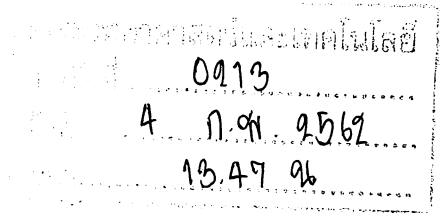


ที่ วท 5402/ว.159

28 มกราคม 2562



เรื่อง ขอเรียนเชิญเข้าร่วมการอบรม เรื่อง International Workshop on Bioresource Center:
Connecting the Nature, Creating the Future

เรียน คณบดีคณะวิทยาศาสตร์และเทคโนโลยี
มหาวิทยาลัยราชภัฏกำแพงเพชร

สิ่งที่ส่งมาด้วย เอกสารประชาสัมพันธ์

ด้วย ศูนย์พันธุวิศวกรรมและเทคโนโลยีชีวภาพแห่งชาติ สำนักงานพัฒนาวิทยาศาสตร์และเทคโนโลยีแห่งชาติ กระทรวงวิทยาศาสตร์และเทคโนโลยี กำหนดจัดการอบรม เรื่อง International Workshop on Bioresource Center: Connecting the Nature, Creating the Future โดยมีวัตถุประสงค์เพื่อสร้างความสามารถให้กับบุคลากรที่ทำงานเกี่ยวข้องกับจุลินทรีย์ และเทคโนโลยีชีวภาพ ให้มีความรู้ความเข้าใจเพิ่มขึ้นเกี่ยวกับการใช้ประโยชน์จากจุลินทรีย์เพื่อนำไปสู่การพัฒนาเศรษฐกิจฐานชีวภาพซึ่งจะช่วยผลักดันการเติบโตด้านเศรษฐกิจของประเทศต่อไป ในการอบรมดังกล่าวประกอบด้วยภาคบรรยาย ในวันที่ 19 มีนาคม 2562 ณ โรงแรมพูลแมน คิง เพาเวอร์ (รางน้ำ) กรุงเทพฯ และภาคปฏิบัติการ ในวันที่ 20 – 22 มีนาคม 2562 (3 วัน) ณ อุทยานวิทยาศาสตร์ประเทศไทย จ.ปทุมธานี ดังรายละเอียดตามสิ่งที่ส่งมาด้วย

ในการนี้ ศูนย์ฯ ได้พิจารณาแล้วเห็นว่าการอบรมดังกล่าวน่าจะมีประโยชน์ต่อท่าน และ/หรือ บุคลากรในหน่วยงานท่าน ศูนย์ฯ จึงใคร่ขอเรียนเชิญท่าน และ/หรือ บุคลากรในหน่วยงานท่าน สมัครเข้าร่วมการอบรมดังกล่าว โดยมีค่าลงทะเบียนภาคบรรยายสำหรับบุคคลทั่วไป 1,500 บาท นักศึกษา 1,000 บาท ค่าลงทะเบียนภาคปฏิบัติการหลักสูตรที่ 1 2,500 บาท ค่าลงทะเบียนภาคปฏิบัติการหลักสูตรที่ 2 1,000 บาท และค่าลงทะเบียนภาคปฏิบัติการหลักสูตรที่ 3 2,500 บาท (ข้าราชการสามารถเบิกค่าลงทะเบียนและไม่ถือเป็นวันลา) โปรดกรอกใบสมัคร และส่งกลับมายังศูนย์ฯ ภายในวันที่ 1 มีนาคม 2562

จึงเรียนมาเพื่อโปรดพิจารณา และขอความร่วมมือในการประชาสัมพันธ์ให้ผู้สนใจทั่วไปได้ทราบด้วย
จะขอบคุณยิ่ง

ขอแสดงความนับถือ

นงนตพร จันทร์วรานุสิทธิ์

(นางนงนตพร จันทร์วรานุสิทธิ์)

