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TAXONOMIC REFERENCE  
COLLECTION







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## Agricultural Research Service

The Agricultural Research Service (ARS) is the principal in-house research agency of the United States Department of Agriculture (USDA). ARS is one of four agencies in USDA's Research, Education and Economics mission area. ARS is charged with extending the nation's scientific knowledge and solving agricultural problems through its four national program areas: nutrition, food safety and quality; animal production and protection; natural resources and sustainable agricultural systems; and crop production and protection. ARS research focuses on solving problems affecting Americans every day.



Bioversity International is a global research-for-development organization with a vision - that agricultural biodiversity nourishes people and sustains the planet. The organization delivers scientific evidence, management practices and policy options to use and safeguard agricultural biodiversity to attain global food and nutrition security. This is achieved by working with partners in low-income countries in different regions where agricultural biodiversity can contribute to improved nutrition, resilience, productivity and climate change adaptation. Bioversity International is a member of the CGIAR Consortium - a global research partnership for a food-secure future.

### Citations

Irish, B.M., C. Rios, N. Roux, J. Sardos and R. Goenaga. 2016. Characterization of the *Musa* spp. Taxonomic Reference Collection at the USDA-ARS Tropical Agriculture Research Station.



Uzakan  
*Musa* hybrid - AAB





Pisang Lilin  
*Musa acuminata* - AA





## How to use this catalog

The purpose of the Musa Taxonomic Reference Collection Catalog is to provide information on the genetic resources that comprise the Taxonomic Reference Collection (TRC), and to be a source of information for breeders, researchers and other plant scientists around the world. It can be used as an educational tool as well as to reference unique historical information (passport), phenotypic, agronomic, disease resistance and/or genetic traits associated with particular banana accessions that are part of the TRC.

**Disclaimer:** All efforts were made to properly identify, characterize and evaluate the plant germplasm accessions in this catalog. If mistakes or other inaccuracies are found, the authors would appreciate editorial comments and/or suggestions. These can be sent via email to Brian Irish (Brian.Irish@ars.usda.gov), or by contacting TARS using [http://www.ars.usda.gov/main/site\\_main.htm?modecode=66-35-00-00](http://www.ars.usda.gov/main/site_main.htm?modecode=66-35-00-00). Lastly, this printed/PDF reference catalog to the TRC *Musa* spp. accessions ver. 1.0 is a static document, whereas plant sciences, botany, descriptors and germplasm characterization and evaluation efforts are all dynamic. Therefore, it is the authors' intention to periodically update and/or add information if future versions are to be developed.

**Acknowledgements:** This published reference is the compilation of work performed by many important contributors. Key personnel from Bioversity International have played significant roles in contributing to this project as collaborators and co-authors. Additional contributors include volunteers and students as well as support, technical and scientific staff that have worked on the banana (*Musa* spp.) plant germplasm characterization and evaluations at the USDA-ARS Tropical Agriculture Research Station over the years. We recognize the recent efforts in helping collect/summarize data for the catalog by: Alcides Morales, Amil Ortiz, Ezequiel Mendez, Luis De La Cruz, Miguel Roman, Pablo Rios, Roberto Bravo, Ruth Ruberte and Yaleidis Mendez. Also, authors thank Dr. Jean Pierre Horry and Mr. Jeff Daniells as well as Ms. Rachel Chase, Sirena Montalvo and Courtney Irish for their critical review of the document.

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# CONTENTS

## INTRODUCTION

|  |     |
|--|-----|
| Justification .....                          | i   |
| List of accessions in the TRC .....          | ii  |
| Map of participant locations .....           | iii |
| TRC characterization at TARS .....           | iv  |
| TARS History, Mission and Organization ..... | vi  |

## ACCESSION INFORMATION

### Wild species

|                  |   |
|------------------|---|
| Paliama .....    | 1 |
| Calcutta 4 ..... | 5 |
| Zebrina .....    | 9 |

### *Musa balbisiana*

|            |    |
|------------|----|
| Tani ..... | 13 |
|------------|----|

### AA

|                         |    |
|-------------------------|----|
| Pisang Mas .....        | 17 |
| Pisang Jari Buaya ..... | 21 |
| Pisang Lilin .....      | 25 |
| Tomolo .....            | 29 |

### AAA

|                          |    |
|--------------------------|----|
| Gros Michel .....        | 33 |
| Petite Naine .....       | 37 |
| Red Dacca .....          | 41 |
| Khai Thong Ruang .....   | 45 |
| Igitsiri (Intuntu) ..... | 49 |
| Mbwazirume .....         | 53 |
| Leite .....              | 57 |
| Pisang Berangan .....    | 61 |

### AB

|                    |    |
|--------------------|----|
| Safet Velchi ..... | 65 |
|--------------------|----|

### AAB

|                                  |    |
|----------------------------------|----|
| Uzakan .....                     | 69 |
| Pisang Ceylan .....              | 73 |
| Figue Pomme Géante .....         | 77 |
| Foconah .....                    | 81 |
| Mai'a popo'ulu moa .....         | 85 |
| Pisang Rajah .....               | 89 |
| Obubit Ntanga Green Mutant ..... | 93 |
| Pisang Palembang .....           | 97 |

### ABB

|                    |     |
|--------------------|-----|
| Dole .....         | 101 |
| NamwaKhom .....    | 105 |
| Monthan .....      | 109 |
| Pelipita .....     | 113 |
| Blue Java .....    | 117 |
| SimiliRadjah ..... | 121 |

|                     |     |
|---------------------|-----|
| Abbreviations ..... | 125 |
|---------------------|-----|

|                |     |
|----------------|-----|
| Glossary ..... | 126 |
|----------------|-----|



## Justification

Among the four outputs proposed in the Global Conservation Strategy for *Musa* developed in 2006 is: “genetic diversity is comprehensively characterized and documented, taxonomy is harmonized and collections are rationalized”. Since then a minimum set of descriptors and a minimum set of photos as well as a “Taxonomic Reference Collection” (TRC) was agreed upon by a Taxonomy Advisory Group (TAG). The minimum set of descriptors and photos allow a standardized description and documentation of any banana cultivar or wild species. In addition, the TRC was selected to provide *Musa* field collection curators with a set of accessions that can be used as reference to allow the correct identification of the accessions in their collection to the sub-group level. Therefore, the TRC is composed of **34 accessions** representing the diversity of *Musa* (**Table 1**). This reference set can also be used in capacity building, to train new curators, banana workers or students in characterizing accessions for which the descriptors’ scores are known.

Following detailed examination of digital images, plant characterization descriptors provide additional information and aid in discrimination between phenotypes. The minimum set of descriptors and the associated minimum set of pictures are, for example, currently being used to field verify accessions from the Bioversity International Musa Germplasm Transit Centre (ITC) that have been maintained under medium-term storage conditions *in vitro* for longer than ten years. After examination of the pictures and the descriptor scores for particular accessions being evaluated, the TAG experts are able to assess whether the accession is true-to-type or not.

The best descriptors for taxonomy and rationalization purposes should be stable (i.e., expressed equally in all environments) and easy to score, to avoid bias due to differences in the interpretation of the descriptors. The TRC’s first use is thus to test the robustness of the standard banana descriptors, including the set of minimum descriptors, with regard to these different factors. The TRC exercise is currently ongoing and involves 12 different banana field collections around the world (**Figure 1; Table 2**). By comparing the characterization data obtained for the 34 accessions of the TRC, with the full set of the 120 descriptors in each of these different collections, the descriptors/traits that are the least variable in different environments can be identified. In addition, by performing this exercise, each field collection will have a set of accessions that will further serve as a taxonomical reference for cultivated bananas and as a training tool. In order to perform this characterization exercise in the most efficient and standardized way and produce data that can be analyzed statistically, standardized guidelines are followed.

**Table 1.** List of *Musa* spp. accessions in the Taxonomic Reference Collection (TRC).

| #  | ITC Code | Accession name             | Species / Group | Subspecies / Subgroup       |
|----|----------|----------------------------|-----------------|-----------------------------|
| 1  | ITC0766  | Paliama                    | acuminata       | banksii                     |
| 2  | ITC0249  | Calcutta 4                 | acuminata       | burmannicoides              |
| 3  | ITC1177  | Zebrina                    | acuminata       | zebrina                     |
| 4  | ITC0247  | Honduras*                  | balbisiana      | type 1                      |
| 5  | ITC1120  | Tani                       | balbisiana      | -                           |
| 6  | ITC0653  | Pisang Mas                 | AA              | Sucrier                     |
| 7  | ITC0312  | Pisang Jari Buaya          | AA              | Pisang Jari Buaya           |
| 8  | ITC1121  | Pisang Lilin               | AA              | Pisang Lilin                |
| 9  | ITC1187  | Tomolo                     | AA              | Cooking AA                  |
| 10 | ITC1122  | Gros-Michel                | AAA             | Gros Michel                 |
| 11 | ITC0654  | Petite Naine               | AAA             | Cavendish                   |
| 12 | ITC0575  | Red Dacca                  | AAA             | Red                         |
| 13 | ITC0662  | Khai Thong Ruang           | AAA             | Ibota                       |
| 14 | ITC0081  | Igitsiri (Intuntu)         | AAA             | Mutika/Lujugira (beer)      |
| 15 | ITC0084  | Mbwazirume                 | AAA             | Mutika/Lujugira (cooking)   |
| 16 | ITC0277  | Leite                      | AAA             | Rio                         |
| 17 | ITC1287  | Pisang Berangan            | AAA             | Philippine Lacatan/Sgr. 555 |
| 18 | ITC0245  | Safet Velchi               | AB              | Ney Poovan                  |
| 19 | ITC0825  | Uzakan                     | AAB             | Iholena                     |
| 20 | ITC1441  | Pisang Ceylan              | AAB             | Mysore                      |
| 21 | ITC0769  | Figue Pomme Géante         | AAB             | Silk                        |
| 22 | ITC0649  | Foconah                    | AAB             | Pome                        |
| 23 | ITC1169  | Mai'a popo'ulu moa         | AAB             | Maoli/Popoulu               |
| 24 | ITC0587  | Pisang Rajah               | AAB             | Pisang Raja                 |
| 25 | ITC0121  | Ihitisim*                  | AAB             | Plantain (Horn)             |
| 26 | ITC1325  | Orishele*                  | AAB             | Plantain (False Horn)       |
| 27 | ITC0519  | Obubit Ntanga green mutant | AAB             | Plantain (French)           |
| 28 | ITC0450  | Pisang Palembang           | AAB             | Pisang Kelat                |
| 29 | ITC0767  | Dole                       | ABB             | Bluggoe                     |
| 30 | ITC0659  | Namwa Khom                 | ABB             | Pisang Awak                 |
| 31 | ITC1483  | Monthan                    | ABB             | Monthan                     |
| 32 | ITC0472  | Pelipita                   | ABB             | Pelipita                    |
| 33 | ITC0361  | Blue Java                  | ABB             | Ney Mannan                  |
| 34 | ITC0123  | Simili Radjah              | ABB             | Peyan                       |

\*Accessions did not establish in the field, were deemed to be 'off-types' and no data was collected.



**Figure 1.** Locations in tropical regions of the world where the 34 accessions in the Taxonomic Reference Collection (TRC) are being evaluated.

**Table 2.** List of the research institutes involved in the TRC characterizations.

| #  | Acronym | Institution name   | Country          |
|----|---------|--|------------------|
| 1  | BPI     | Bureau of Plant Industry                                   | Philippines      |
| 2  | CARBAP  | Centre Africain des Recherches sur Bananiers et Plantains  | Cameroon         |
| 3  | CORBANA | Corporación Bananera Nacional                              | Costa Rica       |
| 4  | EMBRAPA | Empresa Brasileira de Pesquisa Agropecuária                | Brazil           |
| 5  | FAVRI   | Fruit and Vegetable Research Institute                     | Vietnam          |
| 6  | IITA    | International Institute of Tropical Agriculture            | Nigeria          |
| 7  | IRAZ    | Institut de Recherche Agronomique et Zootechnique          | Burundi          |
| 8  | ITFRI   | Indonesian Tropical Fruits Research Institute              | Indonesia        |
| 9  | NARO    | National Agricultural Research Organisation                | Uganda           |
| 10 | NRCB    | National Research Centre for Banana                        | India            |
| 11 | SDR-MAP | Service du Développement Rural, Ministère de L'Agriculture | French Polynesia |
| 12 | USDA    | United States Department of Agriculture                    | United States    |



## TRC Characterization at the USDA-ARS TARS

*Plant receipt and acclimatization.* All accessions were received as rooted tissue culture plants from Bioversity International Musa Germplasm Transit Centre after initial signature of a Standard Material Transfer Agreement (SMTA). Plants were carefully labeled with plastic stakes and established in ~10 cm peat pots and grown/acclimated in a greenhouse for three months prior to being taken to the field. Plants were watered regularly and fertilized once every three weeks with water soluble all purpose (13N-13P<sub>2</sub>O<sub>5</sub>-13K<sub>2</sub>O) plant fertilizer. Two days before field establishment, plants were exposed to full sunlight and treated with an anti-transpirant to reduce transplant shock (i.e., harden off).

*Plot establishment and management.* Experimental planting was established at the USDA-ARS TARS research farm (18 28'18.38"N, 67 3'4.25"W; elevation 118 masl) in Isabela, Puerto Rico. Data collected on plants within the plot was taken from June, 2010 through November 2012. Once in the field, all plants within plots were duly identified with thermal labels on plastic stakes. Information on labels included cultivar name, ITC number, plot number and plant number. Four replicate plants for each accession were established in the field with each plant separated by 1.5 m within a row and 3.7 m between rows. A border row of the 'FHIA-21' cultivar was established around the perimeter of the plot. Other commercial practices were followed and included the removal of suckers on average once every three months, and granular fertilization (10N-5P<sub>2</sub>O<sub>5</sub>-20K<sub>2</sub>O-3MgO + minor elements) at a rate of 283 grams per plant every three months. Fungicide and insecticide/nematicide applications were used throughout the life of the experiment in order to lessen effects of foliar fungal diseases (e.g., black leaf streak) as well as nematodes and corm weevils. Irrigation was supplied, as needed, through a double row of drip irrigation lines. Of the 34 accessions taken to the field, three failed to establish and/or develop into fully mature plants with flowers and bunches. Therefore, no data was collected for these three 'off-types' (see footnote in **Table 1**).

*Data collection and summary.* Data to be collected included a minimum standard set of 32 descriptors<sup>1</sup> for the first crop cycle (i.e., mother crop) as well as a standard set of 15 images. Digital images were taken of highly discriminating traits at several development stages of plant development. For the second crop cycle a much more inclusive set of 120 descriptors were collected. Data collection began at "flowering" (also known as shooting) and is when the inflorescence first appears to emerge from the crown of the plant. Data collection continued through the harvest of a plant's bunch and finalized with descriptors relating to ripe fruit. For data collection, customized electronic forms were developed for each plant within accession and were pre-printed and stored in a field three-ring binder. In the field, data was collected with the aid of the printed guidelines "Descriptors for Banana (*Musa* spp.)" booklet and its accompanying color chart as well as several field tools including calipers, measuring poles and tapes, and scales. All digital images were taken with a high resolution (24 Mp) digital SLR camera. A customized acrylic plastic box (~dimensions 2 'x 2'x 4') was also used in the field for image taking of bracts and flower parts. Images were taken of the completed data forms and combined with corresponding accession digital images. All digital data was backed up frequently on laptop computers and external hard drives. During analysis, descriptor data across plants and across crop cycles within an accession were combined into consensus values. A single representative image for each of the 15 standard set of images was chosen and adjusted/edited with the Adobe Photoshop software. All data and images were shared with Bioversity International project collaborators and since have been loaded in a publicly available database (GRIN-Global).

*Genetic data*<sup>2</sup>. Although not part of the TRC objectives, all TRC accessions were genetically fingerprinted with microsatellite (SSR) markers. To do this leaves for DNA extractions were collected from all four replicate plants in the established field planting. Additional DNA samples were graciously provided by Dr. Jaroslav Dolezel, as part of the Musa Genotyping Centre (MGC) service offered by the Genomic Thematic Group of MusaNet

<sup>1</sup>For additional detailed information including definitions for each descriptor and their background reader should refer to: 1996. Descriptors for banana (*Musa* spp.). IPGRI, Rome (ITA). 55p.

<sup>2</sup>Irish, B. M., Cuevas, H., Simpson, S., Scheffler, B., Sardos, J., Ploetz, R. and Goenaga, R. 2013. *Musa* spp. germplasm management: microsatellite fingerprinting of USDA-ARS National Plant Germplasm System. *Crop Sci.* 54: 2140-2151.

(www.musanet.org) and the Laboratory of Molecular Cytogenetics and Cytometry of the Institute of Experimental Botany, Olomouc, Czech Republic. These reference DNA sample duplicates were included in the analysis as references for specific subgroups not represented in the TRC as well as a separate source of DNA to confirm matching with synonymous clones and reproducibility of the technique. DNA samples were then shipped to USDA-ARS Genomics and Bioinformatics Research Unit in Stoneville, MS for PCR and subsequent electrophoresis. Twenty-two microsatellite markers were used to fingerprint replicated plants in the TRC collection. SSR primer sequences were developed and selected for their allelic diversity and for usefulness in distinguishing diverse *Musa* spp.

*Information in the catalog.* Each accession in the catalog contains information which includes its name and genomic group/subspecies. In addition, passport and taxonomic (based on current taxonomy that is described in Daniells et al., 2001<sup>3</sup>) information is provided. Descriptors are listed in sections and follow general order in which data was collected in the field (excluding Genetic data). Descriptor sections include **Plant, Petiole and Leaves, Bunch, Peduncle, Male Bud, Flower and Hands and Fruit**. Voucher images corresponding to the different development stages are also provided generally in the same order as the descriptor sections.

