



Phenotyping Banana Germplasm with *Fusarium oxysporum* f.sp. *cubense* Tropical Race 4

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**PANAMA
DISEASE**



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The Interdisciplinary Research and Education Program of Wageningen University (INREF) funds the research program "Panama disease in banana: multilevel solutions for a global problem". The program is a public private partnership through co-funding by many partners and comprises seven PhD projects.

The project of Fernando Garcia focuses on "The genetic basis and mechanisms of resistance to Panama disease in banana". Part of the project involves the screening of banana germplasm with the Tropical Race 4 strain of *Fusarium oxysporum* f.sp. *cubense*, the causal agent of Panama disease.

In this database we present a short summary of collected data that will be frequently updated in order to inform the community. Details of these experiments will eventually be published in peer-reviewed journals. Data can be used with correct citation of the source of information.

The following plant information (all available passport data and biological information) was obtained from the following website: <http://www.crop-diversity.org/banana>

Please cite these results as:

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Pictures: F. García-Bastidas



ITC-CODE	ITC1187
Accession name	Tomolo
Biological status	Traditional cultivar/Landrace
PRGFA under development?	No
Genus, Section, Sp./Group:	MUSA - EUMUSA - AA
Ssp./Subgroup	
Acquisition date	05/25/1991
Donor country	France
Accession code	LCIV PNG 023 no.2
Origin	
Testing date	Dec, 2013 - Jan, 2014

Middle: healthy plant
Left and right: infected plants

Root system and corm of a healthy plant (water control)



Root system and corm of an infected plant (5 weeks after inoculation)





ITC-CODE	ITC1403
Accession name	Pisang Mas
Biological status	Traditional cultivar/Land Race
PRGFA under development?	NO
Genus, Section, Sp/Group:	MUSA – EUMUSA – AA
Ssp./Subgroup	SUCRIER
Acquisition date	05/22/1997
Donor country	Belgium
Accession code	-
Origin	-
Testing date	Dec, 2013 – Jan, 2014

Middle: healthy plant
Left and right: infected plants

Root system and corm of a healthy plant (water control)



Root system and corm of an infected plant (5 weeks after inoculation)





ITC-CODE	ITC1149
Accession name	Inarnibal
Biological status	Traditional cultivar/Landrace
PRGFA under development?	No
Genus, Section, Sp/Group:	MUSA - EUMUSA - AAA
Ssp./Subgroup	-
Acquisition date	12/13/1990
Donor country	FRANCE
Accession code	CIRAD-VIC INA no.3
Origin	-
Testing date	Dec, 2013 - Jan, 2014

Middle: healthy plant
Left and right: infected plants

Root system and corm of a healthy plant (water control)



Root system and corm of an infected plant (5 weeks after inoculation)





ITC-CODE	ITC1120
Accession name	Tani
Biological status	Wild
PRGFA under development?	No
Genus, Section, Sp/Group:	MUSA – EUMUSA – balbisiana
Ssp./Subgroup	
Acquisition date	11/29/1990
Donor country	Guadeloupe
Accession code	CIRAD ii.04.02.101.001
Origin	
Testing date	Dec, 2013 – Jan, 2014

Middle: healthy plant
Left and right: infected plants

Root system and corm of a healthy plant (water control)



Root system and corm of an infected plant (5 weeks after inoculation)





ITC-CODE	ITC0249
Accession name	Calcutta 4
Biological status	Wild
PRGFA under development?	No
Genus, Section, Sp/Group:	MUSA - EUMUSA - acuminata
Ssp./Subgroup	Burmunicoides
Acquisition date	09/11/1987
Donor country	FRANCE
Accession code	CIRAD II.04.01.003.001;(LCIV BURM; 04.02.13
Origin	
Testing date	Dec, 2013 - Jan, 2014

Middle: healthy plant

Left and right: infected plants

Root system and corm of a healthy plant (water control)



Root system and corm of an infected plant (5 weeks after inoculation)





ITC-CODE	ITC0766
Accession name	Paliama
Biological status	Wild
PRGFA under development?	No
Genus, Section, Sp/Group:	MUSA - EUMUSA - acuminata
Ssp./Subgroup	Banksii
Acquisition date	02/26/1990
Donor country	Guadeloupe
Accession code	CIRAD II.04.01.004.003
Origin	
Testing date	Dec, 2013 - Jan, 2014

Middle: healthy plant
Left and right: infected plants

Root system and corm of a healthy plant (water control)



Root system and corm of an infected plant (5 weeks after inoculation)





ITC-CODE	ITC1034
Accession name	Kunnan
Biological status	Traditional cultivar/Landrace
PRGFA under development?	No
Genus, Section, Sp/Group:	MUSA - EUMUSA - AB
Ssp./Subgroup	Ney Poovan
Acquisition date	10/15/1990
Donor country	FRANCE
Accession code	
Origin	
Testing date	Dec, 2013 - Jan, 2014

Middle: healthy plant
Left and right: infected plants

Root system and corm of a healthy plant (water control)



Root system and corm of an infected plant (5 weeks after inoculation)





ITC-CODE	ITC0245
Accession name	Safet Velchi
Biological status	Traditional cultivar/Landrace
PRGFA under development?	No
Genus, Section, Sp/Group:	MUSA – EUMUSA – AB
Ssp./Subgroup	Ney Poovan
Acquisition date	09/11/1987
Donor country	France
Accession code	CIRAD II.04.21.001.001; (LCIV SV; 50.01.01)
Origin	
Testing date	Dec, 2013 – Jan, 2014

Middle: healthy plant; Left and right: infected plants

Root system and corm of a healthy plant (water control)