รองผู้อำนวยการ

ศูนย์พันธุวิศวกรรมและเทคโนโลยีชีวภาพแห่งชาติ

หน่วยฝึกอบรม

โทร. 0 2564 6700 ต่อ 3379 – 3382

โทรสาร 0 2564 6574

E-mail: ttu@biotec.or.th

ดร. นงนตพร จันทร์วรานุสิทธิ์ ผอ.กอง
6 ก.พ. 62

ศูนย์พันธุวิศวกรรมและเทคโนโลยีชีวภาพแห่งชาติ

สำนักงานพัฒนาวิทยาศาสตร์และเทคโนโลยีแห่งชาติ

113 อุทยานวิทยาศาสตร์ประเทศไทย ถนนพหลโยธิน ตำบลคลองหนึ่ง อำเภอคลองหลวง
จังหวัดปทุมธานี 12120 โทรศัพท์ 0 2564 6700 โทรสาร 0 2564 6701-5

National Center for Genetic Engineering and Biotechnology

National Science and Technology Development Agency

113 Thailand Science Park, Phahonyothin Road, Khlong Nueng, Khlong Luang, Pathum Thani 12120, Thailand.
Tel. +66 2564 6700 Fax. +66 2564 6701-5 http://www.biotec.or.th

**International Workshop on
Bioresource Center: Connecting the Nature, Creating the Future
19 – 22 March 2019**

DATE AND VENUE:

Lecture Session

19 March 2019, Pullman Bangkok King Power, Bangkok, Thailand

Workshop Sessions

Workshop 1:

MALDI-TOF Mass Spectrometry: A Reliable and Robust Method for Strains Identification and Characterization

20 – 21 March 2019

BT-127/2, BIOTEC Building, Thailand Science Park, Pathum Thani, Thailand

Workshop 2: The Basics of Fungal Systematics: From Sequence Data to Phylogenetic-based Techniques and Introduction to Genomics

20 March 2019

NT-Bussakorn, NECTEC Building, Thailand Science Park, Pathum Thani, Thailand

Workshop 3: Identification of Mitosporic Fungi

21 – 22 March 2019

BT-127/1, BIOTEC Building, Thailand Science Park, Pathum Thani, Thailand

ORGANIZED BY:

- Thailand Bioresource Research Center (TBRC), National Center for Genetic Engineering and Biotechnology (BIOTEC), National Science and Technology Development Agency (NSTDA), Ministry of Science and Technology (MOST), Thailand

IN COLLABORATION WITH:

- National Institute of Technology and Evaluation (NITE), Japan
- World Data Center for Microorganisms (WDCM)
- ASEAN Network on Microbial Utilization (AnMicro)

UNDER PATRONAGE OF:

United Nations Education, Scientific and Cultural Organization (UNESCO), Asia and Pacific Regional Bureau for Education, Bangkok, Thailand

RATIONAL BACKGROUND:

Since 2001, OECD has introduced an important concept of the Biological Resource Center (BRCs) where they provide not only microbes but also the knowledge of exploration, preservation, and distribution of bioresources for academic, research, and biotechnological application for emerging global bio-based economies. Thailand is currently being transformed into an innovation-driven society which focuses on bio-based industries including bioenergy, biofuels, biochemicals and bioplastics. Strategically, Thailand will employ biotechnology to utilize Thailand's rich biodiversity in order to deliver high value bio-products and innovative bioprocesses. Culture collections as BRCs therefore, play key roles in preserving the microbial

diversity collected from the nature with international standard, and then distributing the microbial resources to both academic and industrial sectors to support the advancement of biotechnology and support the bioeconomy of Thailand.

BRCs could range from small, university-based repository for specific research to institutional and government support repositories and commercial biorepositories. Albeit the different type of BRCs, the ultimate goal is the same where it is a place to collect, store, and distribute biological resource and related data. With advance technology, the data associated with preserved biological resources have increased in complexity from basics such as date and places collected to extensive information such as characteristics, properties, genetics or proteomics. Thus, BRCs play an essential role in scientific community by increase large number of samples with consistency quality and data that easily access and fit purpose.