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<sup>3</sup>Daniells J., C. Jenny, D. Karamura and K. Tomekpe. 2001. Musalogue: A catalogue of *Musa* germplasm. Diversity in the genus *Musa* (E. Arnaud and S. Sharrock, compil.). International Network for the Improvement of Banana and Plantain, Montpellier, France.



### TARS History, Mission and Organization

The Tropical Agriculture Research Station (TARS) in Mayagüez, Puerto Rico, is part of the Southeast Area, Agricultural Research Service, United States Department of Agriculture. In 1901, the United States Congress appropriated \$5,000 and directed the Secretary of Agriculture to take the necessary steps to establish an experiment station in Puerto Rico to study agricultural problems of interest to the island. The Governor of Puerto Rico, in cooperation with the communities of the island and representatives of the United States Department of Agriculture selected the present site of the station in Mayagüez, on the farm known as Hacienda Carmen. The Government of Puerto Rico donated the land, and the station began operations in 1902. The early years (1901-1930) of the station were devoted primarily to introduction of new crops and new varieties of crops in order to meet the agricultural needs of the island. Since 1935, TARS has gradually modified its research program to the point where most of its research is now concerned with the fundamental aspects of problems related to national/regional agriculture. TARS proximity to the University of Puerto Rico, Mayagüez Campus, has encouraged cooperative research programs with the College of Agricultural Sciences and its Agricultural Experiment Stations for many decades.

The mission of the Tropical Agriculture Research Station is to conduct agricultural research to: 1) Assess tropical sorghum and dry bean genetic resources for disease resistance and genetic diversity and develop germplasm adapted to temperate regions, and 2) To introduce, preserve, evaluate, regenerate, distribute tropical fruit germplasm and develop cultural and management systems for tropical/subtropical crops that are of economic importance to the Continental and Insular United States. All research projects form part of National Programs 301: Plant Genetic Resources, Genomics and Genetic Improvement and National Program 305: Crop Production.

The USDA-ARS Tropical Agriculture Research Station is the only research entity within the National Plant Germplasm System in the insular Caribbean region. It houses germplasm collections of cultivated tropical/subtropical bananas, cacao, mamey sapote, sapodilla, Spanish lime, species in the *Annona* and *Garcinia* genera, and bamboo. The lack of well established, organized and properly maintained *ex situ* germplasm collections could mean the loss of useful genetic resources. *Musa* spp. germplasm collections exist in the world, however genetic diversity is underrepresented and many accessions lack characterization and evaluation data. Over time, genetically diverse *Musa* spp. germplasm will be added to the existing TARS collection. Germplasm will be maintained, characterized and distributed which will aid in diversifying Puerto Rico's and the region's agricultural economies. Germplasm genotypic characterizations utilize current and novel molecular approaches for determination of genetic integrity and for estimation of genetic diversity. Deficiencies or gaps identified in genetic diversity comprehensiveness will be addressed by introduction of representative germplasm. In addition, *in vitro* and cryopreservation techniques are being assessed for their increased propagation efficiency, ease of distribution and for backup purposes. Evaluations for priority horticultural traits have been and will continue to be carried out for *Musa* spp. genetic resources. All data (genotypic/phenotypic) is made available to stakeholders via scientific presentations, publications, websites and the GRIN-Global and crop specific databases. **Disease tested *Musa* spp. genetic resources are distributed, in limited quantities, for research and educational purposes. A valid justification for the need must accompany any germplasm requests.** The NPGS germplasm request form can be accessed at the following link <https://npgsweb.ars-grin.gov/>.





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# Paliama

PALIAMA - AA



## GENETIC (SSR)

| MARKER    | ALLELES |
|-----------|---------|
| mMaCIR01  | 257 - - |
| mMaCIR03  | 101 - - |
| mMACIR07  | 139 - - |
| mMACIR08  | 241 - - |
| mMACIR13  | 268 - - |
| mMACIR24  | 228 - - |
| mMACIR27  | 217 - - |
| mMACIR39  | 315 - - |
| mMACIR40  | 162 - - |
| mMACIR45  | 266 - - |
| mMACIR150 | 243 - - |
| mMACIR152 | 141 - - |
| mMACIR164 | 387 - - |
| mMACIR196 | 162 - - |
| mMACIR214 | 103 - - |
| mMACIR231 | 224 - - |
| mMACIR260 | 192 - - |
| mMACIR264 | 241 - - |
| mMACIR307 | 145 - - |
| Ma 1-32   | 229 - - |
| Ma 3-90   | 142 - - |

## PASSPORT

### TAXONOMY

Genus: *Musa*  
 Species/Group: *acuminata*  
 Subspecies/Subgroup: *banksii*  
 Musa sect. Musa (Häkkinen): Musa (Eumusa)

### GENERAL

Synonyms: -  
 Status: Wild  
 Origin: Papua New Guinea  
 ITC code: ITC0766  
 Donor: CIRAD, 1990



DESCRIPTORS



Pseudostem



Plant



Neck



Petiole



Petiole

PLANT

|        |                         |                              |
|--------|-------------------------|------------------------------|
| 7.3    | Planting to shooting:   | 339 days                     |
| 7.15   | Leaves at flowering:    | 8                            |
| 7.5    | Plant crop cycle:       | 397 days                     |
| 7.16   | Leaves at harvest:      | 6.7                          |
| 6.3.22 | Cigar leaf color:       | Light Green                  |
| 7.6    | Pseudostem height:      | 3.09 m                       |
| 7.7    | Pseudostem diameter:    | 12.8 cm                      |
| 6.2.3  | Pseudostem color:       | Light Green                  |
| 6.2.5  | Underlying color:       | Light Green                  |
| 6.2.6  | Pigmentation:           | None                         |
| 6.2.7  | Sap color:              | Watery                       |
| 7.8    | Height of ratoon:       | 2.54 m                       |
| 6.2.10 | Development of suckers: | More than 3/4 of parent size |
| 6.2.11 | Position of suckers:    | Close (growing vertically)   |

PETIOLE & LEAVES

|          |                               |                         |
|----------|-------------------------------|-------------------------|
| 6.1.1    | Leaf habit:                   | Erect                   |
| 6.1.2    | Dwarfism:                     | Normal                  |
| 6.3.1    | Blotches at the petiole base: | Large                   |
| 6.3.2    | Blotches color:               | Dark brown              |
| 6.3.3    | Petiole canal:                | Wide Erect              |
| 6.3.4    | Petiole margins:              | Winged and clasping     |
| 6.3.5    | Wing type:                    | Dry                     |
| 6.3.6    | Petiole margin color:         | Light Green             |
| 6.3.11   | Petiole length:               | ≤50 cm                  |
| 6.3.7    | Rim color:                    | Green                   |
| 6.3.9    | Leaf blade length:            | 209.5 cm                |
| 6.3.10   | Leaf blade width:             | 68.0 cm                 |
| 6.3.10.1 | Leaf ratio:                   | 3.1                     |
| 6.3.12   | Leaf upper surface:           | Green                   |
| 6.3.13   | Upper appearance:             | Shiny                   |
| 6.3.14   | Leaf lower surface:           | Medium Green            |
| 6.3.15   | Lower appearance:             | Dull                    |
| 6.3.16   | Wax on leaves:                | Very little/not visible |
| 6.3.17   | Insertion point of blades:    | Asymmetric              |
| 6.3.18   | Blade base:                   | Both sides pointed      |
| 6.3.19   | Corrugation:                  | Even, smooth            |
| 6.3.20   | Midrib dorsal color:          | Light Green             |
| 6.3.21   | Midrib ventral color:         | Medium Green            |



### BUNCH

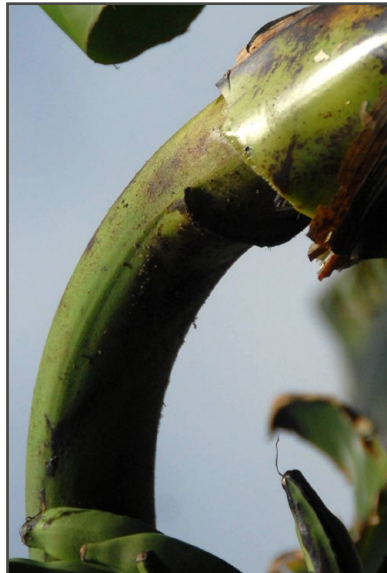
|        |                    |                       |
|--------|--------------------|-----------------------|
| 6.4.6  | Bunch position:    | Hanging at 45 degrees |
| 6.4.7  | Bunch shape:       | Cylindrical           |
| 6.4.8  | Bunch appearance:  | Lax                   |
| 6.4.10 | Fruit positioning: | Biseriate             |
| 6.4.11 | Rachis type:       | Present               |
| 6.4.12 | Rachis position:   | With a curve          |
| 6.4.13 | Rachis appearance: | Bare                  |
| 7.9    | Bunch weight:      | 3.03 kg               |
| 6.7.1  | Fruit position:    | Curved upward         |
| 7.10   | Number of hands:   | 14.0                  |
| 7.11   | Number of fruits:  | 179.0                 |



Bunch & Rachis

### PEDUNCLE

|       |                  |          |
|-------|------------------|----------|
| 6.4.1 | Peduncle length: | ≤30 cm   |
| 6.4.2 | Empty nodes:     | 1        |
| 6.4.3 | Peduncle width:  | <6 cm    |
| 6.4.4 | Peduncle color:  | Green    |
| 6.4.5 | Hairiness:       | Hairless |



Peduncle



Male Bud

### MALE BUD

|        |                               |                                   |
|--------|-------------------------------|-----------------------------------|
| 6.6.1  | Flower behaviour:             | Falling after bract               |
| 6.4.14 | Bud type:                     | Normal                            |
| 6.4.15 | Bud shape:                    | Like a top                        |
| 6.4.16 | Bud size:                     | 12.1 cm                           |
| 6.5.2  | Bract apex shape:             | Pointed                           |
| 6.5.3  | Bract imbrication:            | Old bracts overlap at apex of bud |
| 6.5.4  | Color of bract external face: | Light Green                       |
| 6.5.5  | Color of bract internal face: | Light Green                       |
| 6.5.6  | Apex color:                   | Tinted with yellow                |
| 6.5.7  | Color stripes:                | Without discolored lines          |
| 6.5.9  | Base fading:                  | Color homogeneous                 |
| 6.5.10 | Bract shape:                  | 0.37                              |
| 6.5.11 | Lifting:                      | One at a time                     |
| 6.5.12 | Behaviour:                    | Revolute                          |
| 6.5.13 | Wax:                          | Very little/not visible           |
| 6.5.14 | Grooves:                      | Strongly grooved                  |



Opened Bract



Bract Shape

DESCRIPTORS

FLOWER

|        |                             |                           |
|--------|-----------------------------|---------------------------|
| 6.6.2  | Compound tepal basic color: | Cream                     |
| 6.6.3  | Pigmentation:               | None                      |
| 6.6.4  | Lobe color:                 | Yellow                    |
| 6.6.5  | Lobe development:           | Very developed            |
| 6.6.6  | Free tepal color:           | Translucent white         |
| 6.6.7  | Free tepal shape:           | Fan-shaped                |
| 6.6.8  | Appearance:                 | Simple folding under apex |
| 6.6.9  | Apex development:           | Little/not visible        |
| 6.6.10 | Apex shape:                 | Triangular                |
| 6.6.11 | Anther exertion:            | Exserted                  |
| 6.6.12 | Filament color:             | White                     |
| 6.6.13 | Anther color:               | Yellow                    |
| 6.6.14 | Pollen sac color:           | Pink Purple               |
| 6.6.16 | Style basic color:          | White                     |
| 6.6.18 | Style exertion:             | Exserted                  |
| 6.6.19 | Style shape:                | Straight                  |
| 6.6.20 | Stigma color:               | Yellow                    |
| 6.6.21 | Ovary shape:                | Arched                    |
| 6.6.22 | Ovary basic color:          | White                     |
| 6.6.23 | Ovary pigmentation:         | Very few/not visible      |
| 6.6.24 | Flower dominant color:      | White                     |
| 6.6.25 | Irregular flowers:          | 2.0                       |



Flower

Pistil/Stamen

HANDS & FRUITS

|        |                                 |                            |
|--------|---------------------------------|----------------------------|
| 7.12   | Exterior middle fruit length:   | 8.7 cm                     |
| 7.13   | Exterior middle fruit diameter: | 16.1 cm                    |
| 6.7.3  | Interior middle fruit length:   | 7.9 cm                     |
| 6.7.8  | Fruit pedicel length:           | 11 to 20 mm                |
| 6.7.9  | Fruit pedicel width:            | <5 mm                      |
| 6.7.10 | Pedicel surface:                | Hairless                   |
| 6.7.11 | Fusion:                         | Partially fused            |
| 6.7.4  | Fruit shape:                    | Straight, Curved           |
| 6.7.5  | Transverse section:             | Slightly ridged            |
| 6.7.6  | Fruit apex:                     | Bottle-necked              |
| 6.7.7  | Flower relicts:                 | Without any floral relicts |
| 6.7.12 | Immature fruit peel color:      | Light Green                |
| 6.7.18 | Pulp color before maturity:     | White                      |
| 6.7.13 | Mature fruit peel color:        | Yellow                     |
| 6.7.14 | Fruit peel thickness:           | Two or less                |
| 6.7.15 | Fruit peel adherence:           | Fruit peels easily         |
| 6.7.16 | Cracks in fruit peel:           | Cracked                    |
| 6.7.17 | Pulp in fruit:                  | With pulp                  |
| 6.7.19 | Pulp color at maturity:         | White                      |
| 6.7.20 | Fruits fall:                    | Persistent                 |
| 6.7.21 | Flesh texture:                  | Firm                       |
| 6.7.22 | Fruit taste:                    | Mild                       |
| 6.7.23 | Presence of seed:               | Present                    |
| 6.7.24 | Seed surface:                   | Smooth                     |
| 6.7.25 | Seed shape:                     | Angular                    |



Ripe Fruit



Fruit - Third Hand



# Calcutta 4

CALCUTTA 4



## GENETIC (SSR)

| MARKER    | ALLELES |     |   |
|-----------|---------|-----|---|
| mMaCIR01  | 226     | 255 | - |
| mMaCIR03  | 103     | 105 | - |
| mMACIR07  | 128     | 139 | - |
| mMACIR08  | 237     | 245 | - |
| mMACIR13  | 261     | 263 | - |
| mMACIR24  | 218     | -   | - |
| mMACIR27  | 220     | -   | - |
| mMACIR39  | 335     | 337 | - |
| mMACIR40  | 154     | -   | - |
| mMACIR45  | 261     | 275 | - |
| mMACIR150 | 237     | -   | - |
| mMACIR152 | 147     | 149 | - |
| mMACIR164 | 278     | 378 | - |
| mMACIR196 | 172     | 174 | - |
| mMACIR214 | 100     | 103 | - |
| mMACIR231 | 226     | 232 | - |
| mMACIR260 | 186     | 234 | - |
| mMACIR264 | 236     | -   | - |
| mMACIR307 | 143     | -   | - |
| Ma 1-32   | 228     | -   | - |
| Ma 3-90   | 135     | 149 | - |

## PASSPORT

### TAXONOMY

|                             |                       |
|-----------------------------|-----------------------|
| Genus:                      | <i>Musa</i>           |
| Species/Group:              | <i>acuminata</i>      |
| Subspecies/Subgroup:        | <i>burmannicoides</i> |
| Musa sect. Musa (Häkkinen): | Musa (Eumusa)         |

### GENERAL

|           |             |
|-----------|-------------|
| Synonyms: | -           |
| Status:   | Wild        |
| Origin:   | Myanmar     |
| ITC code: | ITC0249     |
| Donor:    | CIRAD, 1987 |



## DESCRIPTORS



Pseudostem



Plant



Neck



Petiole



Petiole

## PLANT

|        |                         |                            |
|--------|-------------------------|----------------------------|
| 7.3    | Planting to shooting:   | 138 days                   |
| 7.15   | Leaves at flowering:    | 12.0                       |
| 7.5    | Plant crop cycle:       | 242 days                   |
| 7.16   | Leaves at harvest:      | 7.8                        |
| 6.3.22 | Cigar leaf color:       | Light Green                |
| 7.6    | Pseudostem height:      | 2.44 m                     |
| 7.7    | Pseudostem diameter:    | 11.5 cm                    |
| 6.2.3  | Pseudostem color:       | Medium Green               |
| 6.2.5  | Underlying color:       | Medium Green               |
| 6.2.6  | Pigmentation:           | None                       |
| 6.2.7  | Sap color:              | Milky                      |
| 7.8    | Height of ratoon:       | 2.61 m                     |
| 6.2.10 | Development of suckers: | Taller than parent         |
| 6.2.11 | Position of suckers:    | Close (growing vertically) |

## PETIOLE & LEAVES

|          |                               |                        |
|----------|-------------------------------|------------------------|
| 6.1.1    | Leaf habit:                   | Intermediate           |
| 6.1.2    | Dwarfism:                     | Normal                 |
| 6.3.1    | Blotches at the petiole base: | Sparse blotching       |
| 6.3.2    | Blotches color:               | Brown                  |
| 6.3.3    | Petiole canal:                | Wide Erect             |
| 6.3.4    | Petiole margins:              | Winged and clasping    |
| 6.3.5    | Wing type:                    | Dry                    |
| 6.3.6    | Petiole margin color:         | Medium Green           |
| 6.3.11   | Petiole length:               | ≥71 cm                 |
| 6.3.7    | Rim color:                    | None                   |
| 6.3.9    | Leaf blade length:            | 230.8 cm               |
| 6.3.10   | Leaf blade width:             | 75.3 cm                |
| 6.3.10.1 | Leaf ratio:                   | 3.1                    |
| 6.3.12   | Leaf upper surface:           | Green                  |
| 6.3.13   | Upper appearance:             | Shiny                  |
| 6.3.14   | Leaf lower surface:           | Medium Green           |
| 6.3.15   | Lower appearance:             | Shiny                  |
| 6.3.16   | Wax on leaves:                | Very little/no visible |
| 6.3.17   | Insertion point of blades:    | Symmetric              |
| 6.3.18   | Blade base:                   | Both sides rounded     |
| 6.3.19   | Corrugation:                  | Few stripes            |
| 6.3.20   | Midrib dorsal color:          | Light Green            |
| 6.3.21   | Midrib ventral color:         | Light Green            |



