

March 2018



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MusaNet Asian regional workshop at MARDI, Malaysia

Musanet, in partnership with the Malaysian Agricultural Research and Development Institute

(MARDI, www.mardi.gov.my), held a workshop to address the need for standardized banana characterization and documentation in Asia, an important region for *Musa* diversity. This third regional MusaNet workshop was hosted by MARDI in Kuala Terengganu, Malaysia, from 13-17 November 2017.

In attendance were 13 invited curators (see photo below) of Asian *Musa* collections and members of the Asia and Pacific banana network, [BAPNET](#). The exchange of the wide collective knowledge and opportunities for more collaboration among the BAPNET collections were among the important outputs of the workshop.

During the three field days, the curators scored accessions in the MARDI field collection using the *Musa* minimum descriptor application ([MusaTab](#)) on handheld tablets which they later uploaded to their laptops using MGIS.net. A special session was devoted to training participants on how to use [MusaID](#), the application developed to identify cultivars *in situ* based on morphological datasets.

The successful workshop was financed by the CGIAR research programme on Roots, Tubers and Bananas (RTB) and the Genebanks Platform. For the full workshop report, including pdfs of all presentations, [click here](#).



Asian region curators, from left to right: Fitriana Nasution (ICHORD - Indonesia), Mr. Yu-Yen Su (TBRI - Taiwan), Ngô Xuân Phong (FAVRI - Vietnam), Dr. Min San Thein (DAR - Myanmar), Ou Sheng (IFTR/GDAAS - China), Kosonh Xayphakatsa (BEI - Laos), Penchan Suthanukool (DOA - Thailand), Jonalyn Pabuaya (BPI - Philippines), Sivanaswari A/p Chalaparmal (MARDI - Malaysia), Janet Paofa (NARI - PNG), Mrs Thun Vathany (CARDI - Cambodia), Dr. Madan Gopal Saha (BARI - Bangladesh), Dr. Palani Durai (NRCB - India).

Updating the Drought, Black leaf streak and Fusarium Wilt evaluation protocols

Members of the MusaNet Evaluation Thematic Group (ETG) met at Bioversity International, Montpellier, France, from 12-15 December 2017 to discuss and update the protocols for the



evaluation of three key traits: Drought, Black Leaf Streak (BLS) and Fusarium Wilt.

The participants included experts working on the evaluation of the three traits, either in the lab or field, represented by CIRAD (France), EMBRAPA (Brazil), INISAV (Cuba), NRCB (India), GDAAS (China) and Bioversity International.

The workshop began with presentations on what has already been carried out in the lab, greenhouse and field for the three traits across several organizations. Small working groups then discussed the finer details of the protocols, which are currently being finalized and reviewed. The week also included a visit to CIRAD's local facilities for evaluating BLS (photo above), led by Françoise Carreel.



The protocols will be published in late 2018 and uploaded to the MusaNet website.

iNaturalist: Mapping *Musa* across the globe

A crowd sourcing database “Banana natural biodiversity mapping” has been set up at the iNaturalist website (screenshot below). iNaturalist is a citizen science project and online social network of naturalists mapping and sharing observations of biodiversity across the globe. Anyone can share observations via the website or from a mobile application.

All observers will automatically become part of the project, be able to follow the evolution of data collecting and to engage with other participants and specialists about observations, identifications, planned analyses etc.

Users of iNaturalist have contributed over eight million observations so far since its founding in 2008, and the project has been called “a standard-bearer for natural history mobile applications.” (Wikipedia). iNaturalist has developed a mobile application (Android & iOS) with a very intuitive user interface which makes it easy to add new observations to the project.

The iNaturalist banana mapping link is <https://www.inaturalist.org/projects/banana-natural-biodiversity-mapping>





For more information and some guidelines about the use of the iNaturalist website and application, please [click here](#).

Latest Release of MGIS - additional partner collections, updates and new DOIs

The latest release of [MGIS](#) (March 2018) includes additional Passport Data from new partners who signed the MGIS Data sharing Agreement (DSA). We would like to thank the Bangladesh Agricultural Research Institute (BARI), the Cambodian Agricultural Research and Development Institute (CARDI) and the Malaysian Agricultural Research and Development Institute (MARDI) for their confidence in providing their accession information.