Root system and corm of an infected plant (5 weeks after inoculation)





ITC-CODE	ITC0966
Accession name	Zebrina (G.F)
Biological status	Wild
PRGFA under development?	No
Genus, Section, Sp/Group:	MUSA – EUMUSA – acuminata
Ssp./Subgroup	Zebrina
Acquisition date	04/10/1990
Donor country	-
Accession code	-
Origin	
Testing date	Dec, 2013 – Jan, 2014

Middle: healthy plant
Left and right: infected plants

Root system and corm of a healthy plant (water control)



Root system and corm of an infected plant (5 weeks after inoculation)





ITC-CODE	ITC0449
Accession name	Pisang Lawading
Biological status	Traditional cultivar/Landrace
PRGFA under development?	No
Genus, Section, Sp./Group:	Musa-Eumusa AAB
Ssp./Subgroup	
Acquisition date	07/25/1988
Donor country	
Accession code	
Origin	
Testing date	Feb - Apr, 2014

Right: healthy plant
Left: infected plant

Rhizome and pseudostem of a healthy plant (water control)



Pseudostem and rhizome of an infected plant (6 weeks after inoculation)





ITC-CODE	ITC0484
Accession name	Gros Michel
Biological status	Traditional cultivar/landrace
PRGFA under development?	No
Genus, Section, Sp/Group:	Musa-Eumusa-AAA
Ssp./Subgroup	Gros Michel
Acquisition date	08/29/1988
Donor country	
Accession code	NGA-17
Origin	
Testing date	Feb – Apr, 2014

Right: healthy plant
Left: infected plant

Rhizome and pseudostem of a healthy plant (water control)



Pseudostem and rhizome of an infected plant (6 weeks after inoculation)





ITC-CODE	ITC0652
Accession name	Kluai Tiparod
Biological status	Traditional cultivar/Landrace
PRGFA under development?	No
Genus, Section, Sp/Group:	Musa-Eumusa-ABB
Ssp./Subgroup	
Acquisition date	12/11/1989
Donor country	Guadeloupe
Accession code	CIRAD II.04.43.101.001
Origin	
Testing date	Feb - Apr, 2014

Right: healthy plant
Left: infected plant

Rhizome and pseudostem of a healthy plant (water control)



Pseudostem and rhizome of an infected plant (6 weeks after inoculation)





ITC-CODE	ITC0348
Accession name	Silk
Biological status	Traditional cultivar/Landrace
PRGFA under development?	No
Genus, Section, Sp/Group:	Musa-Eumusa-AAB
Ssp./Subgroup	Silk
Acquisition date	02/18/1988
Donor country	
Accession code	IND-32
Origin	
Testing date	Feb - Apr, 2014

Right: healthy plant
Left: infected plant

Rhizome and pseudostem of a healthy plant (water control)



Pseudostem and rhizome of an infected plant (6 weeks after inoculation)





ITC-CODE	ITC1282
Accession name	GCTVC-119
Biological status	Breeding/Research material
PRGFA under development?	Yes
Genus, Section, Sp/Group:	Musa-Eumusa-AAA
Ssp./Subgroup	
Acquisition date	08/09/1993
Donor country	Taiwan
Accession code	
Origin	
Testing date	Feb – Apr, 2014

Right: healthy plant
Left: infected plant

Rhizome and pseudostem of a healthy plant (water control)



Pseudostem and rhizome of an infected plant (6 weeks after inoculation)





ITC-CODE	ITC0095
Accession name	Pelipita
Biological status	Traditional Landrace
PRGFA under development?	No
Genus, Section, Sp/Group:	Musa-Eumusa-ABB
Ssp./Subgroup	
Acquisition date	06/02/1986
Donor country	
Accession code	CATIE 10849
Origin	
Testing date	Feb - Apr, 2014

Right: healthy plant
Left: infected plant

Rhizome and pseudostem of a healthy plant (water control)



Pseudostem and rhizome of an infected plant (6 weeks after inoculation)





ITC-CODE	ITC0032
Accession name	Matavia
Biological status	Traditional cultivar/Landrace
PRGFA under development?	No
Genus, Section, Sp/Group:	Musa-Eumusa-ABB
Ssp./Subgroup	
Acquisition date	04/18/1983
Donor country	Philippines
Accession code	
Origin	
Testing date	Feb - Apr, 2014

Right: healthy plant
Left: infected plant

Rhizome and pseudostem of a healthy plant (water control)



Pseudostem and rhizome of an infected plant (6 weeks after inoculation)





ITC-CODE	ITC0249
Accession name	FHIA-02
Biological status	Breeding/Research material
PRGFA under development?	Yes
Genus, Section, Sp/Group:	Musa - Eumusa - AAAB
Ssp./Subgroup	
Acquisition date	08/13/1988
Donor country	Honduras
Accession code	FHIA-02
Origin	
Testing date	
Testing date	Feb - Apr, 2014

Right: healthy plant
Left: infected plant

Rhizome and pseudostem of a healthy plant (water control)



Pseudostem and rhizome of an infected plant (6 weeks after inoculation)





ITC-CODE	ITC1418
Accession name	FHIA25
Biological status	Breeding/Research
PRGFA under development?	Yes
Genus, Section, Sp/Group:	Musa-Eumusa-
Ssp./Subgroup	
Acquisition date	04/20/1998
Donor country	Honduras
Accession code	FHIA-25
Origin	
Testing date	Feb – Apr, 2014

Right: healthy plant
Left: infected plant

Rhizome and pseudostem of a healthy plant (water control)



Pseudostem and rhizome of an infected plant (6 weeks after inoculation)