### BUNCH

|               |                    |   |
|---------------|--------------------|---|
| <b>6.4.6</b>  | Bunch position:    | Horizontal, Hanging at 45 degrees                     |
| <b>6.4.7</b>  | Bunch shape:       | Short cylinder  |
| <b>6.4.8</b>  | Bunch appearance:  | Compact   |
| <b>6.4.10</b> | Fruit positioning: | Biseriate   |
| <b>6.4.11</b> | Rachis type:       | Present   |
| <b>6.4.12</b> | Rachis position:   | Falling vertically                                    |
| <b>6.4.13</b> | Rachis appearance: | Neutral flowers near the bunch, rest of stalk is bare |
| <b>7.9</b>    | Bunch weight:      | 1.15 kg   |
| <b>6.7.1</b>  | Fruit position:    | Curved upward   |
| <b>7.10</b>   | Number of hands:   | 7.0   |
| <b>7.11</b>   | Number of fruits:  | 125.8   |



Bunch



Bunch & Rachis

### PEDUNCLE

|              |                  |                         |
|--------------|------------------|-------------------------|
| <b>6.4.1</b> | Peduncle length: | 31-60 cm                |
| <b>6.4.2</b> | Empty nodes:     | 1                       |
| <b>6.4.3</b> | Peduncle width:  | <6 cm                   |
| <b>6.4.4</b> | Peduncle color:  | Green                   |
| <b>6.4.5</b> | Hairiness:       | Very hairy, short hairs |



Peduncle



Male Bud

### MALE BUD

|               |                               |                                     |
|---------------|-------------------------------|-------------------------------------|
| <b>6.6.1</b>  | Flower behavior:              | Falling before bract                |
| <b>6.4.14</b> | Bud type:                     | Normal                              |
| <b>6.4.15</b> | Bud shape:                    | Lanceolate                          |
| <b>6.4.16</b> | Bud size:                     | 24.9 cm                             |
| <b>6.5.2</b>  | Bract apex shape:             | Slightly pointed                    |
| <b>6.5.3</b>  | Bract imbrication:            | Young bracts slightly overlap       |
| <b>6.5.4</b>  | Color of bract external face: | Blue                                |
| <b>6.5.5</b>  | Color of bract internal face: | Orange red                          |
| <b>6.5.6</b>  | Apex color:                   | Not tinted with yellow              |
| <b>6.5.7</b>  | Color stripes:                | With discoloured lines (or stripes) |
| <b>6.5.9</b>  | Base fading:                  | Color continuing towards the base   |
| <b>6.5.10</b> | Bract shape:                  | 0.28                                |
| <b>6.5.11</b> | Lifting:                      | Two or more at a time               |
| <b>6.5.12</b> | Behavior:                     | Revolute                            |
| <b>6.5.13</b> | Wax:                          | Very few                            |
| <b>6.5.14</b> | Grooves:                      | Moderate grooving                   |



Opened Bract



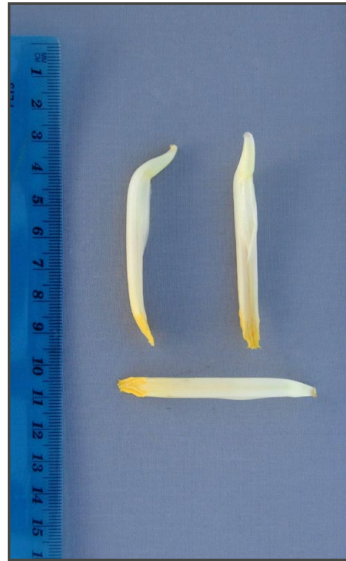
Bract Shape



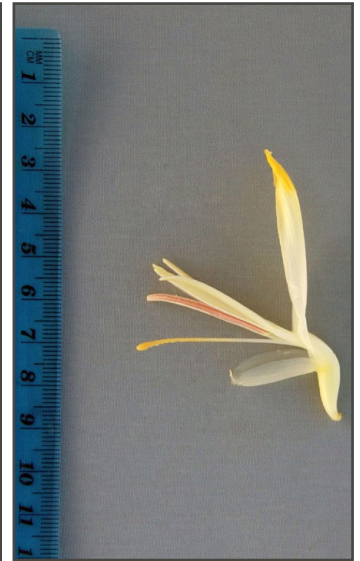
DESCRIPTORS

FLOWER

|        |                             |                      |
|--------|-----------------------------|----------------------|
| 6.6.2  | Compound tepal basic color: | Yellow               |
| 6.6.3  | Pigmentation:               | None                 |
| 6.6.4  | Lobe color:                 | Bright yellow        |
| 6.6.5  | Lobe development:           | Very developed       |
| 6.6.6  | Free tepal color:           | Translucent white    |
| 6.6.7  | Free tepal shape:           | Oval                 |
| 6.6.8  | Appearance:                 | More or less smooth  |
| 6.6.9  | Apex development:           | Developed            |
| 6.6.10 | Apex shape:                 | Triangular           |
| 6.6.11 | Anther exsertion:           | Same level           |
| 6.6.12 | Filament color:             | Yellow               |
| 6.6.13 | Anther color:               | Yellow               |
| 6.6.14 | Pollen sac color:           | Pink purple          |
| 6.6.16 | Style basic color:          | White                |
| 6.6.18 | Style exsertion:            | Same level           |
| 6.6.19 | Style shape:                | Straight             |
| 6.6.20 | Stigma color:               | Bright yellow        |
| 6.6.21 | Ovary shape:                | Arched               |
| 6.6.22 | Ovary basic color:          | Yellow               |
| 6.6.23 | Ovary pigmentation:         | Very few/not visible |
| 6.6.24 | Flower dominant color:      | Yellow               |
| 6.6.25 | Irregular flowers:          | 0.5                  |



Flower



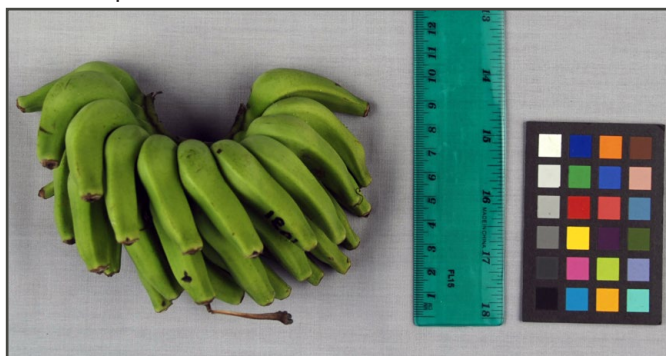
Pistil/Stamen

HANDS & FRUITS

|        |                                 |                          |
|--------|---------------------------------|--------------------------|
| 7.12   | Exterior middle fruit length:   | 6.3 cm                   |
| 7.13   | Exterior middle fruit diameter: | 12.6 cm                  |
| 6.7.3  | Interior middle fruit length:   | 5.5 cm                   |
| 6.7.8  | Fruit pedicel length:           | ≤10 mm                   |
| 6.7.9  | Fruit pedicel width:            | 5 to 10 mm               |
| 6.7.10 | Pedicel surface:                | Hairless                 |
| 6.7.11 | Fusion:                         | Very partial/not visible |
| 6.7.4  | Fruit shape:                    | Straight, Curved         |
| 6.7.5  | Transverse section:             | Slightly ridged          |
| 6.7.6  | Fruit apex:                     | Lengthily pointed        |
| 6.7.7  | Flower relicts:                 | Persistent style         |
| 6.7.12 | Immature fruit peel color:      | Light Green              |
| 6.7.18 | Pulp color before maturity:     | White                    |
| 6.7.13 | Mature fruit peel color:        | Bright yellow            |
| 6.7.14 | Fruit peel thickness:           | Two or less              |
| 6.7.15 | Fruit peel adherence:           | Does not peel easily     |
| 6.7.16 | Cracks in fruit peel:           | Without cracks           |
| 6.7.17 | Pulp in fruit:                  | With pulp                |
| 6.7.19 | Pulp color at maturity:         | Cream                    |
| 6.7.20 | Fruits fall:                    | Persistent               |
| 6.7.21 | Flesh texture:                  | Firm                     |
| 6.7.22 | Fruit taste:                    | Mild                     |
| 6.7.23 | Presence of seed:               | Present                  |
| 6.7.24 | Seed surface:                   | Wrinkled                 |
| 6.7.25 | Seed shape:                     | Globular (spherical)     |



Ripe Fruit



Fruit - Third Hand

# Zebrina



ZEBRINA - AA

## GENETIC (SSR)

| MARKER    | ALLELES |     |   |
|-----------|---------|-----|---|
| mMaCIR01  | 236     | -   | - |
| mMaCIR03  | 99      | -   | - |
| mMACIR07  | 135     | 150 | - |
| mMACIR08  | 248     | -   | - |
| mMACIR13  | 282     | -   | - |
| mMACIR24  | 224     | -   | - |
| mMACIR27  | 221     | 228 | - |
| mMACIR39  | 313     | 329 | - |
| mMACIR40  | 163     | -   | - |
| mMACIR45  | 266     | -   | - |
| mMACIR150 | 237     | -   | - |
| mMACIR152 | 144     | -   | - |
| mMACIR164 | 384     | -   | - |
| mMACIR196 | 145     | 174 | - |
| mMACIR214 | 103     | -   | - |
| mMACIR231 | 246     | 258 | - |
| mMACIR260 | 190     | -   | - |
| mMACIR264 | 219     | 222 | - |
| mMACIR307 | 141     | 145 | - |
| Ma 1-32   | 216     | -   | - |
| Ma 3-90   | 140     | -   | - |

## PASSPORT

### TAXONOMY

|                             |                  |
|-----------------------------|------------------|
| Genus:                      | <i>Musa</i>      |
| Species/Group:              | <i>acuminata</i> |
| Subspecies/Subgroup:        | <i>zebrina</i>   |
| Musa sect. Musa (Häkkinen): | Musa (Eumusa)    |

### GENERAL

|           |                                   |
|-----------|-----------------------------------|
| Synonyms: | -                                 |
| Status:   | Wild                              |
| Origin:   | Indonesia                         |
| ITC code: | ITC1177                           |
| Donor:    | CIRAD, 1991<br>Collected by CATIE |



## DESCRIPTORS



Pseudostem



Plant



Neck



Petiole



Petiole

## PLANT

|        |                         |                            |
|--------|-------------------------|----------------------------|
| 7.3    | Planting to shooting:   | 215 days                   |
| 7.15   | Leaves at flowering:    | 13                         |
| 7.5    | Plant crop cycle:       | 294 days                   |
| 7.16   | Leaves at harvest:      | 6.0                        |
| 6.3.22 | Cigar leaf color:       | Purple Brown               |
| 7.6    | Pseudostem height:      | 2.28 m                     |
| 7.7    | Pseudostem diameter:    | 7.4 cm                     |
| 6.2.3  | Pseudostem color:       | Green Yellow               |
| 6.2.5  | Underlying color:       | Light Green                |
| 6.2.6  | Pigmentation:           | Purple Brown               |
| 6.2.7  | Sap color:              | Watery                     |
| 7.8    | Height of ratoon:       | 2.29 m                     |
| 6.2.10 | Development of suckers: | Taller than parent         |
| 6.2.11 | Position of suckers:    | Close (growing vertically) |

## PETIOLE & LEAVES

|          |                               |                               |
|----------|-------------------------------|-------------------------------|
| 6.1.1    | Leaf habit:                   | Erect                         |
| 6.1.2    | Dwarfism:                     | Normal                        |
| 6.3.1    | Blotches at the petiole base: | Large                         |
| 6.3.2    | Blotches color:               | Brown-black                   |
| 6.3.3    | Petiole canal:                | Wide Erect                    |
| 6.3.4    | Petiole margins:              | Not winged and clasping       |
| 6.3.5    | Wing type:                    | Dry                           |
| 6.3.6    | Petiole margin color:         | Green Yellow                  |
| 6.3.11   | Petiole length:               | 51 to 70 cm                   |
| 6.3.7    | Rim color:                    | Purple Brown                  |
| 6.3.9    | Leaf blade length:            | 209.7 cm                      |
| 6.3.10   | Leaf blade width:             | 50.3 cm                       |
| 6.3.10.1 | Leaf ratio:                   | 4.2                           |
| 6.3.12   | Leaf upper surface:           | Green                         |
| 6.3.13   | Upper appearance:             | Shiny                         |
| 6.3.14   | Leaf lower surface:           | Purple Brown                  |
| 6.3.15   | Lower appearance:             | Dull                          |
| 6.3.16   | Wax on leaves:                | Very little/not visible       |
| 6.3.17   | Insertion point of blades:    | Asymmetric                    |
| 6.3.18   | Blade base:                   | One side rounded, one pointed |
| 6.3.19   | Corrugation:                  | Few stripes                   |
| 6.3.20   | Midrib dorsal color:          | Green Yellow                  |
| 6.3.21   | Midrib ventral color:         | Medium Green                  |



### BUNCH

|        |                    |                           |
|--------|--------------------|---------------------------|
| 6.4.6  | Bunch position:    | Horizontal                |
| 6.4.7  | Bunch shape:       | Cylindrical               |
| 6.4.8  | Bunch appearance:  | Lax                       |
| 6.4.10 | Fruit positioning: | Biseriate                 |
| 6.4.11 | Rachis type:       | Present                   |
| 6.4.12 | Rachis position:   | Horizontal                |
| 6.4.13 | Rachis appearance: | Bare                      |
| 7.9    | Bunch weight:      | 0.47 kg                   |
| 6.7.1  | Fruit position:    | Curved upward,<br>Pendant |
| 7.10   | Number of hands:   | 7.3                       |
| 7.11   | Number of fruits:  | 91.0                      |



Bunch & Rachis

### PEDUNCLE

|       |                  |                         |
|-------|------------------|-------------------------|
| 6.4.1 | Peduncle length: | ≤30 cm                  |
| 6.4.2 | Empty nodes:     | 1                       |
| 6.4.3 | Peduncle width:  | ≤6 cm                   |
| 6.4.4 | Peduncle color:  | Blue                    |
| 6.4.5 | Hairiness:       | Very hairy, short hairs |



Peduncle



Male Bud

### MALE BUD

|        |                               |                                      |
|--------|-------------------------------|--------------------------------------|
| 6.6.1  | Flower behaviour:             | Falling after bract                  |
| 6.4.14 | Bud type:                     | Normal                               |
| 6.4.15 | Bud shape:                    | Ovoid                                |
| 6.4.16 | Bud size:                     | 12.9 cm                              |
| 6.5.2  | Bract apex shape:             | Intermediate                         |
| 6.5.3  | Bract imbrication:            | Young bracts slightly overlap        |
| 6.5.4  | Color of bract external face: | Blue                                 |
| 6.5.5  | Color of bract internal face: | Yellow                               |
| 6.5.6  | Apex color:                   | Not tinted with yellow               |
| 6.5.7  | Color stripes:                | Without discoloring lines            |
| 6.5.9  | Base fading:                  | Color discontinuing towards the base |
| 6.5.10 | Bract shape:                  | 0.34                                 |
| 6.5.11 | Lifting:                      | Two or more at a time                |
| 6.5.12 | Behaviour:                    | Revolute                             |
| 6.5.13 | Wax:                          | Moderately waxy                      |
| 6.5.14 | Grooves:                      | Moderate grooving                    |



Opened Bract



Bract Shape



## DESCRIPTORS

### FLOWER

|               |                             |                           |
|---------------|-----------------------------|---------------------------|
| <b>6.6.2</b>  | Compound tepal basic color: | White                     |
| <b>6.6.3</b>  | Pigmentation:               | None                      |
| <b>6.6.4</b>  | Lobe color:                 | Yellow                    |
| <b>6.6.5</b>  | Lobe development:           | Little/not visible        |
| <b>6.6.6</b>  | Free tepal color:           | Translucent white         |
| <b>6.6.7</b>  | Free tepal shape:           | Oval                      |
| <b>6.6.8</b>  | Appearance:                 | Simple folding under apex |
| <b>6.6.9</b>  | Apex development:           | Little/not visible        |
| <b>6.6.10</b> | Apex shape:                 | Obtuse                    |
| <b>6.6.11</b> | Anther exsertion:           | Same level                |
| <b>6.6.12</b> | Filament color:             | White                     |
| <b>6.6.13</b> | Anther color:               | Yellow                    |
| <b>6.6.14</b> | Pollen sac color:           | White                     |
| <b>6.6.16</b> | Style basic color:          | White                     |
| <b>6.6.18</b> | Style exsertion:            | Same level                |
| <b>6.6.19</b> | Style shape:                | Straight                  |
| <b>6.6.20</b> | Stigma color:               | Orange                    |
| <b>6.6.21</b> | Ovary shape:                | Arched                    |
| <b>6.6.22</b> | Ovary basic color:          | Cream                     |
| <b>6.6.23</b> | Ovary pigmentation:         | Very few/not visible      |
| <b>6.6.24</b> | Flower dominant color:      | Cream                     |
| <b>6.6.25</b> | Irregular flowers:          | 0.7                       |



