

BIFA Narrative Midterm Report

Report Attachment

Microbial metabarcode database of Mekong river – BIFA6_030

Project Events

1. eDNA data analysis and data mobilization workshops

The 1st, 2nd and 3rd eDNA workshops entitled “eDNA data and their importance in biomonitoring of Mekong river microbial diversity” were conducted. The 1st workshop was held on 19-20 January 2022 at Chiang Rai Heritage Hotel, Chiangrai Province, Thailand (Figure 1). 23 participants attended the first workshop. The 2nd workshop, which was collaborated with Faculty of Science, Ubon Ratchathani University, took place on 23-24 March 2022 at U PLACE convention hall, Ubon Ratchathani University, Ubon Ratchathani Province, Thailand (Figure 2). 57 participants attended the second workshop. The 3rd workshop, which was collaborated with Mahidol University, took place on 17 June 2022 at Lecture Hall 2, Mahidol University Amnatcharoen Campus, Amnat Charoen Province, Thailand (Figure 3). 58 participants attended the third workshop. The workshop staff team was led by Dr. Somsak Likhitrattanapisal, the project’s principal investigator, and Dr. Supawadee Ingsriswang, the project’s partner and the principal investigator of MekongDNA project.

The lecture session was divided to 4 chapters; 1) an introduction to eDNA-based biomonitoring of aquatic microbial community, 2) introduction to eDNA data analysis, and 3) eDNA for Mekong river bioindicator and 4) eDNA-based diversity data mobilization. After the lecture session, the workshop participants, which comprises university lecturers and students, highschool students and teachers in STEM curricula, and local hydrology station staffs, were partaking in the lively discussion and idea sharing session.



Figure 1. The lecture sessions of the 1st eDNA workshops on 19-20 January 2022 at Chiang Rai Heritage Hotel, Chiangrai, Thailand



Figure 2. The lecture sessions of the 2nd eDNA workshops on 23-24 March 2022 at U PLACE convention hall, Ubon Ratchathani University, Ubon Ratchathani, Thailand



Figure 3. The lecture sessions of the 3rd eDNA workshops on 17 June 2022 at Lecture Hall 2, Mahidol University Amnatcharoen Campus, Amnat Charoen, Thailand

2. The 4th workshop and the seminar “eDNA for Biomonitoring in Environments and Mycobiome: Importance and its Applications”

The 4th workshop was conducted in conjunction with the WDCM global training course: ASEAN satellite training course titled “eDNA for Biomonitoring in Environments and Mycobiome: Importance and its Applications”. It was held onsite and online during 28-29 November 2022 at Swissotel Hotel in Bangkok, Thailand (Figure 4). It was hosted by Thailand Bioresource Research Center (TBRC) under National Center for Genetic Engineering and Biotechnology, National Science and

Technology Development Agency. The 2-day training consisted of 2 major topics: 1) eDNA for Biomonitoring in Environments (Day 1) and 2) Mycobiome: Importance and its Applications (Day 2). The training also included 2 sessions of hands-on practice on eDNA analysis. There were 72 participants onsite and 40 participants online. The participants were from Thailand and other 13 countries (Belgium, Brunei, Cambodia, China, Indonesia, Italy, Malaysia, Mongolia, Myanmar, Philippines, Republic of Korea, Russia, and Uzbekistan).

The online session was held in the morning on the second day of the training. The training organizer invited 3 speakers to share their knowledge of eDNA on the first day and 8 speakers to share their experiences related to eDNA and Mycobiome. The course is intentionally broad with an aim of providing a general overview of the current state-of-the-art in eDNA research as well as the relationship between fungi and the ecosystem.



Figure 4. The 4th workshop and the seminar “eDNA for Biomonitoring in Environments and Mycobiome: Importance and its Applications” on 28-29 November 2022 at Swissotel Hotel in Bangkok, Thailand

3. Workshop coordination meeting at Chiangkhan Hydrology Station

On 15 March 2022, the members in the principal investigator's team, Dr. Piyanun Harnpicharnchai and Mr. Worawongsin Boonsin, were dispatched to Chiangkhan Hydrology Station, Loei province, Thailand, to discuss the future collaboration in the workshop as a guest lecturer (Figure 5). The experts at the hydrological station were invited to give a lecture on hydrological monitoring of Mekong river. The meeting also discussed the possibility to record demonstration videos of water hydrological analysis. Moreover, the meeting resulted in an agreement to integrate the hydrological data of Mekong river at Chiangkhan station with the project's eDNA-based occurrence data.



Figure 5. The workshop coordination meeting with the officers of Chiangkhan Hydrology Station on 15 March 2022 in Loei province, Thailand

4. The joint meeting for eDNA data management and curriculum at Mahasarakam University

On 7 February 2023, the joint meeting between the project PI and members and the lecturers at Faculty of Science, Mahasarakam University (MSU) was held at Mahasarakam University (Figure 6). The purpose of this meeting was to plan the possible work in future eDNA research collaboration between TBRC and MSU. One of the MSU lecturers, Dr. Nakorn Pradit, had participated in the 4th workshop and the seminar at Swissotel, so he was aware of potentials to conduct eDNA study and develop eDNA analysis course into MSU graduate curriculum.



Figure 6. the joint meeting between the project PI and members from TBRC and the lecturers at Faculty of Science, Mahasarakam University on 7 February 2023.