Increased access to trait and genomic characterization in the Musa Germplasm Information system (MGIS)

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flash talk

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#Alliance4Science
MGIS, a crop community system for banana diversity

30 collections around the world
Filter and order material based on

- Passport data
- Taxonomy
- Morphology
- Genomic and Trait characterization
- Genetic diversity

SMTA
A digital catalog of high-density markers for banana germplasm collections

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Genetic Impacts Statement
Genetic variation in bananas, among the top 10 fruit crops worldwide, is under threat. Increasing the use of germplasm conserved in genebanks is crucial. However, the use of artificial selection has shaped the genetic landscape, leading to a reduced diversity of resources. Therefore, a digital catalog of high-density markers for banana germplasm is essential to foster the conservation of banana biodiversity.

Methods
Molecular markers, including SNP (single-nucleotide polymorphism) datasets, are crucial for genetic diversity conservation. Diverse analysis tools, such as VCF (Variant Call Format), BED, Darwin Hapmap, GFF, and Flapjack, are available to interpret SNP data and assist in breeding programs.

Tools
- VCF (Variant Call Format)
- BED
- Darwin Hapmap
- GFF
- Flapjack
- BGH

https://www.crop-diversity.org/mgis/gigwa
Genomic characterization

Cenci et al, 2021 Annals of Botany
Phenotypic studies and Trait data

- Morphological descriptors
- Evaluation traits
- Trait lists
- [ ] published evaluations
- Parthenocarpy (104)
- Pro-vitamin A (85)
- Fusarium wilt (TR4) (69)
- Xanthomonas wilt (66)
- Burrowing nematode (57)
- Fusarium wilt (Race 1) (51)
- Water stress (47)
- Black Leaf Streak (43)
- Agronomic performance (37)
- Banana Streak Virus (BSV) (37)
- Pollen Fertility (1)

[ ] genotyping studies
[ ] related publications

**ITC0022 - Mulolou**

**Passport Data**
- Accession number: ITC0022
- Accession name: Mulolou
- DOI: 10.18730/966EC
- Biological status of accession: traditional cultivar or landrace
- Taxonomic classification: Musaceae > Musa > Eumusa > AAB > subgr. Plantain > cl. French >
- Institute code: ICRAF (ITC)
- Acquisition date: 1984-09-03
- Status: active
- Type of storage:
  - In-Vitro Collection
  - Cryopreserved Collection

**Traits**

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<th>Trait</th>
<th>Value</th>
<th>Source</th>
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**Publications**


Crop Ontology for agricultural data
Musa Germplasm Information system (MGIS)

https://www.crop-diversity.org/mgis/

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