LIVING MODIFIED ORGANISM (LMO)

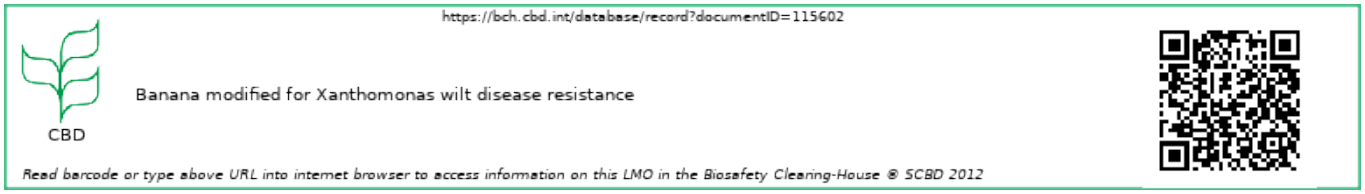
BCH-LMO-SCBD-115602-1

? Decisions on the LMO ? Risk Assessments

LAST UPDATED: 11 JUN 2020

Living Modified Organism identity

The image below identifies the LMO through its unique identifier, trade name and a link to this page of the BCH. Click on it to download a larger image on your computer. For help on how to use it go to the LMO quick-links page.



Name

Banana modified for Xanthomonas wilt disease resistance	EN

Transformation event

HRAP

Developer(s)

- PERSON: DR. LEENA TRIPATHI | BCH-CON-SCBD-115601-2

PERSON

Dr. Leena Tripathi
Principal Scientist
Nairobi
Kenya
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Email: l.tripathi@cgiar.org

RELATED ORGANIZATION

Description

The banana was modified for resistance to Xanthomonas wilt disease, caused by *Xanthomonas campestris* pv. *musacearum* through the expression of *Capsicum annuum* hypersensitive response-assisting protein. The modified banana plants demonstrate more a robust hypersensitive response upon infection with Gram negative bacteria, such as *X. campestris*, and thus resist disease related wilting. The modified banana also contains a selectable marker, *Ecscherichia coli* neomycin phosphotransferase II, for kanamycin selection	EN

during transformation.

Recipient Organism or Parental Organisms

The term “Recipient organism” refers to an organism (either already modified or non-modified) that was subjected to genetic modification, whereas “Parental organisms” refers to those that were involved in cross breeding or cell fusion.

BCH-ORGA-SCBD-100304-3 ORGANISM | MUSA SP. (BANANA, PLANTAIN) |
Crops

Related LMO(s)

BCH-LMO-SCBD-115604-1 | Banana resistant to Xanthomonas wilt disease | Dr. Leena Tripathi Resistance to antibiotics - Kanamycin Resistance to diseases and pests - Bacteria
Show detection method(s)

BCH-LMO-SCBD-115603-1 | Banana modified for Xanthomonas wilt disease resistance | Dr. Leena Tripathi Resistance to antibiotics - Kanamycin Resistance to diseases and pests - Bacteria
Show detection method(s)

Characteristics of the modification process

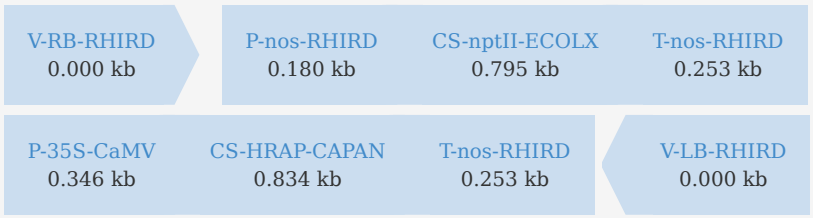
Vector

pBI-HRAP EN

Techniques used for the modification

Agrobacterium-mediated DNA transfer

Genetic elements construct



Introduced or modified genetic element(s)

Some of these genetic elements may be present as fragments or truncated forms. Please see notes below, where applicable.

BCH-GENE-SCBD-101416-6 TI PLASMID RIGHT BORDER REPEAT |
Plasmid vector

BCH-GENE-SCBD-100270-6 NOPALINE SYNTHASE GENE PROMOTER |
Promoter

BCH-GENE-SCBD-15001-5 NEOMYCIN PHOSPHOTRANSFERASE II | (BACTERIA) |
Protein coding sequence | Resistance to antibiotics (Kanamycin)

BCH-GENE-SCBD-100269-8 NOPALINE SYNTHASE GENE TERMINATOR |
Terminator

BCH-GENE-SCBD-100287-7 CAMV 35S PROMOTER |
Promoter

BCH-GENE-SCBD-113355-1 HYPERSENSITIVE RESPONSE ASSISTING PROTEIN GENE | CAPSICUM ANNUUM (BELL PEPPER, SWEET PEPPER, CHILI PEPPER, CAPAN)

Protein coding sequence | Resistance to diseases and pests

BCH-GENE-SCBD-101415-9 TI PLASMID LEFT BORDER REPEAT

Plasmid vector

Notes regarding the genetic elements present in this LMO

Gene expression Transcription of *Escherichia coli* neomycin phosphotransferase II is under control of the *Agrobacterium tumefaciens* nopaline synthase (*nos*) promoter and terminator. Transcription of *Capsicum annuum* hypersensitive response assisting protein (*hrap*) is under control of the Cauliflower Mosaic Virus 35S promoter and the *nos* terminator. High levels of transcription are expected due to the constitutive nature of the CaMV promoter. Notes: - The transformation vector was derived from the pBI121 vector using a BamHI and SacI restriction digest. - The coding sequence of *hrap* was derived from the cDNA clone of the mRNA.	EN

LMO characteristics

Modified traits

Resistance to diseases and pests
- Bacteria

Resistance to antibiotics
- Kanamycin

Selectable marker genes and reporter genes

Other
- Resistance to Xanthomonas sp.

Common use(s) of the LMO

Food
Research

Detection method(s)

External link(s)

? Expression of sweet pepper Hrap gene in banana enhances resistance to Xanthomonas campestris pv musacearum.pdf *(English)*

Additional Information

Some detection methods can be found in the scientific article detailing the creation of this banana event.	EN

Additional Information

Other relevant website addresses and/or attached documents

? Field trial of Xanthomonas wilt disease-resistant bananas in East Africa.pdf *(English)*

? Expression of sweet pepper Hrap gene in banana enhances resistance to Xanthomonas campestris pv musacearum.pdf *(English)*

? SnapGene: pBI121 (empty vector) *(English)*

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Further Information

Questions about the Cartagena Protocol on Biosafety or the operation of the Biosafety Clearing-House may be directed to the Secretariat of the Convention on Biological Diversity.

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