

Report on the Training-workshop on Plant Taxonomy

Date: 16th – 23rd February 2011 (8 days)

Venue: Research Center for Biology Indonesia, Institute of Science (RCB-LIPI), Bogor, Indonesia

Organizer: RCB-LIPI, ASEAN Centre for Biodiversity (ACB), Ministry of the Environment, Japan (MOE-J)

1. Objectives of the Training Workshop

Generally, the training workshop would capacitate participants in the rigors of taxonomy especially on the terrestrial plants group. Specifically, the training workshop will:

1. Introduce the participants to the taxonomy of terrestrial plants particularly selected families of dicots
2. Familiarize the participants to the general biology of these plants
3. Upgrade the taxonomic skills of the participants on the following:
 - a. Methods of morphological observation
 - b. Sample collection, processing and managing
 - c. databasing
4. Introduce the participants to advanced taxonomic methodologies such as molecular techniques, bar coding and databasing
5. Provide hands-on experience on through a field exercise in collection, DNA coding and molecular analysis

2. Schedule

Day 1: 16th February 2011	
09:00-09:30	Opening Ceremony
09:30-10:00	Introduction of participants Introduction of overview of the Training Workshop: Dr. Dedy Darnaedi (LIPI), Dr. Filiberto A. Pollisco (ACB)
11:30-12:00	General Lecture on Plant Taxonomy: Dr. Teguh Triono
13:00-14:30	Groping and Practice for making search key 【Grouping】 Participants were divided into four groups and each group decided the target taxon. 【Practice for making search key】 As a practice to get used to a search key, participants made the sheets for searching a member of each group.
15:00-16:00	General Lecture on Biogeography: Dr. Edwino Fernando
16:00-17:00	Visit herbarium collection: Dr. Harry Wiriadinata
Day 2: 17th February 2011	
08:30-10:00	General Lecturer on Molecular analyses and barcoding: Dr. Teguh Triono
10:30-12:00	Lecture on Plant Age: Dr. Eizi Suzuki
13:00-15:00	Lecture on Begoniaceae, Fabaceae, Rosaceae & Rubiaceae: Dr. Harry Wiriadinata
15:30-16:15	Lecture on Cucurbitaceae: Dr. Rugayah
16:15-17:00	Lecture on Balsaminaceae: Dr. Nanda Utami
Day 3: 18th February 2011	
08:30-10:00	Lecture on Cytology: Dr. Dedy Darnaedi

10:30-12:00	Lecture on Molecular Systematic: Dr. Marlina Ardiyani
13:00-15:00	Lecture on Database IBIS and visit Database Room: Drs. Bambang Hartoko/Drs. Basuki Budi Mulyono
15:00-17:00	Group Working with herbarium specimens: Dr. Harry Wiriadinata, Dr. Rugayah, Dr. Nanda Utami
Day 4: 19th February 2011	
08:30-12:00	Working on Cytology (group1&2): Dr. Dedy Darnaedi Working on Molecular Analyses (group3&4): Dr. Marlina Ardiyani
13:00-16:30	Working on Cytology (group3&4): Dr. Dedy Darnaedi Working on Molecular Analyses (group1&2): Dr. Marlina Ardiyani 【Group Working on Molecular Analyses】 Practical training was started from the process of grinding the silica gel dried leaves. DNA was extracted by basic step, finally extracted DNA was placed in electrophoretic apparatus and lecture was finished. After several hours, the result of electrophoresis was shown by pictures. 【Group Working on Cytology】 The first procedure was gathering elongating root tips from seedling of woody plants. Through the processes of fixation of root tips, making sections and staining, finally the state of nucleus during cell division was observed.
Day 5: 20th February 2011	
08:30-10:00	Lecture on Ecology and Forest Dynamic: Dr. Eizi Suzuki
10:30-12:00	Working with herbarium specimens "Sampling method": Dr. Eizi Suzuki
13:00-15:00	Lecture on Fagaceae: Dr. Shinji Fujii
15:30-17:00	Preparation for field trip
Day 6: 21st February 2011	
7:00-	Move to Cibodas
10:00-15:00	Visit Gunung Gede-Pangrango National Park and Cibodas Botanical Garden
15:30-17:00	Data Analysis
17:00-19:00	Dinner & Discussion
19:00-21:00	Training session for making specimens: Dr. Harry Wiriadinata
Day 7: 22nd February 2011	
08:00-12:00	【Sample collections & Processing herbarium】 Participants collected samples of target taxon for each group in Cibodas Botanical Garden. They classified collected plants based on description in "Flora of Java" and made small taxonomic key tables.
13:00-	Depart from Cibodas
16:00-	Preparing report and presentation
Day 8: 23rd February 2011	
08:30-12:00	Preparing report and presentation
13:00-15:00	【Group presentation and discussion】 Each group was provided thirty minutes for presentation, discussion and evaluation from lecturers. All groups well arranged basic contents such as feature of target taxa and explanation of the taxonomic key table.
16:00-17:00	Closing Ceremony

3. The list of Trainers and Participants

[Lecturers]

1. Dr. Teguh Triono, Indonesia - General lecture on Plant Taxonomy, Morphology, molecular analyses and DNA barcoding. Taxon: Sapotaceae
2. Dr. Shiji Fujii - Morphology on Fagaceae
3. Dr. Eiji Suzuki - Forest dynamics study
4. Dr Edwino Fernando - Biogeography and Morphology of Ericaceae
5. Dr. Rugayah - Morphology, Specimens collection, Taxon: Cucurbitaceae
6. Dr. Dedy Darnaedi - Morphology, Cytology and Specimens collection
7. Dr. Hary Wiriadinata - Morphology, Specimens collection,
8. Dr. Nanda Utami- Morphology, Taxon: Rubiaceae
9. Dr. Marlina Ardiyani- Molecular Analyses.
10. Drs. Basuki Budi Mulyono - Database
11. Drs. Bambang Hartoko - Database