In order to provide high quality bioresource with well-characterize data, BRCs follow standard operating procedures for quality assurance including systems for storage, quality of facilities coding, and documentation. BRCs must follow best practices and adopt general laboratory standards, such International Organization for Standardization (ISO) series. This international standard has been developed to establish criteria for quality assurances and efficiencies of their samples and data and ultimately to promote the confidence in biobanks to provide bioresource for research and development.

With the aim of creating an integrated and open platform for effective management of biological resources, Thailand Bioresource Research Center (TBRC) is established to preserve, provide, and distribute biological information and resources. Currently, TBRC has expanded the bioresource collection not only for microorganism but also for animal cells, recombinant cells, hybridoma, antibody and viruses. Being multidisciplinary and dynamic that involves the collection and preservation of several type of bioresources, TBRC functions as one of biobank and implements ISO series as well as national and international regulations to assure the accessibility of high-quality bioresource and relevant data.

Yet, no single bioresource is capable of providing all kind of comprehensive material and service to the community, which is why networks of bioresources are essential - nationally and internationally. Therefore, TBRC together with the National Institute of Technology and Evaluations (NITE), World Data Center for Microorganisms (WDCM), and ASEAN Network on Microbial Utilization (AnMicro) aim to connect research and analysis in many scientific disciplines as well as in international standard to meet the concept of BRCs.

OBJECTIVES:

1. To identify the key roles and management systems of bioresource research centers (BRCs)
2. To update the new knowledge and technology on microbial utilization
3. To provide and disseminate information on International Standard for biobanks
4. To train wide-range concepts such as the technical and morphological skills which is required for fungal morphological identification for the participants
5. To provide basic knowledge and offer tools to not only to the beginner but also to the intermediate mycologist or researcher based on preliminary molecular identification

SPEAKERS AND FACILITATORS:

Lecture Session

- Dr. Juncai Ma Institute of Microbiology, Chinese Academy of Sciences (IMCAS), P.R. China
- Dr. Shuang-Jiang Liu Institute of Microbiology, Chinese Academy of Sciences (IMCAS), P.R. China
- Dr. Asahi Matsuyama Kikkoman Corporation, Japan
- Dr. Christopher Dupont J. Craig Venter Institute, U.S.A
- Dr. Anan Jongkaewwattana National Center for Genetic Engineering and Biotechnology, Thailand

Workshop Session

Workshop 1: MALDI-TOF Mass Spectrometry: A Reliable and Robust Method for Strains Identification and Characterization

Speakers

- Dr. Jaran Jainhuknan Bruker Biospin AG, Thailand
- Dr. Piengchan Sonthayanon Mahidol University, Thailand
- Mr. Somsak Rahul Rajavithi Hospital, Thailand
- Dr. Worada Samosornsuk Thammasat University, Thailand
- Dr. Sittiruk Roytrakul National Center for Genetic Engineering and Biotechnology, Thailand

Workshop 2: The Basics of Fungal Systematics: From Sequence Data to Phylogenetic-based Techniques and Introduction to Genomics

Speakers

- Dr. Natapol Pornputtpong Chulalongkorn University, Thailand
- Dr. Nattawut Boonyuen National Center for Genetic Engineering and Biotechnology, Thailand
- Dr. Satinee Suetrong National Center for Genetic Engineering and Biotechnology, Thailand
- Dr. Noppol Kobmoo National Center for Genetic Engineering and Biotechnology, Thailand

Facilitators from National Center for Genetic Engineering and Biotechnology, Thailand:

- Ms. Salilaporn Nuankaew
- Ms. Charuwan Chuaseeharonnachai
- Ms. Wacharee Saortep

Workshop 3: Identification of Mitosporic Fungi

Speakers:

- Prof. Dr. Katsuhiko Ando Japan

Facilitators from National Center for Genetic Engineering and Biotechnology, Thailand:

- Dr. Nattawut Boonyuen
- Ms. Salilaporn Nuankaew
- Ms. Charuwan Chuaseeharonnachai
- Ms. Wacharee Saortep