Flower

Pistil/Stamen

### HANDS & FRUITS

|               |                                 |                            |
|---------------|---------------------------------|----------------------------|
| <b>7.12</b>   | Exterior middle fruit length:   | 5.8 cm                     |
| <b>7.13</b>   | Exterior middle fruit diameter: | 3.8 cm                     |
| <b>6.7.3</b>  | Interior middle fruit length:   | 5.5 cm                     |
| <b>6.7.8</b>  | Fruit pedicel length:           | ≤10 mm                     |
| <b>6.7.9</b>  | Fruit pedicel width:            | 5 to 10 mm                 |
| <b>6.7.10</b> | Pedicel surface:                | Hairless                   |
| <b>6.7.11</b> | Fusion:                         | Very partial/not visible   |
| <b>6.7.4</b>  | Fruit shape:                    | Straight                   |
| <b>6.7.5</b>  | Transverse section:             | Slightly ridged            |
| <b>6.7.6</b>  | Fruit apex:                     | Lengthily pointed          |
| <b>6.7.7</b>  | Flower relicts:                 | Without any floral relicts |
| <b>6.7.12</b> | Immature fruit peel color:      | Green                      |
| <b>6.7.18</b> | Pulp color before maturity:     | Cream                      |
| <b>6.7.13</b> | Mature fruit peel color:        | Rusty Brown                |
| <b>6.7.14</b> | Fruit peel thickness:           | Two or less                |
| <b>6.7.15</b> | Fruit peel adherence:           | Does not peel easily       |
| <b>6.7.16</b> | Cracks in fruit peel:           | Without crack              |
| <b>6.7.17</b> | Pulp in fruit:                  | Without pulp               |
| <b>6.7.19</b> | Pulp color at maturity:         | -                          |
| <b>6.7.20</b> | Fruits fall:                    | Persistent                 |
| <b>6.7.21</b> | Flesh texture:                  | -                          |
| <b>6.7.22</b> | Fruit taste:                    | -                          |
| <b>6.7.23</b> | Prescence of seed:              | Present                    |
| <b>6.7.24</b> | Seed surface:                   | Wrinkled                   |
| <b>6.7.25</b> | Seed shape:                     | Globular                   |



Ripe Fruit



Fruit - Third Hand



## GENETIC (SSR)

| MARKER    | ALLELES |     |   |
|-----------|---------|-----|---|
| mMaCIR01  | 290     | -   | - |
| mMaCIR03  | 100     | 106 | - |
| mMACIR07  | 145     | -   | - |
| mMACIR08  | 245     | 247 | - |
| mMACIR13  | 269     | -   | - |
| mMACIR24  | 228     | -   | - |
| mMACIR27  | 0       | -   | - |
| mMACIR39  | 334     | 336 | - |
| mMACIR40  | 189     | -   | - |
| mMACIR45  | 257     | -   | - |
| mMACIR150 | 237     | 241 | - |
| mMACIR152 | 163     | -   | - |
| mMACIR164 | 286     | 296 | - |
| mMACIR196 | 155     | 161 | - |
| mMACIR214 | 105     | 107 | - |
| mMACIR231 | 234     | -   | - |
| mMACIR260 | 185     | 186 | - |
| mMACIR264 | 224     | -   | - |
| mMACIR307 | 149     | -   | - |
| Ma 1-32   | 221     | -   | - |
| Ma 3-90   | 144     | -   | - |

## PASSPORT

### TAXONOMY

|                             |                   |
|-----------------------------|-------------------|
| Genus:                      | <i>Musa</i>       |
| Species/Group:              | <i>balbisiana</i> |
| Subspecies/Subgroup:        | -                 |
| Musa sect. Musa (Häkkinen): | Musa (Eumusa)     |

### GENERAL

|           |             |
|-----------|-------------|
| Synonyms: | Klue Tani   |
| Status:   | Wild        |
| Origin:   | Thailand    |
| ITC code: | ITC1120     |
| Donor:    | CIRAD, 1990 |



## DESCRIPTORS



Pseudostem



Plant



Neck



Petiole



Petiole

## PLANT

|        |                         |                              |
|--------|-------------------------|------------------------------|
| 7.3    | Planting to shooting:   | 314 days                     |
| 7.15   | Leaves at flowering:    | 24                           |
| 7.5    | Plant crop cycle:       | 485 days                     |
| 7.16   | Leaves at harvest:      | 18.3                         |
| 6.3.22 | Cigar leaf color:       | Light Green                  |
| 7.6    | Pseudostem height:      | 4.80 m                       |
| 7.7    | Pseudostem diameter:    | 26.1 cm                      |
| 6.2.3  | Pseudostem color:       | Green                        |
| 6.2.5  | Underlying color:       | Medium Green                 |
| 6.2.6  | Pigmentation:           | Cream                        |
| 6.2.7  | Sap color:              | Milky                        |
| 7.8    | Height of ratoon:       | 4.57 m                       |
| 6.2.10 | Development of suckers: | More than 3/4 of parent size |
| 6.2.11 | Position of suckers:    | Close (growing vertically)   |

## PETIOLE &amp; LEAVES

|          |                               |                         |
|----------|-------------------------------|-------------------------|
| 6.1.1    | Leaf habit:                   | Erect                   |
| 6.1.2    | Dwarfism:                     | Normal                  |
| 6.3.1    | Blotches at the petiole base: | Sparse blotching        |
| 6.3.2    | Blotches color:               | Brown-black             |
| 6.3.3    | Petiole canal:                | Straight Erect          |
| 6.3.4    | Petiole margins:              | Not winged and clasping |
| 6.3.5    | Wing type:                    | -                       |
| 6.3.6    | Petiole margin color:         | Green                   |
| 6.3.11   | Petiole length:               | ≤50 cm                  |
| 6.3.7    | Rim color:                    | None                    |
| 6.3.9    | Leaf blade length:            | 245.0 cm                |
| 6.3.10   | Leaf blade width:             | 82.3 cm                 |
| 6.3.10.1 | Leaf ratio:                   | 3.0                     |
| 6.3.12   | Leaf upper surface:           | Dark Green              |
| 6.3.13   | Upper appearance:             | Shiny                   |
| 6.3.14   | Leaf lower surface:           | Green                   |
| 6.3.15   | Lower appearance:             | Dull                    |
| 6.3.16   | Wax on leaves:                | Moderate                |
| 6.3.17   | Insertion point of blades:    | Asymmetric              |
| 6.3.18   | Blade base:                   | Both sides rounded      |
| 6.3.19   | Corrugation:                  | Few stripes             |
| 6.3.20   | Midrib dorsal color:          | Light Green             |
| 6.3.21   | Midrib ventral color:         | Green                   |



## BUNCH

|        |                    |   |
|--------|--------------------|---|
| 6.4.6  | Bunch position:    | Slightly angled                                       |
| 6.4.7  | Bunch shape:       | Cylindrical   |
| 6.4.8  | Bunch appearance:  | Very compact  |
| 6.4.10 | Fruit positioning: | Biseriate   |
| 6.4.11 | Rachis type:       | Present   |
| 6.4.12 | Rachis position:   | Falling vertically                                    |
| 6.4.13 | Rachis appearance: | Neutral flowers near the bunch, rest of stalk is bare |
| 7.9    | Bunch weight:      | 12.98 kg  |
| 6.7.1  | Fruit position:    | Curved upward   |
| 7.10   | Number of hands:   | 14.8  |
| 7.11   | Number of fruits:  | 211.5   |



Bunch



Bunch &amp; Rachis

## PEDUNCLE

|       |                  |            |
|-------|------------------|------------|
| 6.4.1 | Peduncle length: | 31 - 60 cm |
| 6.4.2 | Empty nodes:     | 3          |
| 6.4.3 | Peduncle width:  | 7 - 12 cm  |
| 6.4.4 | Peduncle color:  | Green      |
| 6.4.5 | Hairiness:       | Hairless   |



Peduncle



Male Bud

## MALE BUD

|        |                               |                               |
|--------|-------------------------------|-------------------------------|
| 6.6.1  | Flower behaviour:             | Falling before bract          |
| 6.4.14 | Bud type:                     | Normal                        |
| 6.4.15 | Bud shape:                    | Ovoid                         |
| 6.4.16 | Bud size:                     | 24.4 cm                       |
| 6.5.2  | Bract apex shape:             | Obtuse and split              |
| 6.5.3  | Bract imbrication:            | Young bracts slightly overlap |
| 6.5.4  | Color of bract external face: | Purple Brown                  |
| 6.5.5  | Color of bract internal face: | Pink Purple                   |
| 6.5.6  | Apex color:                   | Tinted with yellow            |
| 6.5.7  | Color stripes:                | Without discoloring lines     |
| 6.5.9  | Base fading:                  | Color homogeneous             |
| 6.5.10 | Bract shape:                  | 0.42                          |
| 6.5.11 | Lifting:                      | Two or more at a time         |
| 6.5.12 | Behaviour:                    | Not revolute                  |
| 6.5.13 | Wax:                          | Very waxy                     |
| 6.5.14 | Grooves:                      | Strongly grooved              |



Opened Bract



Bract Shape



## DESCRIPTORS

## FLOWER

|               |                             |                      |
|---------------|-----------------------------|----------------------|
| <b>6.6.2</b>  | Compound tepal basic color: | Cream                |
| <b>6.6.3</b>  | Pigmentation:               | Pink Purple          |
| <b>6.6.4</b>  | Lobe color:                 | Bright Yellow        |
| <b>6.6.5</b>  | Lobe development:           | Developed            |
| <b>6.6.6</b>  | Free tepal color:           | Opaque white         |
| <b>6.6.7</b>  | Free tepal shape:           | Oval                 |
| <b>6.6.8</b>  | Appearance:                 | More or less smooth  |
| <b>6.6.9</b>  | Apex development:           | Little/not visible   |
| <b>6.6.10</b> | Apex shape:                 | Thread-like          |
| <b>6.6.11</b> | Anther exertion:            | Same level           |
| <b>6.6.12</b> | Filament color:             | White                |
| <b>6.6.13</b> | Anther color:               | Yellow               |
| <b>6.6.14</b> | Pollen sac color:           | Pink Purple          |
| <b>6.6.16</b> | Style basic color:          | White                |
| <b>6.6.18</b> | Style exertion:             | Same level           |
| <b>6.6.19</b> | Style shape:                | Straight             |
| <b>6.6.20</b> | Stigma color:               | White                |
| <b>6.6.21</b> | Ovary shape:                | Straight             |
| <b>6.6.22</b> | Ovary basic color:          | White                |
| <b>6.6.23</b> | Ovary pigmentation:         | Very few/not visible |
| <b>6.6.24</b> | Flower dominant color:      | Yellow               |
| <b>6.6.25</b> | Irregular flowers:          | 0.2                  |



Flower

Pistil/Stamen

## HANDS &amp; FRUITS

|               |                                 |                          |
|---------------|---------------------------------|--------------------------|
| <b>7.12</b>   | Exterior middle fruit length:   | 12.4 cm                  |
| <b>7.13</b>   | Exterior middle fruit diameter: | 25.6 cm                  |
| <b>6.7.3</b>  | Interior middle fruit length:   | 11.3 cm                  |
| <b>6.7.8</b>  | Fruit pedicel length:           | ≥21 mm                   |
| <b>6.7.9</b>  | Fruit pedicel width:            | >10 mm                   |
| <b>6.7.10</b> | Pedicel surface:                | Hairless                 |
| <b>6.7.11</b> | Fusion:                         | Very partial/not visible |
| <b>6.7.4</b>  | Fruit shape:                    | Straight                 |
| <b>6.7.5</b>  | Transverse section:             | Pronounced ridges        |
| <b>6.7.6</b>  | Fruit apex:                     | Blunt-tipped             |
| <b>6.7.7</b>  | Flower relicts:                 | Persistent style         |
| <b>6.7.12</b> | Immature fruit peel color:      | Green                    |
| <b>6.7.18</b> | Pulp color before maturity:     | White                    |
| <b>6.7.13</b> | Mature fruit peel color:        | Bright Yellow            |
| <b>6.7.14</b> | Fruit peel thickness:           | Three or more            |
| <b>6.7.15</b> | Fruit peel adherence:           | Does not peel easily     |
| <b>6.7.16</b> | Cracks in fruit peel:           | Without cracks           |
| <b>6.7.17</b> | Pulp in fruit:                  | With pulp                |
| <b>6.7.19</b> | Pulp color at maturity:         | Cream                    |
| <b>6.7.20</b> | Fruits fall:                    | Persistent               |
| <b>6.7.21</b> | Flesh texture:                  | Soft                     |
| <b>6.7.22</b> | Fruit taste:                    | Mild                     |
| <b>6.7.23</b> | Prescense of seed:              | Present                  |
| <b>6.7.24</b> | Seed surface:                   | Wrinkled                 |
| <b>6.7.25</b> | Seed shape:                     | Rounded                  |



Ripe Fruit



Fruit - Third Hand

# Pisang Mas



## GENETIC (SSR)

| MARKER    | ALLELES |     |   |
|-----------|---------|-----|---|
| mMaCIR01  | 232     | 238 | - |
| mMaCIR03  | 99      | 103 | - |
| mMACIR07  | 150     | -   | - |
| mMACIR08  | 241     | 245 | - |
| mMACIR13  | 277     | -   | - |
| mMACIR24  | 218     | -   | - |
| mMACIR27  | 219     | 228 | - |
| mMACIR39  | 315     | 323 | - |
| mMACIR40  | 163     | 164 | - |
| mMACIR45  | 269     | -   | - |
| mMACIR150 | 237     | -   | - |
| mMACIR152 | 141     | -   | - |
| mMACIR164 | 384     | 386 | - |
| mMACIR196 | 145     | 149 | - |
| mMACIR214 | 103     | -   | - |
| mMACIR231 | 232     | 260 | - |
| mMACIR260 | 190     | -   | - |
| mMACIR264 | 232     | -   | - |
| mMACIR307 | 141     | 143 | - |
| Ma 1-32   | 239     | -   | - |
| Ma 3-90   | 142     | 155 | - |

## PASSPORT

### TAXONOMY

|   |                      |
|---|----------------------|
| Genus:                                    | <i>Musa</i>          |
| Species/Group:                            | AA                   |
| Subspecies/Subgroup:                      | Sucrier              |
| <i>Musa</i> sect. <i>Musa</i> (Häkkinen): | <i>Musa</i> (Eumusa) |

### GENERAL

|           |                                  |
|-----------|----------------------------------|
| Synonyms: | -                                |
| Status:   | Traditional cultivar or landrace |
| Origin:   | Indonesia                        |
| ITC code: | ITC0653                          |
| Donor:    | CIRAD, 1989                      |



## DESCRIPTORS



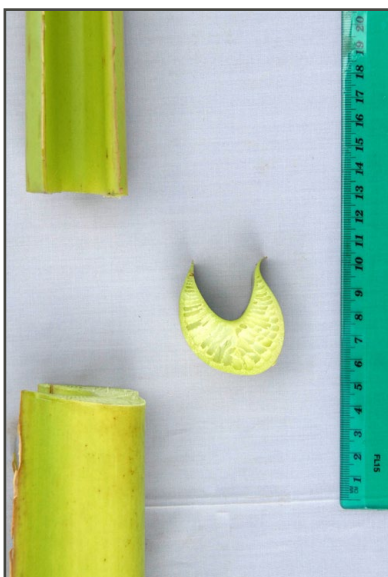
Pseudostem



Plant



Neck



Petiole



Petiole

## PLANT

|               |                         |                              |
|---------------|-------------------------|------------------------------|
| <b>7.3</b>    | Planting to shooting:   | 218 days                     |
| <b>7.15</b>   | Leaves at flowering:    | 12                           |
| <b>7.5</b>    | Plant crop cycle:       | 290 days                     |
| <b>7.16</b>   | Leaves at harvest:      | 10.3                         |
| <b>6.3.22</b> | Cigar leaf color:       | Green                        |
| <b>7.6</b>    | Pseudostem height:      | 3.26 m                       |
| <b>7.7</b>    | Pseudostem diameter:    | 14.5 cm                      |
| <b>6.2.3</b>  | Pseudostem color:       | Green Yellow                 |
| <b>6.2.5</b>  | Underlying color:       | Pink Purple                  |
| <b>6.2.7</b>  | Sap color:              | Milky                        |
| <b>7.8</b>    | Height of ratoon:       | 3.35 m                       |
| <b>6.2.10</b> | Development of suckers: | More than 3/4 of parent size |
| <b>6.2.11</b> | Position of suckers:    | Close (growing vertically)   |

## PETIOLE & LEAVES

|                 |                               |                               |
|-----------------|-------------------------------|-------------------------------|
| <b>6.1.1</b>    | Leaf habit:                   | Erect                         |
| <b>6.1.2</b>    | Dwarfism:                     | Normal                        |
| <b>6.3.1</b>    | Blotches at the petiole base: | Large                         |
| <b>6.3.2</b>    | Blotches color:               | Brown                         |
| <b>6.3.3</b>    | Petiole canal:                | Wide Erect                    |
| <b>6.3.4</b>    | Petiole margins:              | Winged and clasping           |
| <b>6.3.5</b>    | Wing type:                    | Not dry                       |
| <b>6.3.6</b>    | Petiole margin color:         | Light Green                   |
| <b>6.3.11</b>   | Petiole length:               | ≤50 cm                        |
| <b>6.3.7</b>    | Rim color:                    | Pink Purple                   |
| <b>6.3.9</b>    | Leaf blade length:            | 372.5 cm                      |
| <b>6.3.10</b>   | Leaf blade width:             | 78.5 cm                       |
| <b>6.3.10.1</b> | Leaf ratio:                   | 4.1                           |
| <b>6.3.12</b>   | Leaf upper surface:           | Green                         |
| <b>6.3.13</b>   | Upper appearance:             | Shiny                         |
| <b>6.3.14</b>   | Leaf lower surface:           | Medium Green                  |
| <b>6.3.15</b>   | Lower appearance:             | Dull                          |
| <b>6.3.16</b>   | Wax on leaves:                | Very little/not visible       |
| <b>6.3.17</b>   | Insertion point of blades:    | Symmetric                     |
| <b>6.3.18</b>   | Blade base:                   | One side rounded, one pointed |
| <b>6.3.19</b>   | Corrugation:                  | Few stripes                   |
| <b>6.3.20</b>   | Midrib dorsal color:          | Light Green                   |
| <b>6.3.21</b>   | Midrib ventral color:         | Medium Green                  |