We have now 24 collections providing data to MGIS for a total of 4,917 accessions.

At the same time, we have updated the Passport Data of the Bioversity International *Musa* Germplasm Transit Centre (ITC) in Belgium, the Bureau of Plant Industry collection in Philippines (BPI), and the National Agricultural Research Institute (NARI) in Papua New Guinea.

The accessions of the ITC collection now include the Digital Object Identifier (DOI) for each accession. DOIs are used as Permanent Unique Identifiers (PUID) in the context of the Global Information System (GLIS) of Article 17 of the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA).

ITC0609 - Pahang

Passport Data

Accession number:	ITC0609	PDCI _m Score:	7.5
Accession name:	Pahang	PDCI Score:	5.55
DOI:	10.1073/pgr.938	<- DOI hyperlink	
Biological status of accession:	wild	Available for distribution:	
Taxonomic classification:	Musa > Eumusa > acuminata > subsp. malaccensis		
Institute code:	ITC04 (ITC)		
Acquisition date:	1989/05/25		
Status:	active		
Type of storage:	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>Lyophilized Leaves</p> </div> <div style="text-align: center;"> <p>In Vitro Collection</p> </div> <div style="text-align: center;"> <p>Cryopreserved Collection</p> </div> </div>		

The need for PUIDs emerged as a critical step to unambiguously and permanently identify plant genetic resources for food and agriculture being exchanged among organizations. The Secretariat of the International Treaty provides them free-of-charge for the entire PGRFA community participating in the Global Information System. More information is available here: <http://www.fao.org/plant-treaty/areas-of-work/global-information-system/fao/en/>

Any collection from the country signatories of the ITPGRFA can apply to have DOIs for their accessions. Two videos on DOIs and how helpful they can be in the world of crop research can be found [here](#).

Young *Musa* researcher: Dr. Joseph Adheka Giria

In this newsletter, we are pleased to feature Dr. Joseph Adheka Giria, Professor at the University of Kisangani in the Democratic Republic of Congo and a member of the MusaNet Diversity Thematic Group and of [Taxonomic Advisory Group](#).



1. What is your background and how did you become interested in banana research?

I am a taxonomist trained by the University of Kisangani (UNIKIS) and Laboratory of Tropical Crop Improvement (KU Leuven, Belgium) with funds from the Flemish Inter-University Council, Belgium (VLIR) and the Consortium for Improving Agriculture-based Livelihoods in Central Africa (CIALCA-Bioversity). My PhD is part of long term research on plantain that started in DR Congo in 1933 at INEAC, Yangambi and in 1976 at KU Leuven, Belgium. The research at both locations eventually formed the foundation of the Bioversity International *Musa* Germplasm Transit Centre (ITC) and of publications on plantain taxonomy. I have been interested in *Musa* research since my graduate study because of *Musa* and especially plantain importance in my country.

2. Can you tell us about some notable recent or current *Musa* related projects?

Currently I am working on the VLIR-UOS institutional cooperation with UNIKIS, DR Congo (Sustainable agriculture) and the Alliance for the Banana Bunchy Top Disease Control in Africa.

3. Where would you like to be in 10 years and what would you like to be working on?

In 10 years I would like to be in an international institution still working on bananas and especially on plantains. All my life I will be working on bananas.

4. What is your favorite banana species/cultivar and why?

My favorite *Musa* species/cultivar is the plantain subgroup because of the importance of the subgroup place as food crop in central and west Africa.

Dr. Adheka can be contacted at: jadheka@yahoo.fr

Acorbat XXII International Congress. 2-4 May 2018, Miami, USA.

<https://www.expoplaza.ec/en/acorbat-2018/>

The XI International Symposium on Banana: ISHS-ProMusa Symposium on Growing and Marketing Banana under Subtropical Conditions. 12-18 August 2018, Istanbul, Turkey.

<http://www.ihc2018.org/en/S04.html>

FAO/IAEA International Symposium on Plant Mutation Breeding and Biotechnology. 27-31 August 2018, Vienna, Austria. <https://www.iaea.org/events/plant-mutation-breeding-symposium-2018>



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