TARGET GROUP:

Scientist, researcher, student, others who interested in bioresources management and utilization

NUMBER OF PARTICIPANTS:**Lecture Session**

80 Persons

Workshop Sessions**Workshop 1: MALDI-TOF Mass Spectrometry: A Reliable and Robust Method for Strains Identification and Characterization**

20 Persons

Workshop 2: The Basics of Fungal Systematics: From Sequence Data to Phylogenetic-based Techniques and Introduction to Genomics

20 Persons

Workshop 3: Identification of Mitosporic Fungi

14 Persons

LANGUAGE:

All lectures will be given in English without translation.

REGISTRATION DEADLINE:

1 March 2019

REGISTRATION FEES:

For those who would like to attend workshop session are required to attend the lecture session.

- Lecture: General 1,500 Baht
- Lecture: Student 1,000 Baht
- Workshop 1 2,500 Baht
- Workshop 2 1,000 Baht
- Workshop 3 2,500 Baht

These fees are inclusive of 7% VAT, lunch and refreshment each day. However, all of the participants must be responsible for their own accommodation and transportation.

PAYMENT:

Payment method is wire transfer, please make a payment to;

Bank Name:	Bangkok Bank	Branch:	Thailand Science Park
Savings Account Name:	BIOTEC-National Center for Genetic Engineering and Biotechnology		
Account No.:	080-000280-0		
Swift Code:	BKKBTHBK		
Bank Address:	111 Phahonyothin Road, Khlong Nueng, Khlong Luang, Pathum Thani 12120		

GENERAL INFORMATION:

Public transportation to the venue

Air-conditioned bus routes:

- No. 29 (Bangkok Railway Station - Thammasart University, Rangsit)
- No. 39 (Grand Palace - Thammasart University, Rangsit)
- No. 510 (Victory Monument - Thammasart University, Rangsit - Thai Market)

Air-conditioned van routes:

- No. 118 (Mo Chit BTS Sky Train Station - Thailand Science Park)
- No. 85 (Victory Monument - Thammasart University, Rangsit)

Accommodation

You are responsible for making your own arrangements.

Suggested accommodation:

- **Sirindhorn Science Home** (Located in Thailand Science Park)
Tel: (66) 2529 7100 ext. 77235 Fax: (66) 2529 7147
Website: http://www.nstda.or.th/ssh/service/service_1.php
 - Dormitory (2 beds) 1,000 Baht/ night including Breakfast
 - Dormitory (4 beds) 1,500 Baht/ night including Breakfast
 - Deluxe room (2 beds) 1,500 Baht/ night including Breakfast
- **Institute of East Asian Studies** (A 10-minute-walk from Thailand Science Park)
Tel: (66) 2564 5000 – 3
Website: http://www.asia.tu.ac.th/ieas/ieas_buiding.htm
 - Twin room (2 beds) 950 Baht/ night not include Breakfast

For more information, please contact

Technical Training Unit

National Center for Genetic Engineering and Biotechnology (BIOTEC)

113 Thailand Science Park, Phahonyothin Rd.,

Khlong Nueng, Khlong Luang, Pathum Thani 12120

Tel: +66 2564 6700 ext. 3379-3382 Fax: +66 2564 6574

Email: ttu@biotec.or.th

TENTATIVE PROGRAM

Lecture Session:

Date: 19 March 2019

Venue: Pullman Bangkok King Power, Bangkok, Thailand

08.00 – 09.00	Registration
09.00 – 09.50	Welcome Remarks
	AmiBase: ASEAN Microbial Database
	By Dr. Lily Eurwilaichitr National Center for Genetic Engineering and Biotechnology, Thailand
09.50 – 10.30	Group photos/ Coffee break
10.30 – 11.30	Microbial and Environmental Genomics (To be confirmed)
	By Dr. Christopher Dupont J. Craig Venter Institute, U.S.A
11.30 – 12.30	Trends in Environmental Microbiology (To be confirmed)
	By Prof Shuang-Jiang Liu Institute of Microbiology, Chinese Academy of Sciences (IMCAS), P.R. China
12.30 – 13.30	Lunch
13.30 – 14.30	Microbial Utilization in Food and Health Industries (To be confirmed)
	By Dr. Asahi Matsuyama Kikkoman Corporation, Japan
14.30 – 15.30	The Global Catalog of Microorganisms: GCM2.0
	By Dr. Juncai Ma Institute of Microbiology, Chinese Academy of Sciences (IMCAS), P.R. China
15.30 – 16.00	Coffee break
16.00 – 17.00	Molecular Approaches for Virus Collection: Challenges and Solutions
	By Dr. Anan Jongkaewwattana National Center for Genetic Engineering and Biotechnology, Thailand
17.00	Q&A

Workshop 1: MALDI-TOF Mass Spectrometry: A Reliable and Robust Method for Strains Identification and Characterization

Date: 20 – 21 March 2018

Venue: BT127/2, BIOTEC Building, Thailand Science Park, Pathum Thani, Thailand

Introduction

Given the high level of microbial biodiversity in Thailand and the prevalence of microbial utilization in research, medicine, and industry, accurate and reliable characterization of these strains is highly valuable. Biotyping (intraspecific identification and characterization) of microbial strains provides much needed information for routine clinical diagnosis, industrial quality control, phenotypic prediction (e.g. drug resistance), microbial systematics, environmental microbiology, and epidemiological studies. Matrix-assisted laser desorption/ionization time-of-flight mass spectrometry (MALDI-TOF MS) has recently emerged as a powerful and attractive method for rapid microbial biotyping by offering rapid, robust, labor-economical, and cost-effective microbial characterization with peptide mass fingerprinting in comparison to conventional phenotypic and molecular techniques such as sequencing. Currently, the technique has been successfully employed for bacteria, yeasts and filamentous fungi, as well as insect and mammalian cell lines. The technique can be used with microbial samples with minimal pretreatment for distinguishing microorganisms at the level of species or strains with the purpose of discovery of the effective strain, investigation of culturomics from microbiome, maintenance of the functional strain, detection of contaminants, verification of desired strain, and protection of patented strains. In addition, a database of protein fingerprints unique for local microorganisms can be constructed to add a large wealth of information to the existing fingerprint libraries currently available.

In addition to microbial biotyping, MALDI-TOF MS has permitted revolution in clinical diagnostics. Proteomic profiling with MALDI-TOF MS has been used to effectively identify animals infected with pathogens or parasites with high specificity and sensitivity. The technique has also been utilized to determine different biomarkers and mechanisms involved in the development of cancer and other disorders. Moreover, the identification of biochemical changes (e.g. glycosylation pattern) in proteins circulating in serum of patients can represent a source of putative new biomarkers for early diagnosis and intervention. Importantly, the “fingerprints” commonly refer to unique peptide/protein patterns, but can also extend to unique patterns of lipids, polysaccharides, biomolecules, synthetic macromolecules, or polymers as well. Thus, the technique has gained prominence as a cutting-edge method to promote high-quality healthcare.

The prospect of using MALDI-TOF MS in various applications is hence promising. In particular, hand-on experience with biotyping by MALDI-TOF MS will provide great opportunity for open or enhance potential of microbial-based bio-industry and medicine.

Objectives

1. Introduction to MALDI-TOF MS principles and techniques
2. Explanation of MALDI-TOF MS applications for microbial biotyping
3. Hand-on experience to MALDI-TOF MS microbial analysis

Output

1. Enriching knowledge and obtaining hand-on experience with MALDI TOF MS tool
2. Experiencing and understanding microbial biotyping and characterization by MALDI-TOF MS
3. Creating network between microbiologists, industrial technologists and allied professions interested in MALDI TOF MS

Target group

1. Academic researchers who are interested in microbial biotyping.
2. Biotechnologists interested in utilizing MALDI-TOF MS
3. Industrial sectors interested in biotyping of microorganisms used in industrial process