### BUNCH

|        |                    |                            |
|--------|--------------------|----------------------------|
| 6.4.6  | Bunch position:    | Hanging vertically         |
| 6.4.7  | Bunch shape:       | Asymmetric                 |
| 6.4.8  | Bunch appearance:  | Very compact               |
| 6.4.10 | Fruit positioning: | Biseriate                  |
| 6.4.11 | Rachis type:       | Present                    |
| 6.4.12 | Rachis position:   | With a curve               |
| 6.4.13 | Rachis appearance: | Bare                       |
| 7.9    | Bunch weight:      | 10.40 kg                   |
| 6.7.1  | Fruit position:    | Perpendicular to the stalk |
| 7.10   | Number of hands:   | 7.3                        |
| 7.11   | Number of fruits:  | 137.0                      |



Bunch



Bunch & Rachis

### PEDUNCLE

|       |                  |                |
|-------|------------------|----------------|
| 6.4.1 | Peduncle length: | ≥61 cm         |
| 6.4.2 | Empty nodes:     | 2              |
| 6.4.3 | Peduncle width:  | ≤6 cm          |
| 6.4.4 | Peduncle color:  | Medium Green   |
| 6.4.5 | Hairiness:       | Slightly hairy |



Peduncle



Male Bud

### MALE BUD

|        |                               |                                   |
|--------|-------------------------------|-----------------------------------|
| 6.6.1  | Flower behaviour:             | Falling before bract              |
| 6.4.14 | Bud type:                     | Degenerating before maturity      |
| 6.4.15 | Bud shape:                    | Cordate                           |
| 6.4.16 | Bud size:                     | 7.0 cm                            |
| 6.5.2  | Bract apex shape:             | Slightly pointed                  |
| 6.5.3  | Bract imbrication:            | Old bracts overlap at apex of bud |
| 6.5.4  | Color of bract external face: | Purple Brown                      |
| 6.5.5  | Color of bract internal face: | Yellow                            |
| 6.5.6  | Apex color:                   | Tinted with yellow                |
| 6.5.7  | Color stripes:                | With discolored lines             |
| 6.5.9  | Base fading:                  | Color homogeneous                 |
| 6.5.10 | Bract shape:                  | 0.28                              |
| 6.5.11 | Lifting:                      | Two or more at a time             |
| 6.5.12 | Behaviour:                    | Revolute                          |
| 6.5.13 | Wax:                          | Very little or no visible         |
| 6.5.14 | Grooves:                      | Moderate grooving                 |



Opened Bract



Bract Shape



## DESCRIPTORS

### FLOWER

|        |                             |                           |
|--------|-----------------------------|---------------------------|
| 6.6.2  | Compound tepal basic color: | Cream                     |
| 6.6.3  | Pigmentation:               | None                      |
| 6.6.4  | Lobe color:                 | Yellow                    |
| 6.6.5  | Lobe development:           | Developed                 |
| 6.6.6  | Free tepal color:           | Translucent white         |
| 6.6.7  | Free tepal shape:           | Oval                      |
| 6.6.8  | Appearance:                 | Simple folding under apex |
| 6.6.9  | Apex development:           | Developed                 |
| 6.6.10 | Apex shape:                 | Triangular                |
| 6.6.11 | Anther exsertion:           | Same level                |
| 6.6.12 | Filament color:             | White                     |
| 6.6.13 | Anther color:               | Beige Pink                |
| 6.6.14 | Pollen sac color:           | Pink Purple               |
| 6.6.16 | Style basic color:          | White                     |
| 6.6.18 | Style exsertion:            | Same level                |
| 6.6.19 | Style shape:                | Straight                  |
| 6.6.20 | Stigma color:               | Yellow                    |
| 6.6.21 | Ovary shape:                | Arched                    |
| 6.6.22 | Ovary basic color:          | Yellow                    |
| 6.6.23 | Ovary pigmentation:         | Very few/not visible      |
| 6.6.24 | Flower dominant color:      | Cream                     |
| 6.6.25 | Irregular flowers:          | 2.7                       |

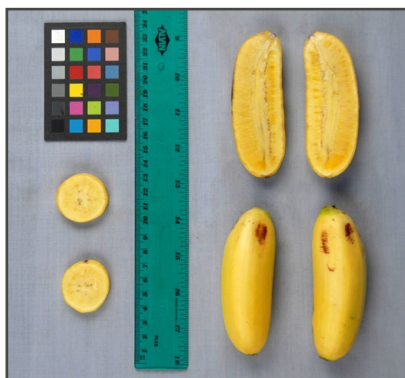


Flower

Pistil/Stamen

### HANDS & FRUITS

|        |                                 |                          |
|--------|---------------------------------|--------------------------|
| 7.12   | Exterior middle fruit length:   | 12.8 cm                  |
| 7.13   | Exterior middle fruit diameter: | 31.2 cm                  |
| 6.7.3  | Interior middle fruit length:   | 11.5 cm                  |
| 6.7.8  | Fruit pedicel length:           | ≤10 mm                   |
| 6.7.9  | Fruit pedicel width:            | 5 to 10 mm               |
| 6.7.10 | Pedicel surface:                | Hairless                 |
| 6.7.11 | Fusion:                         | Very partial/not visible |
| 6.7.4  | Fruit shape:                    | Straight                 |
| 6.7.5  | Transverse section:             | Slightly ridged          |
| 6.7.6  | Fruit apex:                     | Rounded                  |
| 6.7.7  | Flower relicts:                 | Persistent style         |
| 6.7.12 | Immature fruit peel color:      | Light Green              |
| 6.7.18 | Pulp color before maturity:     | White                    |
| 6.7.13 | Mature fruit peel color:        | Yellow                   |
| 6.7.14 | Fruit peel thickness:           | Two or less              |
| 6.7.15 | Fruit peel adherence:           | Does not peel easily     |
| 6.7.16 | Cracks in fruit peel:           | Without cracks           |
| 6.7.17 | Pulp in fruit:                  | With pulp                |
| 6.7.19 | Pulp color at maturity:         | Yellow                   |
| 6.7.20 | Fruits fall:                    | Deciduous                |
| 6.7.21 | Flesh texture:                  | Firm                     |
| 6.7.22 | Fruit taste:                    | Sugary                   |
| 6.7.23 | Presence of seed:               | Not present              |
| 6.7.24 | Seed surface:                   | -                        |
| 6.7.25 | Seed shape:                     | -                        |



Ripe Fruit



Fruit - Third Hand

# Pisang Jari Buaya

PISANG JARI BUAYA - AA



## GENETIC (SSR)

| MARKER    | ALLELES |     |   |
|-----------|---------|-----|---|
| mMaCIR01  | 220     | 248 | - |
| mMaCIR03  | 101     | 105 | - |
| mMACIR07  | 136     | 156 | - |
| mMACIR08  | 239     | 241 | - |
| mMACIR13  | 253     | 265 | - |
| mMACIR24  | 218     | 228 | - |
| mMACIR27  | 222     | 225 | - |
| mMACIR39  | 315     | 325 | - |
| mMACIR40  | 154     | 162 | - |
| mMACIR45  | 259     | 269 | - |
| mMACIR150 | 237     | 239 | - |
| mMACIR152 | 141     | 144 | - |
| mMACIR164 | 382     | 387 | - |
| mMACIR196 | 151     | 166 | - |
| mMACIR214 | 100     | 103 | - |
| mMACIR231 | 224     | 228 | - |
| mMACIR260 | 186     | 190 | - |
| mMACIR264 | 222     | 249 | - |
| mMACIR307 | 141     | -   | - |
| Ma 1-32   | 212     | 241 | - |
| Ma 3-90   | 127     | 149 | - |

## PASSPORT

### TAXONOMY

|   |                      |
|---|----------------------|
| Genus:                                    | <i>Musa</i>          |
| Species/Group:                            | AA                   |
| Subspecies/Subgroup:                      | Pisang Jari Buaya    |
| <i>Musa</i> sect. <i>Musa</i> (Häkkinen): | <i>Musa</i> (Eumusa) |

### GENERAL

|           |                                  |
|-----------|----------------------------------|
| Synonyms: | -                                |
| Status:   | Traditional cultivar or landrace |
| Origin:   | Malaysia (Peninsula)             |
| ITC code: | ITC0312                          |
| Donor:    | FHIA, 1987                       |



## DESCRIPTORS



Pseudostem



Plant



Neck



Petiole



Petiole

## PLANT

|        |                         |                               |
|--------|-------------------------|-------------------------------|
| 7.3    | Planting to shooting:   | 279 days                      |
| 7.15   | Leaves at flowering:    | 13                            |
| 7.5    | Plant crop cycle:       | 371 days                      |
| 7.16   | Leaves at harvest:      | 7.0                           |
| 6.3.22 | Cigar leaf color:       | Light Green                   |
| 7.6    | Pseudostem height:      | 3.23 m                        |
| 7.7    | Pseudostem diameter:    | 12.8 cm                       |
| 6.2.3  | Pseudostem color:       | Green Yellow                  |
| 6.2.5  | Underlying color:       | Light Green                   |
| 6.2.6  | Pigmentation:           | Purple Brown                  |
| 6.2.7  | Sap color:              | Watery                        |
| 7.8    | Height of ratoon:       | 2.32 m                        |
| 6.2.10 | Development of suckers: | Between 1/4 and 3/4 of parent |
| 6.2.11 | Position of suckers:    | Close (growing vertically)    |

## PETIOLE & LEAVES

|          |                               |                               |
|----------|-------------------------------|-------------------------------|
| 6.1.1    | Leaf habit:                   | Erect                         |
| 6.1.2    | Dwarfism:                     | Normal                        |
| 6.3.1    | Blotches at the petiole base: | Large                         |
| 6.3.2    | Blotches color:               | Black-purple                  |
| 6.3.3    | Petiole canal:                | Open with margins spreading   |
| 6.3.4    | Petiole margins:              | Winged and clasping           |
| 6.3.5    | Wing type:                    | Dry                           |
| 6.3.6    | Petiole margin color:         | Medium Green                  |
| 6.3.11   | Petiole length:               | ≤50 cm                        |
| 6.3.7    | Rim color:                    | Red Purple                    |
| 6.3.9    | Leaf blade length:            | 250.3 cm                      |
| 6.3.10   | Leaf blade width:             | 92.0 cm                       |
| 6.3.10.1 | Leaf ratio:                   | 2.7                           |
| 6.3.12   | Leaf upper surface:           | Green                         |
| 6.3.13   | Upper appearance:             | Shiny                         |
| 6.3.14   | Leaf lower surface:           | Light Green                   |
| 6.3.15   | Lower appearance:             | Shiny                         |
| 6.3.16   | Wax on leaves:                | Very little/not visible       |
| 6.3.17   | Insertion point of blades:    | Asymmetric                    |
| 6.3.18   | Blade base:                   | One side rounded, one pointed |
| 6.3.19   | Corrugation:                  | Few stripes                   |
| 6.3.20   | Midrib dorsal color:          | Medium Green                  |
| 6.3.21   | Midrib ventral color:         | Green Yellow                  |



# Pisang Jari Buaya

## DESCRIPTORS

### BUNCH

|        |                    |  |
|--------|--------------------|--|
| 6.4.6  | Bunch position:    | Slightly angled  |
| 6.4.7  | Bunch shape:       | Short cylinder   |
| 6.4.8  | Bunch appearance:  | Compact  |
| 6.4.10 | Fruit positioning: | Biseriate  |
| 6.4.11 | Rachis type:       | Present  |
| 6.4.12 | Rachis position:   | With a curve   |
| 6.4.13 | Rachis appearance: | Neutral/male flowers on the whole stalk and presence of withered bracts above the male bud |
| 7.9    | Bunch weight:      | 10.49 kg   |
| 6.7.1  | Fruit position:    | Curved upward  |
| 7.10   | Number of hands:   | 8.3  |
| 7.11   | Number of fruits:  | 142.0  |



Bunch



Bunch & Rachis

### PEDUNCLE

|       |                  |              |
|-------|------------------|--------------|
| 6.4.1 | Peduncle length: | ≤30 cm       |
| 6.4.2 | Empty nodes:     | 1            |
| 6.4.3 | Peduncle width:  | 7-12 cm      |
| 6.4.4 | Peduncle color:  | Medium Green |
| 6.4.5 | Hairiness:       | Hairless     |



Peduncle



Male Bud

### MALE BUD

|        |                               |                                      |
|--------|-------------------------------|--------------------------------------|
| 6.6.1  | Flower behavior:              | Neutral                              |
| 6.4.14 | Bud type:                     | Normal                               |
| 6.4.15 | Bud shape:                    | Like a top                           |
| 6.4.16 | Bud size:                     | 12.4 cm                              |
| 6.5.2  | Bract apex shape:             | Intermediate                         |
| 6.5.3  | Bract imbrication:            | Young bracts slightly overlap        |
| 6.5.4  | Color of bract external face: | Purple                               |
| 6.5.5  | Color of bract internal face: | Purple Brown                         |
| 6.5.6  | Apex color:                   | Not tinted with yellow               |
| 6.5.7  | Color stripes:                | With discolored lines                |
| 6.5.9  | Base fading:                  | Color discontinuing towards the base |
| 6.5.10 | Bract shape:                  | 0.32                                 |
| 6.5.11 | Lifting:                      | Two or more at time                  |
| 6.5.12 | Behaviour:                    | Revolute                             |
| 6.5.13 | Wax:                          | Very few                             |
| 6.5.14 | Grooves:                      | Moderate grooving                    |



Opened Bract



Bract Shape



## DESCRIPTORS

### FLOWER

|        |                             |                           |
|--------|-----------------------------|---------------------------|
| 6.6.2  | Compound tepal basic color: | White                     |
| 6.6.3  | Pigmentation:               | None                      |
| 6.6.4  | Lobe color:                 | Bright Yellow             |
| 6.6.5  | Lobe development:           | Developed                 |
| 6.6.6  | Free tepal color:           | Translucent White         |
| 6.6.7  | Free tepal shape:           | Oval                      |
| 6.6.8  | Appearance:                 | Simple folding under apex |
| 6.6.9  | Apex development:           | Little/not visible        |
| 6.6.10 | Apex shape:                 | Triangular                |
| 6.6.11 | Anther exertion:            | Same level                |
| 6.6.12 | Filament color:             | White                     |
| 6.6.13 | Anther color:               | Ivory                     |
| 6.6.14 | Pollen sac color:           | Pink Purple               |
| 6.6.16 | Style basic color:          | White                     |
| 6.6.18 | Style exertion:             | Same level                |
| 6.6.19 | Style shape:                | Straight                  |
| 6.6.20 | Stigma color:               | Yellow                    |
| 6.6.21 | Ovary shape:                | Arched                    |
| 6.6.22 | Ovary basic color:          | White                     |
| 6.6.23 | Ovary pigmentation:         | Very few/not visible      |
| 6.6.24 | Flower dominant color:      | White                     |
| 6.6.25 | Irregular flowers:          | 0.0                       |

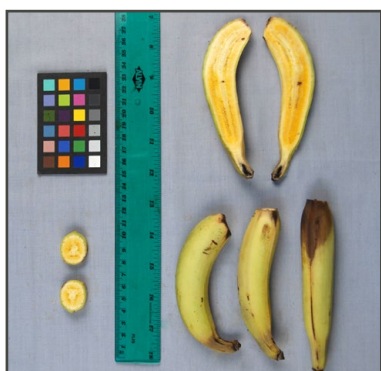


Flower

Pistil/Stamen

### HANDS & FRUITS

|        |                                 |                                    |
|--------|---------------------------------|------------------------------------|
| 7.12   | Exterior middle fruit length:   | 17.4 cm                            |
| 7.13   | Exterior middle fruit diameter: | 23.9 cm                            |
| 6.7.3  | Interior middle fruit length:   | 15.3 cm                            |
| 6.7.8  | Fruit pedicel length:           | 11 to 20 mm                        |
| 6.7.9  | Fruit pedicel width:            | 5 to 10 mm                         |
| 6.7.10 | Pedicel surface:                | Hairless                           |
| 6.7.11 | Fusion:                         | Very partial/not visible           |
| 6.7.4  | Fruit shape:                    | Straight in the distal part/Curved |
| 6.7.5  | Transverse section:             | Slightly ridged                    |
| 6.7.6  | Fruit apex:                     | Lengthily pointed                  |
| 6.7.7  | Flower relicts:                 | Without anyfloral relicts          |
| 6.7.12 | Immature fruit peel color:      | Light Green                        |
| 6.7.18 | Pulp color before maturity:     | Ivory                              |
| 6.7.13 | Mature fruit peel color:        | Light Green                        |
| 6.7.14 | Fruit peel thickness:           | Two or less                        |
| 6.7.15 | Fruit peel adherence:           | Does not peel easily               |
| 6.7.16 | Cracks in fruit peel:           | Cracked                            |
| 6.7.17 | Pulp in fruit:                  | With pulp                          |
| 6.7.19 | Pulp color at maturity:         | Yellow                             |
| 6.7.20 | Fruits fall:                    | Deciduous                          |
| 6.7.21 | Flesh texture:                  | Firm                               |
| 6.7.22 | Fruit taste:                    | Sweet                              |
| 6.7.23 | Presence of seed:               | Not present                        |
| 6.7.24 | Seed surface:                   | -                                  |
| 6.7.25 | Seed shape:                     | -                                  |