[Assistants]

1. Ujang Hapid

[Participants]

No.	Name	Institution
1	Y. Lavy	Deputy Director of Dept. of Wetland and Coastal Zone Ministry of Environment Cambodia
2	Keth Samath	Researcher and Seed Production of Vegetable General Directorate of Agriculture Ministry of Agriculture, Forestry and Fisheries Cambodia
3	Tulus Pambudi	Betung Kerihun National Park Indonesia
4	Tri Arfianti	Purwodadi Botanical Garden – LIPI Indonesia
5	Nor Ezzawanis Binti Abdullah Thani	Research Officer Forest Research Division, Forest Research Institute of Malaysia Malaysia
6	Jovita Elderson Anak Ripen	Reserach Officer Serawak Biodiversity Centre Malaysia
7	Khin Myo Thet	Demonstrator University of Forestry, Forest Department Ministry of Forestry University of Forestry Myanmar
8	Cecille G. Garcia	Ecosystem Management Specialist I Protected Areas and Wildlife Bureau Department of Environment and Natural Resources Philippines
9	Dhiocel A. Celadina	Instructor I

		Western Philippines University Philippines
10	Yow Wei Ching	Research Assistant Center for Tropical Forest Science Singapore
11	Tan Siu Yueh	Research Assistant Plant Systematic Lab. Department of Biological Sciences National University Singapore
12	Bordintorn Sonsupab	Agricultural Scientist Bangkok Herbarium, Department of Agriculture Thailand
13	Jarearnsak Sae Wei	Researcher Prince of Songkhla University Herbarium, Princess Maha Chakri Sirindhorn Natural History Museum Department of Biology Thailand
14	Nguyen The Cuong	Researcher Institute of Ecology and Biological Resources Vietnam Academy of Science and Technology Vietnam
15	Nghiem Thi Phuong Le	Biodiversity Conservation Agency Ministry of Natural Resources and Environment Vietnam
16	Taufikurrahman Nasution	Cibodas Botanical Garden – LIPI Indonesia
17	Indah Wahyuni	Research Assistant SEAMEO BIOTROP Indonesia
18	Lulut Dwi Sulistyarningsih	Herbarium Bogoriense, Botany Division Research Center for Biology –LIPI Indonesia
19	Wita Wardani	Indonesian Institute of Sciences Indonesia
20	Yessi Santika	Indonesian Institute of Sciences Indonesia
21	Bing Liu	Institute of Botany Chinese Academy of Sciences China

[Working Group]

GROUP 1: Begoniaceae (mainly genus *Begonia*)

Supervisor: Dr. Harry Wiriadinata

Mr. Tulus Pambudi [Indonesia, Kalimantan NP]

Ms. Khin Myo Thet [Myanmar]

Mr. Bordintorn Sonsupab [Thailand]

Mr. Taufikurrahman Nasution [Indonesia, Cibodas BG]

GROUP 2: Rubiaceae (mainly genus *Lasianthus*)

Supervisor: Dr. Nanda Utami

Mr. Jarearnsak Sae Wei [Thailand]
Ms. Nor-Ezzawanis Abdullah Thani [Malaysia]
Ms. Cecille G. Garcia [Philippines]
Ms. Lulut Dwi Sulistyaningsih [Indonesia, Cibinong]

GROUP 3: Rosaceae (mainly genus *Rubus*)

Supervisor: Dr. Rugayah

Mr. Nguyen The Cuong [Vietnam]
Mr. Dhiocel Alianza Celadin [Philippines]
Mr. Tri Arfianti [Indonesia East Java]
Ms. Nghm Thi Phuong Le [Vietnam]
Ms. Y Lavy [Cambodia]

GROUP 4: Ericaceae (mainly genus *Rhododendron*)

Supervisor: Dr. Edwino Fernando

Ms. Jovita Elderson Anak Ripen [Malaysia]
Mr. Liu Bing [China]
Ms. Yow Wei Ching [Singapore]
Ms. Indah Wahyuni [Indonesia, Bogor]
Mr. Keth Samath [Cambodia]
Mr. Jon Tan Siu Yueh [Singapore]

4. Remarks and Comments

In the first half of the training, general lectures such as plant taxonomy, phytogeography, cytology and molecular biology covered basis of botany extensively. Each lecture was advanced, therefore the participant who doesn't have knowledge of college level seemed to feel difficult. On the other hand, group workings in the latter half were programmed easily for beginner, therefore workings were favorable review for participants.

Training programme made by LIPI was highly evaluated. Some plant taxa which are found in Cibodas were decided in advance and each group had target taxon. Under the target taxon, participants carried out the programme such as Working in Herbarium, field trip, sample collection, observation and making taxonomic key tables. Participants could learn intensively about basic method of plant taxonomy and observation method. In addition, it was much more effective to divide participants to groups and to decide target taxon for each group.

During the group working, the leaders often supported the beginners. Difference of the ability in participants was not disadvantage to achieve the human capacity building which was primary purpose of this workshop. This training might be useful to improve the present state with difference in the capacity level.

5. Pictures



Opening ceremony, Welcome remark. Dr. Bambang LIPI. Feb16



General Lecture on Biogeography. Feb.16



Working with herbarium specimens. Feb18



16 Working on Molecular Analyses. Feb19



Working on Cytology by Dr. Dedy. Feb19



Field research. Feb21