Bioresource Management for Sustainable Use
Thailand Status Update

Lily Eurwilaichitr, Supawadee Ingsrisawang, Tanit Changtavorn, Bubpha Techapattaraporn Suwanee Chunhametha and Wanchern Potacharoen

National Center for Genetic Engineering and Biotechnology
THAILAND
Outline

Update status of BRCs in Thailand

Bioresource Database Network

Future of BRCs in Thailand
Current status of CCs in Thailand

<table>
<thead>
<tr>
<th>Host organization</th>
<th>No. collections</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ministry of Public Health</td>
<td>2</td>
</tr>
<tr>
<td>Ministry of Science and Technology</td>
<td>4</td>
</tr>
<tr>
<td>Ministry of Agriculture and Cooperatives</td>
<td>6</td>
</tr>
<tr>
<td>University</td>
<td>46</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>58</strong></td>
</tr>
</tbody>
</table>
In 2000, 4 major collections formed Thailand Network on Culture Collections (TNCC)

**DMST Culture Collection**

**BCC (TNCC secretariat)**

**DOA Culture Collection**

**TISTR Culture Collection**

BCC = BIOTEC Culture Collection

DMST = Department of Medical Sciences

DOA = Department of Agriculture

TISTR = Thailand Institute of Scientific and Technological Research
Objectives of TNCC

To consolidate the management of the country’s microbial resources

To set up a standard system in microbial resource management (deposit, preservation, distribution, data and legal management)

To develop (young) personnel in culture collection management through workshop and on the job training
Bio-information management

- Collect data of selected strains from each collection
- Member collections update data through the internet
### Current status of Culture Collections in TNCC

There are 4 culture collections in TNCC.

<table>
<thead>
<tr>
<th>CULTURE COLLECTIONS</th>
<th>TYPE OF SPECIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCC (BIOTEC Culture Collection)</td>
<td>Bacteria</td>
</tr>
<tr>
<td>DMST (Department of Medical Sciences Thailand)</td>
<td>439</td>
</tr>
<tr>
<td>DOA (Department of Agriculture)</td>
<td>580</td>
</tr>
<tr>
<td>TISTR (Thailand Institute of Scientific and Technological Research)</td>
<td>217</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1744</td>
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</tbody>
</table>
Bio-Law management

- **Distribute**
  - Material Transfer Agreement-MTA

- **Deposit**
  - Material Acquisition Agreement-MAA

- **Access & Benefit sharing**
  - Case by case basis between parties involved
Three agencies under Ministry of Science and Technology (MOST), namely

National Science and Technology Development Agency (NSTDA);
Thailand Institute of Scientific and Technological Research (TISTR)
National Science Museum (NSM)

entered into a memorandum of understanding on 5 April 2011 and agreed to integrate their information on biodiversity resources
Current status of ThaiSciBiodiversity
http://www.ThaiSciBiodiversity.org

Site Structure

1. Menu: Collections, Sites, Applications and Tools
2. Data Filter
3. Quick Search
4. Data Summary (By Organism or Institute)
5. List of Specimens or Scientific Collection Objects
6. Distribution Map
Search for Ophiocordyceps

What does Ophiocordyceps nutans look like?

You can get Ophiocordyceps nutans strain culture from BCC

Where did it found?
Specimens collected from Chiang Mai
Current status of ThaiSciBiodiversity

Latest New Species Found and Published in PubMed and SpringerLink

Salimicrobium salexigens sp. nov., a moderately halophilic bacterium from salted hides.


de la Haba RR, Yimyas P, Sánchez-Porro C, Richi M, Vortosca A

Department of Microbiology and Parasitology, Faculty of Pharmacy, University of Sevilla, 41012 Sevilla, Spain.