Ripe Fruit



Fruit - Third Hand

# Pisang Lilin



PISANG LILIN - AA

## GENETIC (SSR)

| MARKER    | ALLELES |     |   |
|-----------|---------|-----|---|
| mMaCIR01  | 232     | 240 | - |
| mMaCIR03  | 103     | 107 | - |
| mMACIR07  | 163     | -   | - |
| mMACIR08  | 245     | 249 | - |
| mMACIR13  | 272     | 276 | - |
| mMACIR24  | 228     | -   | - |
| mMACIR27  | 218     | 223 | - |
| mMACIR39  | 319     | 321 | - |
| mMACIR40  | 160     | 184 | - |
| mMACIR45  | 259     | 266 | - |
| mMACIR150 | 237     | 239 | - |
| mMACIR152 | 141     | 144 | - |
| mMACIR164 | 387     | -   | - |
| mMACIR196 | 145     | 155 | - |
| mMACIR214 | 100     | -   | - |
| mMACIR231 | 277     | 230 | - |
| mMACIR260 | 190     | -   | - |
| mMACIR264 | 227     | 249 | - |
| mMACIR307 | 143     | 145 | - |
| Ma 1-32   | 218     | 234 | - |
| Ma 3-90   | 140     | 147 | - |

## PASSPORT

### TAXONOMY

|                             |               |
|-----------------------------|---------------|
| Genus:                      | <i>Musa</i>   |
| Species/Group:              | AA            |
| Subspecies/Subgroup:        | Pisang Lilin  |
| Musa sect. Musa (Häkkinen): | Musa (Eumusa) |

### GENERAL

|           |                                  |
|-----------|----------------------------------|
| Synonyms: | Lidi                             |
| Status:   | Traditional cultivar or landrace |
| Origin:   | Malaysia/Indonesia               |
| ITC code: | ITC1121                          |
| Donor:    | CIRAD, 1990                      |



## DESCRIPTORS



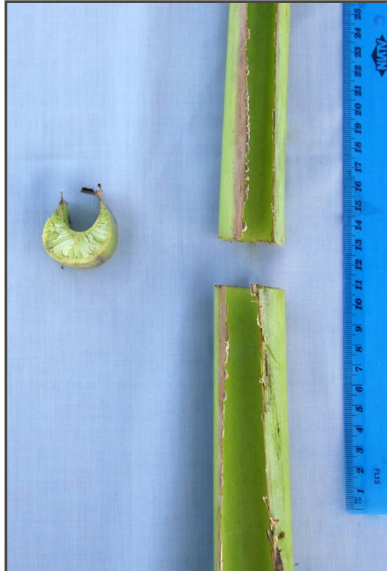
Pseudostem



Plant



Neck



Petiole



Petiole

## PLANT

|        |                         |                              |
|--------|-------------------------|------------------------------|
| 7.3    | Planting to shooting:   | 109 days                     |
| 7.15   | Leaves at flowering:    | 9                            |
| 7.5    | Plant crop cycle:       | 223 days                     |
| 7.16   | Leaves at harvest:      | 6.8                          |
| 6.3.22 | Cigar leaf color:       | Light Green                  |
| 7.6    | Pseudostem height:      | 1.82 m                       |
| 7.7    | Pseudostem diameter:    | 8.1 cm                       |
| 6.2.3  | Pseudostem color:       | Light Green                  |
| 6.2.5  | Underlying color:       | Light Green                  |
| 6.2.6  | Pigmentation:           | None                         |
| 6.2.7  | Sap color:              | Watery                       |
| 7.8    | Height of ratoon:       | 2.44 m                       |
| 6.2.10 | Development of suckers: | More than 3/4 of parent size |
| 6.2.11 | Position of suckers:    | Close (growing vertically)   |

## PETIOLE & LEAVES

|          |                               |                               |
|----------|-------------------------------|-------------------------------|
| 6.1.1    | Leaf habit:                   | Erect                         |
| 6.1.2    | Dwarfism:                     | Dwarf type                    |
| 6.3.1    | Blotches at the petiole base: | Small                         |
| 6.3.2    | Blotches color:               | Brown-black                   |
| 6.3.3    | Petiole canal:                | Wide Erect                    |
| 6.3.4    | Petiole margins:              | Winged and clasping           |
| 6.3.5    | Wing type:                    | Not dry                       |
| 6.3.6    | Petiole margin color:         | Light Green                   |
| 6.3.11   | Petiole length:               | 51 to 70 cm                   |
| 6.3.7    | Rim color:                    | Pink Purple                   |
| 6.3.9    | Leaf blade length:            | 177.5 cm                      |
| 6.3.10   | Leaf blade width:             | 55.0 cm                       |
| 6.3.10.1 | Leaf ratio:                   | 3.3                           |
| 6.3.12   | Leaf upper surface:           | Green                         |
| 6.3.13   | Upper appearance:             | Shiny                         |
| 6.3.14   | Leaf lower surface:           | Medium Green                  |
| 6.3.15   | Lower appearance:             | Dull                          |
| 6.3.16   | Wax on leaves:                | Few wax                       |
| 6.3.17   | Insertion point of blades:    | Asymmetric                    |
| 6.3.18   | Blade base:                   | One side rounded, one pointed |
| 6.3.19   | Corrugation:                  | Few stripes                   |
| 6.3.20   | Midrib dorsal color:          | Light Green                   |
| 6.3.21   | Midrib ventral color:         | Medium Green                  |



### BUNCH

|        |                    |   |
|--------|--------------------|---|
| 6.4.6  | Bunch position:    | Hanging at 45 degrees                                 |
| 6.4.7  | Bunch shape:       | Short cylinder  |
| 6.4.8  | Bunch appearance:  | Compact   |
| 6.4.10 | Fruit positioning: | Biseriate   |
| 6.4.11 | Rachis type:       | Present   |
| 6.4.12 | Rachis position:   | At an angle   |
| 6.4.13 | Rachis appearance: | Neutral flowers near the bunch, rest of stalk is bare |
| 7.9    | Bunch weight:      | 3.39 kg   |
| 6.7.1  | Fruit position:    | Curved and parallel toward stalk                      |
| 7.10   | Number of hands:   | 5.5   |
| 7.11   | Number of fruits:  | 70.8  |



Bunch



Bunch & Rachis

### PEDUNCLE

|       |                  |                         |
|-------|------------------|-------------------------|
| 6.4.1 | Peduncle length: | ≤30 cm                  |
| 6.4.2 | Empty nodes:     | 2                       |
| 6.4.3 | Peduncle width:  | ≤6 cm                   |
| 6.4.4 | Peduncle color:  | Green                   |
| 6.4.5 | Hairiness:       | Very hairy, short hairs |



Peduncle



Male Bud

### MALE BUD

|        |                               |                                   |
|--------|-------------------------------|-----------------------------------|
| 6.6.1  | Flower behaviour:             | Falling after bract               |
| 6.4.14 | Bud type:                     | Normal                            |
| 6.4.15 | Bud shape:                    | Ovoid                             |
| 6.4.16 | Bud size:                     | 11.7 cm                           |
| 6.5.2  | Bract apex shape:             | Slightly pointed                  |
| 6.5.3  | Bract imbrication:            | Old bracts overlap at bud of apex |
| 6.5.4  | Color of bract external face: | Red Purple                        |
| 6.5.5  | Color of bract internal face: | Orange Red                        |
| 6.5.6  | Apex color:                   | Not tinted with yellow            |
| 6.5.7  | Color stripes:                | Without discoloring lines         |
| 6.5.9  | Base fading:                  | Color homogeneous                 |
| 6.5.10 | Bract shape:                  | 0.28                              |
| 6.5.11 | Lifting:                      | One at a time                     |
| 6.5.12 | Behaviour:                    | Revolute                          |
| 6.5.13 | Wax:                          | Very little/not visible           |
| 6.5.14 | Grooves:                      | Moderate grooving                 |



Opened Bract



Bract Shape



DESCRIPTORS

FLOWER

|        |                             |                           |
|--------|-----------------------------|---------------------------|
| 6.6.2  | Compound tepal basic color: | White                     |
| 6.6.3  | Pigmentation:               | None                      |
| 6.6.4  | Lobe color:                 | Bright Yellow             |
| 6.6.5  | Lobe development:           | Developed                 |
| 6.6.6  | Free tepal color:           | Translucent white         |
| 6.6.7  | Free tepal shape:           | Oval                      |
| 6.6.8  | Appearance:                 | Simple folding under apex |
| 6.6.9  | Apex development:           | Little/not visible        |
| 6.6.10 | Apex shape:                 | Thread-like               |
| 6.6.11 | Anther exertion:            | Same level                |
| 6.6.12 | Filament color:             | Cream                     |
| 6.6.13 | Anther color:               | Cream                     |
| 6.6.14 | Pollen sac color:           | Ivory                     |
| 6.6.16 | Style basic color:          | Cream                     |
| 6.6.18 | Style exertion:             | Exserted                  |
| 6.6.19 | Style shape:                | Straight                  |
| 6.6.20 | Stigma color:               | Bright Yellow             |
| 6.6.21 | Ovary shape:                | Arched                    |
| 6.6.22 | Ovary basic color:          | Light Green               |
| 6.6.23 | Ovary pigmentation:         | Very few/not visible      |
| 6.6.24 | Flower dominant color:      | White                     |
| 6.6.25 | Irregular flowers:          | 3.5                       |

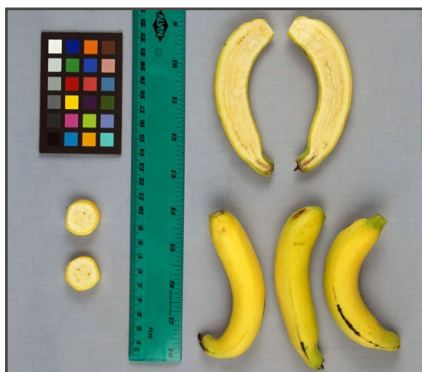


Flower

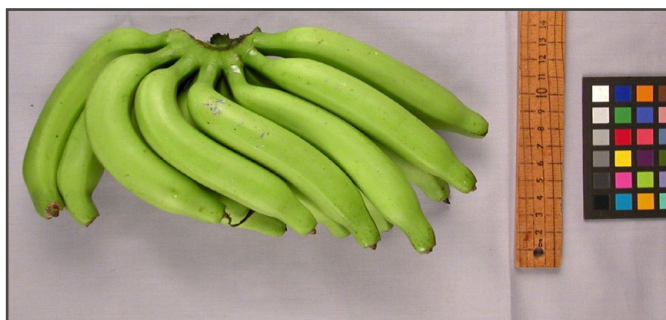
Pistil/Stamen

HANDS & FRUITS

|        |                                 |                            |
|--------|---------------------------------|----------------------------|
| 7.12   | Exterior middle fruit length:   | 13.5 cm                    |
| 7.13   | Exterior middle fruit diameter: | 2.4 cm                     |
| 6.7.3  | Interior middle fruit length:   | 14.1 cm                    |
| 6.7.8  | Fruit pedicel length:           | 11 to 20 mm                |
| 6.7.9  | Fruit pedicel width:            | 5 to 10 mm                 |
| 6.7.10 | Pedicel surface:                | Hairless                   |
| 6.7.11 | Fusion:                         | Very partial/not visible   |
| 6.7.4  | Fruit shape:                    | Straight, Curved           |
| 6.7.5  | Transverse section:             | Rounded                    |
| 6.7.6  | Fruit apex:                     | Lengthily pointed          |
| 6.7.7  | Flower relicts:                 | Without any floral relicts |
| 6.7.12 | Immature fruit peel color:      | Light Green                |
| 6.7.18 | Pulp color before maturity:     | White                      |
| 6.7.13 | Mature fruit peel color:        | Yellow                     |
| 6.7.14 | Fruit peel thickness:           | Two or less                |
| 6.7.15 | Fruit peel adherence:           | Fruit peels easily         |
| 6.7.16 | Cracks in fruit peel:           | Without cracks             |
| 6.7.17 | Pulp in fruit:                  | With pulp                  |
| 6.7.19 | Pulp color at maturity:         | White                      |
| 6.7.20 | Fruits fall:                    | Persistent                 |
| 6.7.21 | Flesh texture:                  | Firm                       |
| 6.7.22 | Fruit taste:                    | Mild                       |
| 6.7.23 | Prescense of seed:              | Not present                |
| 6.7.24 | Seed surface:                   | -                          |
| 6.7.25 | Seed shape:                     | -                          |



Ripe Fruit



Fruit - Third Hand

# Tomolo



TOMOLO - AA

## GENETIC (SSR)

| MARKER    | ALLELES |     |   |
|-----------|---------|-----|---|
| mMaCIR01  | 238     | 240 | - |
| mMaCIR03  | 101     | -   | - |
| mMACIR07  | 136     | 139 | - |
| mMACIR08  | 241     | -   | - |
| mMACIR13  | 265     | 284 | - |
| mMACIR24  | 228     | -   | - |
| mMACIR27  | 217     | 225 | - |
| mMACIR39  | 315     | 343 | - |
| mMACIR40  | 163     | -   | - |
| mMACIR45  | 266     | 269 | - |
| mMACIR150 | 237     | -   | - |
| mMACIR152 | 141     | -   | - |
| mMACIR164 | 387     | -   | - |
| mMACIR196 | 145     | -   | - |
| mMACIR214 | 103     | -   | - |
| mMACIR231 | 224     | 242 | - |
| mMACIR260 | 190     | 192 | - |
| mMACIR264 | 249     | -   | - |
| mMACIR307 | 145     | -   | - |
| Ma 1-32   | 227     | 229 | - |
| Ma 3-90   | 147     | 157 | - |

## PASSPORT

### TAXONOMY

|   |                               |
|---|-------------------------------|
| Genus:                                    | <i>Musa</i>                   |
| Species/Group:                            | AA                            |
| Subspecies/Subgroup:                      | Cooking AA                    |
| <i>Musa</i> sect. <i>Musa</i> (Häkkinen): | <i>Musa</i> ( <i>Eumusa</i> ) |

### GENERAL

|           |                                  |
|-----------|----------------------------------|
| Synonyms: | -                                |
| Status:   | Traditional cultivar or landrace |
| Origin:   | Papua New Guinea                 |
| ITC code: | ITC1187                          |
| Donor:    | CIRAD, 1991                      |



## DESCRIPTORS



Pseudostem



Plant



Neck



Petiole



Petiole

## PLANT

|        |                         |                               |
|--------|-------------------------|-------------------------------|
| 7.3    | Planting to shooting:   | 290 days                      |
| 7.15   | Leaves at flowering:    | 19                            |
| 7.5    | Plant crop cycle:       | 361 days                      |
| 7.16   | Leaves at harvest:      | 11.0                          |
| 6.3.22 | Cigar leaf color:       | Light Green                   |
| 7.6    | Pseudostem height:      | 2.74 m                        |
| 7.7    | Pseudostem diameter:    | 14.1 cm                       |
| 6.2.3  | Pseudostem color:       | Medium Green                  |
| 6.2.5  | Underlying color:       | Light Green                   |
| 6.2.6  | Pigmentation:           | None                          |
| 6.2.7  | Sap color:              | Watery                        |
| 7.8    | Height of ratoon:       | 1.29 m                        |
| 6.2.10 | Development of suckers: | Between 1/4 and 3/4 of parent |
| 6.2.11 | Position of suckers:    | Close (growing vertically)    |

## PETIOLE &amp; LEAVES

|          |                               |                               |
|----------|-------------------------------|-------------------------------|
| 6.1.1    | Leaf habit:                   | Drooping                      |
| 6.1.2    | Dwarfism:                     | Normal                        |
| 6.3.1    | Blotches at the petiole base: | Small                         |
| 6.3.2    | Blotches color:               | Brown-black                   |
| 6.3.3    | Petiole canal:                | Wide Erect                    |
| 6.3.4    | Petiole margins:              | Winged and clasping           |
| 6.3.5    | Wing type:                    | Dry                           |
| 6.3.6    | Petiole margin color:         | Light Green                   |
| 6.3.11   | Petiole length:               | ≤50 cm                        |
| 6.3.7    | Rim color:                    | None                          |
| 6.3.9    | Leaf blade length:            | 151.2 cm                      |
| 6.3.10   | Leaf blade width:             | 62.7 cm                       |
| 6.3.10.1 | Leaf ratio:                   | 2.4                           |
| 6.3.12   | Leaf upper surface:           | Green                         |
| 6.3.13   | Upper appearance:             | Shiny                         |
| 6.3.14   | Leaf lower surface:           | Medium Green                  |
| 6.3.15   | Lower appearance:             | Dull                          |
| 6.3.16   | Wax on leaves:                | Few wax                       |
| 6.3.17   | Insertion point of blades:    | Asymmetric                    |
| 6.3.18   | Blade base:                   | One side rounded, one pointed |
| 6.3.19   | Corrugation:                  | Few stripes                   |
| 6.3.20   | Midrib dorsal color:          | Light Green                   |
| 6.3.21   | Midrib ventral color:         | Medium Green                  |



## BUNCH

|        |                    |   |
|--------|--------------------|---|
| 6.4.6  | Bunch position:    | Hanging vertically                                    |
| 6.4.7  | Bunch shape:       | With a curve in the bunch axis                        |
| 6.4.8  | Bunch appearance:  | Lax   |
| 6.4.10 | Fruit positioning: | Biseriate   |
| 6.4.11 | Rachis type:       | Present   |
| 6.4.12 | Rachis position:   | Falling vertically                                    |
| 6.4.13 | Rachis appearance: | Neutral flowers near the bunch, rest of stalk is bare |
| 7.9    | Bunch weight:      | 14.67 kg  |
| 6.7.1  | Fruit position:    | Pendant   |
| 7.10   | Number of hands:   | 6.7   |
| 7.11   | Number of fruits:  | 57.0  |