Program

Day 1 (Lecture): 20 March 2019

08.00 – 08.30	Registration
08.30 – 09.15	Introduction of MALDI-TOF MS – Biolyser and Analysis By Dr. Jaran Jainhuknan Bruker Biospin AG, Thailand
09.15 – 10.00	Rapid Identification of Positive Blood Culture by MALDI-TOF MS By Dr. Worada Samosornsuk Thammasat University, Thailand
10.00 – 10.30	Coffee break
10.30 – 11.15	Microbiological Detection, Identification and Susceptibility Testing MALDI-TOF MS By Mr. Somsak Rahul Rajavithi Hospital, Thailand
11.15 – 12.00	Rapid Identification of <i>Leptospira</i> spp. Using Whole Cell Matrix Assisted Laser Desorption/Ionization Time-of-flight Mass Spectrometry By Dr. Piengchan Sonthayanon Mahidol University, Thailand
12.00 – 13.00	Lunch
13.00 – 13.45	Applications of MALDI-TOF MS (To be confirmed) By Dr. Sittiruk Roytrakul National Center for Genetic Engineering and Biotechnology, Thailand
13.45 – 14.30	Utilizing MALDI-TOF MS for Disease Diagnostics in Animals and Cell-lines (To be confirmed)
14.30 – 15.00	Coffee break
15.00 – 15.45	Utilizing MALDI-TOF MS for Disease Diagnostics in Animals and Cell-lines (To be confirmed)
15.45 – 16.30	Utilizing MALDI-TOF MS for Disease Diagnostics in Animals and Cell-lines (To be confirmed)

Day 2 (Practice): 21 March 2019

Participants will be divided into 2 groups. Each group will have training with both the MALDI-TOF/TOF MS (Bruker Ultraflex III) and bench-top MALDI-TOF Biotyper (Bruker Microflex LRF) equipment. Each participant will spend half a day with each of the two equipment.

09.00 – 10.00	Sample preparation and spotting on target plate
10.00 – 10.30	Coffee break
10.30 – 12.00	Sample analysis with mass spectrometry (MALDI-TOF/TOF MS or MALDI-TOF Biotyper)
12.00 – 13.00	Lunch
13.00 – 14.00	Sample preparation and spotting on target plate
14.00 – 15.30	Sample analysis with mass spectrometry (MALDI-TOF/TOF MS or MALDI-TOF Biotyper)
15.30 – 16.00	Coffee break
16.00 – 16.30	Discussion and conclusion of the workshop

Workshop 2: The Basics of Fungal Systematics: From Sequence Data to Phylogenetic-based Techniques and Introduction to Genomics

Date: 20 March 2019

Venue: NT-Bussakorn, NECTEC Building, Thailand Science Park, Pathum Thani, Thailand

Introduction

This is a one-day workshop to introduce basic methods used in phylogenetic tree reconstruction associated with basic concepts in genomics to classify and identify fungal taxa from environmental and ecological samples. We will cover the basic concepts in molecular phylogenetics, and practical sessions will be demonstrated using accessible software packages or/and free online bioinformatics tools i.e. using blast search, comparing similar sequences, aligning sequences, viewing & editing sequence alignments and constructing trees. For genomics, basic concepts will be introduced to show how genomics can improve fungal systematics. Combining novel sequencing technologies and genomics analysis, the broad phylogenetic and ecological diversity of fungi, and capturing genomic variation in natural populations and engineered strains will allow us to build a foundation for translating the genomic potential of fungi into practical applications.