Abstract

Two Gram-positive, moderately halophilic bacteria, designated strains 29CM(T) and 53CM(T), were isolated from salted hides. Both strains were non-mobile, strictly aerobic cocci, growing in the presence of 3-25% (w/v) NaCl (optimal growth at 7.5-12.5% [w/v] NaCl), between pH 5.0 and 10.0 (optimal growth at pH 7.5) and at temperatures between 15 and 40°C (optimal growth at 37°C). Phylogenetic analysis based on 16S rRNA gene sequence similarity values of 97-97.6% with Salimicrobium album DSM 20748(T), Salimicrobium halophilum DSM 4771(T), Salimicrobium flavum ISL-25(T) and Salimicrobium lutenum BY-5(T). The DNA G+C content was 50.7 mol% and 51.5 mol% for strains 29CM(T) and 53CM(T), respectively. The DNA-DNA hybridization between both strains was 98%, whereas the values between strain 29CM(T) and the species S. album CCM 3517(T), S. lutenum BY-5(T), S. flavum ISL-25(T) and S. halophilum CCM 4074(T) were 45%, 28%, 15% and 10%, respectively, showing unequivocally that strains 29CM(T) and 53CM(T) constitute a new genus. The major cellular fatty acids were anteiso-C(15:0), anteiso-C(17:0), iso-C(15:0) and iso-C(14:0). The main respiratory isoprenoid quinone was MK-7, although small amounts of MK-6 were also...
Utilization of microorganisms as sources of new compounds with biological activities

Utilization of microorganisms as sources of industrial enzymes

Utilization of microorganisms as sources of biocontrols/biopesticides for agriculture

Utilization of microorganisms as sources of high value product for agriculture
Future of BRCs in Thailand

Diverse groups of materials included in the ‘NATIONAL’ Biological Resource Center

**BIOTEC**
- BCC (microorganisms)
- BIOTEC Bangkok Herbarium
- Monoclonal antibodies
- Plasmids
- Animal cells
- Plant cells
- Chemical libraries

**Other collections**
- TNCC members
- Universities
Future of BRCs in Thailand

One-Stop Shop for biomaterials in Thailand

Selection of useful biomaterials for industrial service

University network

Regional network

ABRCN
### The 9th Asian Consortium
for the Conservation and Sustainable Utilization of Microbial Resources

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**25th - 27th October 2012**

**Venue:**
- Holiday Inn Hotel, Chiang Mai
- Queen Sirikit Botanic Garden, Chiang Mai
- Thailand

**Sponsors:**
- BIOTEC
- nite

**Host – Organizations:**
- a member of NSTDA

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<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
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<tbody>
<tr>
<td>8:00</td>
<td>Registration (08:30-09:00)</td>
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<tr>
<td>9:00</td>
<td>Welcome and Opening Remarks (09:00-09:30)</td>
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<tr>
<td>9:15</td>
<td>Keynote Speech by Prof. Dr. Morekot Tanticharoen, Senior Advisor to NSTDA President, Thailand</td>
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<td>10:00</td>
<td>Coffee break (09:45-10:15)</td>
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<tr>
<td>10:15</td>
<td>Special Lecture on “Global Catalogue” (10:15-11:30)</td>
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<td>By: Dr. Juncai Ma, Director of World Data Centre for Microorganisms (WDCM), China</td>
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<tr>
<td>11:00</td>
<td>Special Lecture on “BIIC after the Nagoya Protocol” (11:00-12:15)</td>
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<td>By: Dr. Katsuhiko Ando, Biological Resource Center, National Institute of Technology and Evaluation (NITE), Japan</td>
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<tr>
<td>12:00</td>
<td>Lunch (12:15-13:15)</td>
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<tr>
<td>13:00</td>
<td>Special Lecture by Dr. Jean-Jacques Sanglier, Head of Microbiology, Department of Microbiology, Esperanza Medicine Foundation (13:15-14:00)</td>
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<tr>
<td>14:00</td>
<td>Special Lecture by Dr. Chayra Chandavasu, Vice President of Science and Innovation, PTT Global Chemical Public Co., Ltd. (14:00-14:45)</td>
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<tr>
<td>14:45</td>
<td>Coffee break (14:45-15:15)</td>
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<tr>
<td>15:00</td>
<td>Special Lecture by Dr. Ryusuke Fudo, Principal Researcher, Frontier Research Labs., Institute For Innovation, Ajinomoto Co. Inc. (15:15-16:00)</td>
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<td>18:00</td>
<td>Welcome Reception for ACM members and invited guests at a Chinese Restaurant “Jia Tong Heng”</td>
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