Bunch



Bunch &amp; Rachis

## PEDUNCLE

|       |                  |           |
|-------|------------------|-----------|
| 6.4.1 | Peduncle length: | ≤30 cm    |
| 6.4.2 | Empty nodes:     | 2         |
| 6.4.3 | Peduncle width:  | 7 - 12 cm |
| 6.4.4 | Peduncle color:  | Green     |
| 6.4.5 | Hairiness:       | Hairless  |



Peduncle



Male Bud

## MALE BUD

|        |                               |                                   |
|--------|-------------------------------|-----------------------------------|
| 6.6.1  | Flower behaviour:             | Falling before bract              |
| 6.4.14 | Bud type:                     | Degenerating before maturity      |
| 6.4.15 | Bud shape:                    | Like a top                        |
| 6.4.16 | Bud size:                     | 11.1 cm                           |
| 6.5.2  | Bract apex shape:             | Pointed                           |
| 6.5.3  | Bract imbrication:            | Old bracts overlap at apex of bud |
| 6.5.4  | Color of bract external face: | Light Green                       |
| 6.5.5  | Color of bract internal face: | Light Green                       |
| 6.5.6  | Apex color:                   | Not tinted with yellow            |
| 6.5.7  | Color stripes:                | Without discoloring lines         |
| 6.5.9  | Base fading:                  | Color homogeneous                 |
| 6.5.10 | Bract shape:                  | 0.35                              |
| 6.5.11 | Lifting:                      | Two or more at a time             |
| 6.5.12 | Behaviour:                    | Revolute                          |
| 6.5.13 | Wax:                          | Very waxy                         |
| 6.5.14 | Grooves:                      | Moderate grooving                 |



Opened Bract



Bract Shape



## DESCRIPTORS

## FLOWER

|        |                             |                           |
|--------|-----------------------------|---------------------------|
| 6.6.2  | Compound tepal basic color: | Cream                     |
| 6.6.3  | Pigmentation:               | None                      |
| 6.6.4  | Lobe color:                 | Yellow                    |
| 6.6.5  | Lobe development:           | Developed                 |
| 6.6.6  | Free tepal color:           | Translucent white         |
| 6.6.7  | Free tepal shape:           | Rounded                   |
| 6.6.8  | Appearance:                 | Simple folding under apex |
| 6.6.9  | Apex development:           | Little/not visible        |
| 6.6.10 | Apex shape:                 | Triangular                |
| 6.6.11 | Anther exsertion:           | Exserted                  |
| 6.6.12 | Filament color:             | White                     |
| 6.6.13 | Anther color:               | Cream                     |
| 6.6.14 | Pollen sac color:           | Cream                     |
| 6.6.16 | Style basic color:          | White                     |
| 6.6.18 | Style exsertion:            | Inserted                  |
| 6.6.19 | Style shape:                | Straight                  |
| 6.6.20 | Stigma color:               | Yellow                    |
| 6.6.21 | Ovary shape:                | Straight                  |
| 6.6.22 | Ovary basic color:          | White                     |
| 6.6.23 | Ovary pigmentation:         | Very few/not visible      |
| 6.6.24 | Flower dominant color:      | White                     |
| 6.6.25 | Irregular flowers:          | 1.5                       |

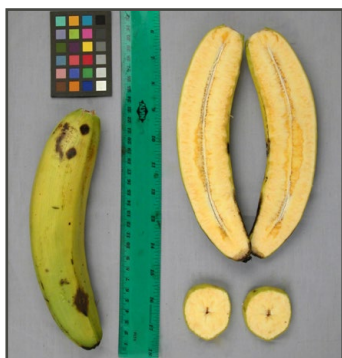


Flower

Pistil/Stamen

## HANDS &amp; FRUITS

|        |                                 |                          |
|--------|---------------------------------|--------------------------|
| 7.12   | Exterior middle fruit length:   | 23.4 cm                  |
| 7.13   | Exterior middle fruit diameter: | 43.1 cm                  |
| 6.7.3  | Interior middle fruit length:   | 24.1 cm                  |
| 6.7.8  | Fruit pedicel length:           | ≥21 mm                   |
| 6.7.9  | Fruit pedicel width:            | >10 mm                   |
| 6.7.10 | Pedicel surface:                | Hairless                 |
| 6.7.11 | Fusion:                         | Very partial/not visible |
| 6.7.4  | Fruit shape:                    | Straight                 |
| 6.7.5  | Transverse section:             | Slightly ridged          |
| 6.7.6  | Fruit apex:                     | Rounded                  |
| 6.7.7  | Flower relicts:                 | Persistent style         |
| 6.7.12 | Immature fruit peel color:      | Light Green              |
| 6.7.18 | Pulp color before maturity:     | Ivory                    |
| 6.7.13 | Mature fruit peel color:        | Yellow                   |
| 6.7.14 | Fruit peel thickness:           | Two or less              |
| 6.7.15 | Fruit peel adherence:           | Does not peel easily     |
| 6.7.16 | Cracks in fruit peel:           | Without cracks           |
| 6.7.17 | Pulp in fruit:                  | With pulp                |
| 6.7.19 | Pulp color at maturity:         | Yellow                   |
| 6.7.20 | Fruits fall:                    | Persistent               |
| 6.7.21 | Flesh texture:                  | Firm                     |
| 6.7.22 | Fruit taste:                    | Astringent               |
| 6.7.23 | Presence of seed:               | Not present              |
| 6.7.24 | Seed surface:                   | -                        |
| 6.7.25 | Seed shape:                     | -                        |



Ripe Fruit



Fruit - Third Hand

# Gros Michel

GROS MICHEL - AAA



## GENETIC (SSR)

| MARKER    | ALLELES |     |     |
|-----------|---------|-----|-----|
| mMaCIR01  | 236     | 240 | 252 |
| mMaCIR03  | 101     | 103 | -   |
| mMACIR07  | 136     | 150 | 151 |
| mMACIR08  | 241     | 245 | -   |
| mMACIR13  | 265     | 268 | -   |
| mMACIR24  | 228     | 234 | -   |
| mMACIR27  | 223     | 225 | 227 |
| mMACIR39  | 309     | 315 | -   |
| mMACIR40  | 158     | 163 | -   |
| mMACIR45  | 266     | 269 | -   |
| mMACIR150 | 237     | 241 | -   |
| mMACIR152 | 144     | 145 | -   |
| mMACIR164 | 378     | 387 | -   |
| mMACIR196 | 145     | 158 | 162 |
| mMACIR214 | 100     | 103 | -   |
| mMACIR231 | 224     | 234 | 258 |
| mMACIR260 | 190     | 192 | -   |
| mMACIR264 | 241     | 249 | -   |
| mMACIR307 | 143     | 145 | -   |
| Ma 1-32   | 218     | 227 | 228 |
| Ma 3-90   | 129     | 149 | -   |

## PASSPORT

### TAXONOMY

|   |                               |
|---|-------------------------------|
| Genus:                                    | <i>Musa</i>                   |
| Species/Group:                            | AAA                           |
| Subspecies/Subgroup:                      | Gros Michel                   |
| <i>Musa</i> sect. <i>Musa</i> (Häkkinen): | <i>Musa</i> ( <i>Eumusa</i> ) |

### GENERAL

|           |                                  |
|-----------|----------------------------------|
| Synonyms: | -                                |
| Status:   | Traditional cultivar or landrace |
| Origin:   | -                                |
| ITC code: | ITC1122                          |
| Donor:    | CIRAD, 1990                      |



## DESCRIPTORS



Pseudostem



Plant



Neck



Petiole



Petiole

## PLANT

|               |                         |                              |
|---------------|-------------------------|------------------------------|
| <b>7.3</b>    | Planting to shooting:   | 245 days                     |
| <b>7.15</b>   | Leaves at flowering:    | 12                           |
| <b>7.5</b>    | Plant crop cycle:       | 350 days                     |
| <b>7.16</b>   | Leaves at harvest:      | 8.8                          |
| <b>6.3.22</b> | Cigar leaf color:       | Light Green                  |
| <b>7.6</b>    | Pseudostem height:      | 3.74 m                       |
| <b>7.7</b>    | Pseudostem diameter:    | 18.8 cm                      |
| <b>6.2.3</b>  | Pseudostem color:       | Green Yellow                 |
| <b>6.2.5</b>  | Underlying color:       | Light Green                  |
| <b>6.2.6</b>  | Pigmentation:           | Pink Purple                  |
| <b>6.2.7</b>  | Sap color:              | Watery                       |
| <b>7.8</b>    | Height of ratoon:       | 3.17 m                       |
| <b>6.2.10</b> | Development of suckers: | More than 3/4 of parent size |
| <b>6.2.11</b> | Position of suckers:    | Close (growing vertically)   |

## PETIOLE & LEAVES

|                 |                               |                         |
|-----------------|-------------------------------|-------------------------|
| <b>6.1.1</b>    | Leaf habit:                   | Erect                   |
| <b>6.1.2</b>    | Dwarfism:                     | Normal                  |
| <b>6.3.1</b>    | Blotches at the petiole base: | Large                   |
| <b>6.3.2</b>    | Blotches color:               | Brown-black             |
| <b>6.3.3</b>    | Petiole canal:                | Wide Erect              |
| <b>6.3.4</b>    | Petiole margins:              | Winged and clasping     |
| <b>6.3.5</b>    | Wing type:                    | Dry                     |
| <b>6.3.6</b>    | Petiole margin color:         | Medium Green            |
| <b>6.3.11</b>   | Petiole length:               | ≤50 cm                  |
| <b>6.3.7</b>    | Rim color:                    | Purple Brown            |
| <b>6.3.9</b>    | Leaf blade length:            | 329.7 cm                |
| <b>6.3.10</b>   | Leaf blade width:             | 87.0 cm                 |
| <b>6.3.10.1</b> | Leaf ratio:                   | 3.8                     |
| <b>6.3.12</b>   | Leaf upper surface:           | Dark Green              |
| <b>6.3.13</b>   | Upper appearance:             | Dull                    |
| <b>6.3.14</b>   | Leaf lower surface:           | Green                   |
| <b>6.3.15</b>   | Lower appearance:             | Dull                    |
| <b>6.3.16</b>   | Wax on leaves:                | Very little/not visible |
| <b>6.3.17</b>   | Insertion point of blades:    | Asymmetric              |
| <b>6.3.18</b>   | Blade base:                   | Both sides pointed      |
| <b>6.3.19</b>   | Corrugation:                  | Few stripes             |
| <b>6.3.20</b>   | Midrib dorsal color:          | Light Green             |
| <b>6.3.21</b>   | Midrib ventral color:         | Green                   |



### BUNCH

|        |                    |   |
|--------|--------------------|---|
| 6.4.6  | Bunch position:    | Hanging vertically                                    |
| 6.4.7  | Bunch shape:       | Cylindrical   |
| 6.4.8  | Bunch appearance:  | Compact   |
| 6.4.10 | Fruit positioning: | Biseriate   |
| 6.4.11 | Rachis type:       | Present   |
| 6.4.12 | Rachis position:   | With a curve  |
| 6.4.13 | Rachis appearance: | Neutral flowers near the bunch, rest of stalk is bare |
| 7.9    | Bunch weight:      | 27.75 kg  |
| 6.7.1  | Fruit position:    | Curved upward   |
| 7.10   | Number of hands:   | 8.5   |
| 7.11   | Number of fruits:  | 132.0   |



Bunch



Bunch & Rachis

### PEDUNCLE

|       |                  |                         |
|-------|------------------|-------------------------|
| 6.4.1 | Peduncle length: | 31-60 cm                |
| 6.4.2 | Empty nodes:     | 1                       |
| 6.4.3 | Peduncle width:  | 7-12 cm                 |
| 6.4.4 | Peduncle color:  | Green                   |
| 6.4.5 | Hairiness:       | Very hairy, short hairs |



Peduncle



Male Bud

### MALE BUD

|        |                               |                                   |
|--------|-------------------------------|-----------------------------------|
| 6.6.1  | Flower behaviour:             | Falling before bract              |
| 6.4.14 | Bud type:                     | Normal                            |
| 6.4.15 | Bud shape:                    | Intermediate                      |
| 6.4.16 | Bud size:                     | 19.7 cm                           |
| 6.5.2  | Bract apex shape:             | Intermediate                      |
| 6.5.3  | Bract imbrication:            | Old bracts overlap at apex of bud |
| 6.5.4  | Color of bract external face: | Purple Brown                      |
| 6.5.5  | Color of bract internal face: | Orange Red                        |
| 6.5.6  | Apex color:                   | Not tinted with yellow            |
| 6.5.7  | Color stripes:                | Without discolored lines          |
| 6.5.9  | Base fading:                  | Color homogeneous                 |
| 6.5.10 | Bract shape:                  | 0.30                              |
| 6.5.11 | Lifting:                      | One at a time                     |
| 6.5.12 | Behaviour:                    | Revolute                          |
| 6.5.13 | Wax:                          | Very little/not visible           |
| 6.5.14 | Grooves:                      | Few or not grooved                |



Opened Bract



Bract Shape



## DESCRIPTORS

### FLOWER

|               |                             |                           |
|---------------|-----------------------------|---------------------------|
| <b>6.6.2</b>  | Compound tepal basic color: | White                     |
| <b>6.6.3</b>  | Pigmentation:               | None                      |
| <b>6.6.4</b>  | Lobe color:                 | Yellow                    |
| <b>6.6.5</b>  | Lobe development:           | Developed                 |
| <b>6.6.6</b>  | Free tepal color:           | Translucent white         |
| <b>6.6.7</b>  | Free tepal shape:           | Rectangular               |
| <b>6.6.8</b>  | Appearance:                 | Simple folding under apex |
| <b>6.6.9</b>  | Apex development:           | Little/not visible        |
| <b>6.6.10</b> | Apex shape:                 | Triangular                |
| <b>6.6.11</b> | Anther exertion:            | Exserted                  |
| <b>6.6.12</b> | Filament color:             | White                     |
| <b>6.6.13</b> | Anther color:               | Cream                     |
| <b>6.6.14</b> | Pollen sac color:           | Ivory                     |
| <b>6.6.16</b> | Style basic color:          | White                     |
| <b>6.6.18</b> | Style exertion:             | Exserted                  |
| <b>6.6.19</b> | Style shape:                | Straight                  |
| <b>6.6.20</b> | Stigma color:               | Bright Yellow             |
| <b>6.6.21</b> | Ovary shape:                | Arched                    |
| <b>6.6.22</b> | Ovary basic color:          | White                     |
| <b>6.6.23</b> | Ovary pigmentation:         | Very few/not visible      |
| <b>6.6.24</b> | Flower dominant color:      | White                     |
| <b>6.6.25</b> | Irregular flowers:          | 0.0                       |



Pistil/Stamen

### HANDS & FRUITS

|               |                                 |                          |
|---------------|---------------------------------|--------------------------|
| <b>7.12</b>   | Exterior middle fruit length:   | 22.9 cm                  |
| <b>7.13</b>   | Exterior middle fruit diameter: | 35.4 cm                  |
| <b>6.7.3</b>  | Interior middle fruit length:   | 21.0 cm                  |
| <b>6.7.8</b>  | Fruit pedicel length:           | 11 to 20 mm              |
| <b>6.7.9</b>  | Fruit pedicel width:            | 5 to 10 mm               |
| <b>6.7.10</b> | Pedicel surface:                | Hairless                 |
| <b>6.7.11</b> | Fusion:                         | Very partial/not visible |
| <b>6.7.4</b>  | Fruit shape:                    | Straight                 |
| <b>6.7.5</b>  | Transverse section:             | Slightly ridged          |
| <b>6.7.6</b>  | Fruit apex:                     | Blunt-tipped             |
| <b>6.7.7</b>  | Flower relicts:                 | Persistent style         |
| <b>6.7.12</b> | Immature fruit peel color:      | Light Green              |
| <b>6.7.18</b> | Pulp color before maturity:     | Ivory                    |
| <b>6.7.13</b> | Mature fruit peel color:        | Yellow                   |
| <b>6.7.14</b> | Fruit peel thickness:           | Two or less              |
| <b>6.7.15</b> | Fruit peel adherence:           | Fruit peels easily       |
| <b>6.7.16</b> | Cracks in fruit peel:           | Without cracks           |
| <b>6.7.17</b> | Pulp in fruit:                  | With pulp                |
| <b>6.7.19</b> | Pulp color at maturity:         | White                    |
| <b>6.7.20</b> | Fruits fall:                    | Deciduous                |
| <b>6.7.21</b> | Flesh texture:                  | Firm                     |
| <b>6.7.22</b> | Fruit taste:                    | Sweet                    |
| <b>6.7.23</b> | Prescense of seed:              | Not present              |
| <b>6.7.24</b> | Seed surface:                   | -                        |
| <b>6.7.25</b> | Seed shape:                     | -                        |



Ripe Fruit



Fruit - Third Hand

# Petite Naine

PETITE NAINE - AAA



## GENETIC (SSR)

| MARKER    | ALLELES |     |   |
|-----------|---------|-----|---|
| mMaCIR01  | 232     | 238 | - |
| mMaCIR03  | 99      | 103 | - |
| mMACIR07  | 150     | -   | - |
| mMACIR08  | 241     | 245 | - |
| mMACIR13  | 277     | -   | - |
| mMACIR24  | 218     | -   | - |
| mMACIR27  | 219     | 228 | - |
| mMACIR39  | 315     | 323 | - |
| mMACIR40  | 163     | 164 | - |
| mMACIR45  | 269     | -   | - |
| mMACIR150 | 237     | -   | - |
| mMACIR152 | 141     | -   | - |
| mMACIR164 | 384     | 386 | - |
| mMACIR196 | 145     | 149 | - |
| mMACIR214 | 103     | -   | - |
| mMACIR231 | 232     | 260 | - |
| mMACIR260 | 190     | -   | - |
| mMACIR264 | 232     | -   | - |
| mMACIR307 | 141     | 143 | - |
| Ma 1-32   | 239     | -   | - |
| Ma 3-90   | 142     | 155 | - |