Objective

To train broad concepts for the beginner to intermediate mycologist or researcher in the technically basic skills required for fungal phylogenetic techniques and genomic data

Targeted groups

The workshop is designed for those who may be involved in molecular identification of fungi. The course is taught in English and the participants are required to bring your own laptop computers to the workshop

Program

08.30 – 09.00	Registration
09.00 – 09.45	Lecture on Updated Mycological Classification By Dr. Nattawut Boonyuen National Center for Genetic Engineering and Biotechnology, Thailand
09.45 – 10.30	Lecture on Sequencing-based Fungal Identification, Fungal Databases and Tools By Dr. Satinee Suetrong National Center for Genetic Engineering and Biotechnology, Thailand
10.30 – 10.45	Coffee break
10.45 – 11.30	Lecture on Introduction to Phylogenetic Tree Reconstruction By Dr. Natapol Pornputtapong Chulalongkorn University, Thailand

11.30 – 12.15	Lecture on Introduction to Genomics and Fungal Genomics at the Service of Fungal Systematics By Dr. Noppol Kobmoo National Center for Genetic Engineering and Biotechnology, Thailand
12.15 – 13.00	Lunch
13.00 – 15.00	Demonstration and practice on phylogenetic tree reconstruction By All speakers
15.00 – 15.15	Coffee break
15.15 – 16.45	Demonstration and practice on phylogenetic tree reconstruction By All speakers
16.45 – 17.00	Open discussion and closing

Workshop 3: Identification of Mitosporic Fungi

Date: 21 – 22 March 2019

Venue: BT127/1, BIOTEC Building, Thailand Science Park, Pathum Thani, Thailand

Introduction

Mitosporic fungi (MF) referred to as fungi imperfecti, anamorphic fungi, anamorphs, deuteromycota, deuteromycotina, deuteromycetes and asexual morphs are a group of fungi comprised asexual states of mostly ascomycota and some basidiomycota. Traditionally, identification of the MF is based on the presence of conidia (spore), kind of conidia (shape, color, size), and whether or not the conidia are produced in fungal structures (i.e. conidial ontogeny, conidiophore cell structure & arrangement/development of conidigenous) called conidiomata. Conidiomata may have the generalized shape of a flask made of fungal tissue (a pycnidium); a pin cushion (sporodochium); or a mass of conidiophores located under either the epidermis or cuticle of a plant host (aecervulus).

The course will be run as a small group and intended for PhD/Msc students, faculty staffs, microbial technicians and scientists (microbiologists, biologists & mycologists) in both private and governmental sections who would like to obtain a fundamental understanding of MF. All participants will examine provided fungal samples to develop or increase familiarity with different fungal genera, species levels and their related structures through the practical steps in identification using illustrations and keys.

Objective

- To train broad concepts for participants in the technical, and morphological skills required for fungal identification
- To provide basic knowledge and offer tools to the beginner to intermediate mycologist or researcher using morphological identification and DNA-based phylogeny of mitosporic fungi

Targeted groups

The workshop (i.e. lectures, demonstrations, lab exercises and discussions) is designed for those who may be involved in the morphological identification of mitosporic fungi (asexual morphs). The course will be given in English and the participants are required to bring your own laptop computers to the workshop

Program

Day 1: 21 March 2019

08.30 – 09.00	Registration
09.00 – 09.10	Introducing to Prof. Dr. Katsuhiko Ando from Japan
09.10 – 10.30	Lecture on Morphological Identification of Mitosporic Fungi
10.30 – 10.45	Coffee break
10.45 – 12.00	Lecture on Introduction of Fungal Observation Method
12.00 – 13.00	Lunch
13.00 – 15.00	Practice on Morphological Identification of Mitosporic Fungi
15.00 – 15.15	Coffee Break
15.15 – 17.00	Morphological Identification of Mitosporic Fungi (cont.)

Day 2: 22 March 2019

09.00 – 09.30	Lecture on Diversity of Soil-born Fungi in Asia
09.30 – 10.30	Practice on Morphological Identification of Soil-born and Mitosporic Fungi
10.30 – 11.00	Coffee break
11.00 – 12.00	Continuation of Morphological Identification
12.00 – 13.00	Lunch
13.00 – 15.00	Continuation of Morphological Identification
15.00 – 15.30	Coffee Break
15.30 – 16.30	Explanation of the Results of the Identification of Mitosporic Fungi
16.30 – 16.50	Open discussion
16.50 – 17.00	Closing