and pharmaceutical industries, wastewater management and biofuel production. Therefore, research highlights are separated into several topics. we had the opportunities to discuss with some Algae Lab's students about their works, for examples, algae and seaweeds were used for producing high quality paper, bioethanol and electricity, and preventing wastewater pollution from oil palm industry. Also, they brought us to algal ponds and explained about the algal farming and cultivation systems.



Figure10: Stock cultures in Algae Lab



Figure11: Algal pond in Algae Lab



Figure12: Production of biofuel from seaweed, Algae Lab

Besides, we attended Joint Degree Program (JDP) workshop between University of Tsukuba and MJIIT On March 8th. Invited speakers both with teachers and students from Malaysia and Japan gave the presentations about ongoing research projects and experiences from the short visit program for sharing the collaboration activities between MJIIT and Tsukuba. Moreover, the further improvements of JDP between two countries were discussed.

On March 9th, we visited Asahi Company and palm oil plantation of Sime Darby Company. Sime Darby Plantation is the world's largest palm oil producer due to seasonal requirements in Malaysia. Moreover, palm oil can provide the best yields and economic benefits than other oil plants. Palm oil products from their plantation were usually used for biodiesel production. Unfortunately, we did not visit palm oil plantation of this factory. However, Sime Darby's staff brought us to production lines in the factory and explained about refining processes of biodiesel. That is, Methyl Ester and Glycerine are main products of this production. Also, methyl ester can be developed for winter grade for supplying in winter season. Currently, this company has downstream industries that reach customers

through products such as edible oils (e.g. glycerol), fat products and biodiesel (Methyl ester) in 16 countries. Their main customer group is petroleum companies.



Figure13: JDP Workshop, MJIT



Figure14: Sime Darby Plantation



Figure15: We and Malaysian friends at Sime Darby

Overall, this program provided us with knowledge of research working in different fields. Not only research progresses but also research problems were discussed. These experiences may lead us to develop our work in the future. Moreover, the educational connections from this program are very important to make a relationship with other researchers in the same field. In addition, we could improve English communication skills and learn more about Malaysian cultures.

Finally, I would like to express my gratitude to University of Tsukuba for the budgets that gave me the opportunity to go aboard as an exchange student in Malaysia. I am also grateful to MJIT and all academics in Malaysia for your kind cooperation during our visitations. Furthermore, I would like to thank Japanese and Malaysian friends for all your kindness and support during this program. I hope we will meet again soon.