## PASSPORT

### TAXONOMY

|                             |               |
|-----------------------------|---------------|
| Genus:                      | <i>Musa</i>   |
| Species/Group:              | AAA           |
| Subspecies/Subgroup:        | Cavendish     |
| Musa sect. Musa (Häkkinen): | Musa (Eumusa) |

### GENERAL

|           |   |
|-----------|---|
| Synonyms: | Dwarf Cavendish, Guineo Enano           |
| Status:   | Traditional cultivar or landrace        |
| Origin:   | -                                       |
| ITC code: | ITC0654                                 |
| Donor:    | CIRAD, 1989<br>Originally from VITROPIC |



## DESCRIPTORS



Pseudostem



Plant



Neck



Petiole



Petiole

## PLANT

|               |                         |                               |
|---------------|-------------------------|-------------------------------|
| <b>7.3</b>    | Planting to shooting:   | 151 days                      |
| <b>7.15</b>   | Leaves at flowering:    | 15                            |
| <b>7.5</b>    | Plant crop cycle:       | 291 days                      |
| <b>7.16</b>   | Leaves at harvest:      | 8.5                           |
| <b>6.3.22</b> | Cigar leaf color:       | Light Green                   |
| <b>7.6</b>    | Pseudostem height:      | 1.69 m                        |
| <b>7.7</b>    | Pseudostem diameter:    | 15.5 cm                       |
| <b>6.2.3</b>  | Pseudostem color:       | Green Yellow                  |
| <b>6.2.5</b>  | Underlying color:       | Light Green                   |
| <b>6.2.6</b>  | Pigmentation:           | Pink Purple                   |
| <b>6.2.7</b>  | Sap color:              | Watery                        |
| <b>7.8</b>    | Height of ratoon:       | 0.82 m                        |
| <b>6.2.10</b> | Development of suckers: | Between 1/4 and 3/4 of parent |
| <b>6.2.11</b> | Position of suckers:    | Close (growing vertically)    |

## PETIOLE & LEAVES

|                 |                               |                             |
|-----------------|-------------------------------|-----------------------------|
| <b>6.1.1</b>    | Leaf habit:                   | Erect                       |
| <b>6.1.2</b>    | Dwarfism:                     | Dwarf type                  |
| <b>6.3.1</b>    | Blotches at the petiole base: | Small                       |
| <b>6.3.2</b>    | Blotches color:               | Dark brown                  |
| <b>6.3.3</b>    | Petiole canal:                | Open with margins spreading |
| <b>6.3.4</b>    | Petiole margins:              | Winged and clasping         |
| <b>6.3.5</b>    | Wing type:                    | Not dry                     |
| <b>6.3.6</b>    | Petiole margin color:         | Green                       |
| <b>6.3.11</b>   | Petiole length:               | ≤50 cm                      |
| <b>6.3.7</b>    | Rim color:                    | None                        |
| <b>6.3.9</b>    | Leaf blade length:            | 172.5 cm                    |
| <b>6.3.10</b>   | Leaf blade width:             | 87.8 cm                     |
| <b>6.3.10.1</b> | Leaf ratio:                   | 2.0                         |
| <b>6.3.12</b>   | Leaf upper surface:           | Green                       |
| <b>6.3.13</b>   | Upper appearance:             | Dull                        |
| <b>6.3.14</b>   | Leaf lower surface:           | Green                       |
| <b>6.3.15</b>   | Lower appearance:             | Dull                        |
| <b>6.3.16</b>   | Wax on leaves:                | Very waxy                   |
| <b>6.3.17</b>   | Insertion point of blades:    | Symmetric                   |
| <b>6.3.18</b>   | Blade base:                   | Both sides rounded          |
| <b>6.3.19</b>   | Corrugation:                  | Even, smooth                |
| <b>6.3.20</b>   | Midrib dorsal color:          | Light Green                 |
| <b>6.3.21</b>   | Midrib ventral color:         | Green                       |



### BUNCH

|        |                    |  |
|--------|--------------------|--|
| 6.4.6  | Bunch position:    | Hanging vertically   |
| 6.4.7  | Bunch shape:       | Cylindrical  |
| 6.4.8  | Bunch appearance:  | Compact  |
| 6.4.10 | Fruit positioning: | Biseriate  |
| 6.4.11 | Rachis type:       | Present  |
| 6.4.12 | Rachis position:   | Falling vertically   |
| 6.4.13 | Rachis appearance: | Neutral/male flowers and presence of withered bracts on the entire stalk |
| 7.9    | Bunch weight:      | 22.31 kg   |
| 6.7.1  | Fruit position     | Curved upward  |
| 7.10   | Number of hands:   | 9.8  |
| 7.11   | Number of fruits:  | 164.0  |



Bunch



Bunch & Rachis

### PEDUNCLE

|       |                  |                         |
|-------|------------------|-------------------------|
| 6.4.1 | Peduncle length: | 31-60 cm                |
| 6.4.2 | Empty nodes:     | 1                       |
| 6.4.3 | Peduncle width:  | 7-12 cm                 |
| 6.4.4 | Peduncle color:  | Green                   |
| 6.4.5 | Hairiness:       | Very hairy, short hairs |



Peduncle



Male Bud

### MALE BUD

|        |                               |                                      |
|--------|-------------------------------|--------------------------------------|
| 6.6.1  | Flower behaviour:             | Neutral/male flowers persistent      |
| 6.4.14 | Bud type:                     | Degenerating before maturity         |
| 6.4.15 | Bud shape:                    | Intermediate                         |
| 6.4.16 | Bud size:                     | 11.1 cm                              |
| 6.5.2  | Bract apex shape:             | Intermediate                         |
| 6.5.3  | Bract imbrication:            | Young bracts slightly overlap        |
| 6.5.4  | Color of bract external face: | Purple Brown                         |
| 6.5.5  | Color of bract internal face: | Orange Red                           |
| 6.5.6  | Apex color:                   | Tinted with yellow                   |
| 6.5.7  | Color stripes:                | With discolored lines                |
| 6.5.9  | Base fading:                  | Color discontinuing towards the base |
| 6.5.10 | Bract shape:                  | 0.31                                 |
| 6.5.11 | Lifting:                      | Two or more at a time                |
| 6.5.12 | Behaviour:                    | Not revolute                         |
| 6.5.13 | Wax:                          | Very few                             |
| 6.5.14 | Grooves:                      | Few or not grooved                   |



Opened Bract



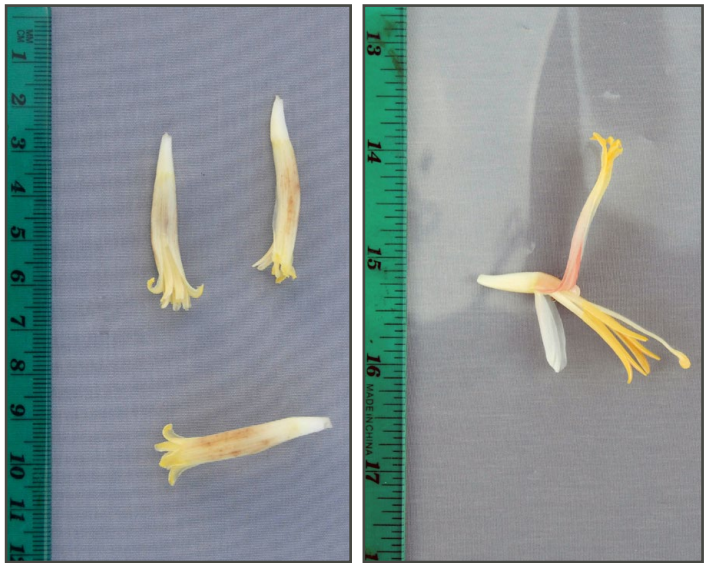
Bract Shape



## DESCRIPTORS

### FLOWER

|               |                             |                      |
|---------------|-----------------------------|----------------------|
| <b>6.6.2</b>  | Compound tepal basic color: | Cream                |
| <b>6.6.3</b>  | Pigmentation:               | Rusty Brown          |
| <b>6.6.4</b>  | Lobe color:                 | Yellow               |
| <b>6.6.5</b>  | Lobe development:           | Developed            |
| <b>6.6.6</b>  | Free tepal color:           | Translucent white    |
| <b>6.6.7</b>  | Free tepal shape:           | Oval                 |
| <b>6.6.8</b>  | Appearance:                 | More or less smooth  |
| <b>6.6.9</b>  | Apex development:           | Developed            |
| <b>6.6.10</b> | Apex shape:                 | Thread-like          |
| <b>6.6.11</b> | Anther exsertion:           | Exserted             |
| <b>6.6.12</b> | Filament color:             | Cream                |
| <b>6.6.13</b> | Anther color:               | Yellow               |
| <b>6.6.14</b> | Pollen sac color:           | Cream                |
| <b>6.6.16</b> | Style basic color:          | Cream                |
| <b>6.6.18</b> | Style exsertion:            | Exserted             |
| <b>6.6.19</b> | Style shape:                | Straight             |
| <b>6.6.20</b> | Stigma color:               | Yellow               |
| <b>6.6.21</b> | Ovary shape:                | Straight, Arched     |
| <b>6.6.22</b> | Ovary basic color:          | White                |
| <b>6.6.23</b> | Ovary pigmentation:         | Very few/not visible |
| <b>6.6.24</b> | Flower dominant color:      | Cream                |
| <b>6.6.25</b> | Irregular flowers:          | 0.0                  |



Flower

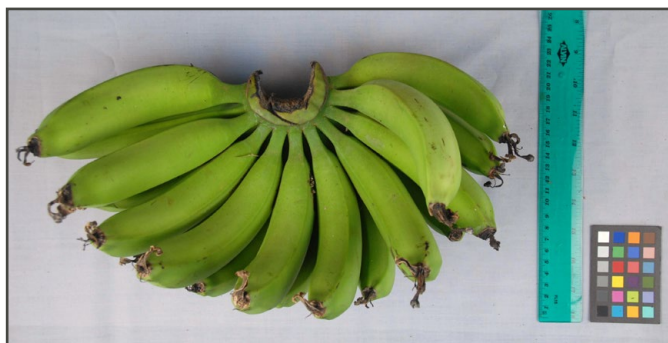
Pistil/Stamen

### HANDS & FRUITS

|               |                                 |                          |
|---------------|---------------------------------|--------------------------|
| <b>7.12</b>   | Exterior middle fruit length:   | 21.2 cm                  |
| <b>7.13</b>   | Exterior middle fruit diameter: | 34.3 cm                  |
| <b>6.7.3</b>  | Interior middle fruit length:   | 20.3 cm                  |
| <b>6.7.8</b>  | Fruit pedicel length:           | 11 to 20 mm              |
| <b>6.7.9</b>  | Fruit pedicel width:            | 5 to 10 mm               |
| <b>6.7.10</b> | Pedicel surface:                | Hairless                 |
| <b>6.7.11</b> | Fusion:                         | Very partial/not visible |
| <b>6.7.4</b>  | Fruit shape:                    | Straight, Curved         |
| <b>6.7.5</b>  | Transverse section:             | Slightly ridged          |
| <b>6.7.6</b>  | Fruit apex:                     | Blunt-tipped             |
| <b>6.7.7</b>  | Flower relicts:                 | Persistent style         |
| <b>6.7.12</b> | Immature fruit peel color:      | Light Green              |
| <b>6.7.18</b> | Pulp color before maturity:     | White                    |
| <b>6.7.13</b> | Mature fruit peel color:        | Yellow                   |
| <b>6.7.14</b> | Fruit peel thickness:           | Three or more            |
| <b>6.7.15</b> | Fruit peel adherence:           | Fruit peels easily       |
| <b>6.7.16</b> | Cracks in fruit peel:           | Cracked                  |
| <b>6.7.17</b> | Pulp in fruit:                  | With Pulp                |
| <b>6.7.19</b> | Pulp color at maturity:         | White                    |
| <b>6.7.20</b> | Fruits fall:                    | Persistent               |
| <b>6.7.21</b> | Flesh texture:                  | Firm                     |
| <b>6.7.22</b> | Fruit taste:                    | Sweet                    |
| <b>6.7.23</b> | Prescense of seed:              | Not present              |
| <b>6.7.24</b> | Seed surface:                   | -                        |
| <b>6.7.25</b> | Seed shape:                     | -                        |



Ripe Fruit



Fruit - Third Hand

# Red Dacca\*



RED DACCA - AAA

## GENETIC (SSR)

| MARKER    | ALLELES |     |     |
|-----------|---------|-----|-----|
| mMaCIR01  | 250     | 252 | -   |
| mMaCIR03  | 99      | 101 | 106 |
| mMACIR07  | 148     | 155 | 169 |
| mMACIR08  | 243     | 249 | -   |
| mMACIR13  | 265     | 268 | -   |
| mMACIR24  | 218     | 228 | -   |
| mMACIR27  | 223     | 225 | -   |
| mMACIR39  | 309     | 311 | 319 |
| mMACIR40  | 158     | 163 | 178 |
| mMACIR45  | 264     | 266 | 269 |
| mMACIR150 | 237     | 239 | -   |
| mMACIR152 | 141     | 145 | -   |
| mMACIR164 | 387     | -   | -   |
| mMACIR196 | 145     | 149 | 162 |
| mMACIR214 | 100     | 103 | -   |
| mMACIR231 | 230     | 234 | 258 |
| mMACIR260 | 190     | 192 | -   |
| mMACIR264 | 232     | 249 | -   |
| mMACIR307 | 143     | 145 | -   |
| Ma 1-32   | 218     | 235 | -   |
| Ma 3-90   | 129     | 140 | 149 |

## PASSPORT

### TAXONOMY

|   |                               |
|---|-------------------------------|
| Genus:                                    | <i>Musa</i>                   |
| Species/Group:                            | AAA                           |
| Subspecies/Subgroup:                      | Red                           |
| <i>Musa</i> sect. <i>Musa</i> (Häkkinen): | <i>Musa</i> ( <i>Eumusa</i> ) |

### GENERAL

|           |                                  |
|-----------|----------------------------------|
| Synonyms: | -                                |
| Status:   | Traditional cultivar or landrace |
| Origin:   | -                                |
| ITC code: | ITC0575                          |
| Donor:    | QDPI Brisbane, 1989              |

\* Following review by personnel on the Taxonomic Advisory Group, this accession appears to be an off-type or, at least under the growing conditions at the USDA-ARS TARS site, did not show typical phenotypes for the accession.



## DESCRIPTORS



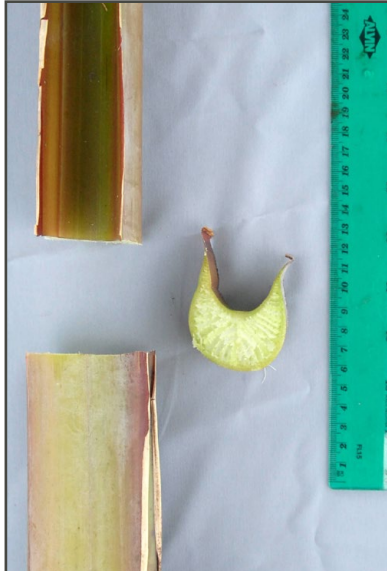
Pseudostem



Plant



Neck



Petiole



Petiole

## PLANT

|        |                         |                              |
|--------|-------------------------|------------------------------|
| 7.3    | Planting to shooting:   | 353 days                     |
| 7.15   | Leaves at flowering:    | 12                           |
| 7.5    | Plant crop cycle:       | 430 days                     |
| 7.16   | Leaves at harvest:      | 5.5                          |
| 6.3.22 | Cigar leaf color:       | Light Green                  |
| 7.6    | Pseudostem height:      | 4.52 m                       |
| 7.7    | Pseudostem diameter:    | 23.0 cm                      |
| 6.2.3  | Pseudostem color:       | Red Purple                   |
| 6.2.5  | Underlying color:       | Pink Purple                  |
| 6.2.6  | Pigmentation:           | None                         |
| 6.2.7  | Sap color:              | Milky                        |
| 7.8    | Height of ratoon:       | 4.54 m                       |
| 6.2.10 | Development of suckers: | More than 3/4 of parent size |
| 6.2.11 | Position of suckers:    | Close (growing at an angle)* |

## PETIOLE & LEAVES

|          |                               |                         |
|----------|-------------------------------|-------------------------|
| 6.1.1    | Leaf habit:                   | Erect                   |
| 6.1.2    | Dwarfism:                     | Normal                  |
| 6.3.1    | Blotches at the petiole base: | Large                   |
| 6.3.2    | Blotches color:               | Brown-black             |
| 6.3.3    | Petiole canal:                | Straight Erect          |
| 6.3.4    | Petiole margins:              | Winged and clasping     |
| 6.3.5    | Wing type:                    | Dry                     |
| 6.3.6    | Petiole margin color:         | Purple Brown            |
| 6.3.11   | Petiole length:               | ≤50 cm                  |
| 6.3.7    | Rim color:                    | Red Purple              |
| 6.3.9    | Leaf blade length:            | 233.5 cm                |
| 6.3.10   | Leaf blade width:             | 63.0 cm                 |
| 6.3.10.1 | Leaf ratio:                   | 3.7                     |
| 6.3.12   | Leaf upper surface:           | Green                   |
| 6.3.13   | Upper appearance:             | Shiny                   |
| 6.3.14   | Leaf lower surface:           | Medium Green            |
| 6.3.15   | Lower appearance:             | Shiny                   |
| 6.3.16   | Wax on leaves:                | Very little/not visible |
| 6.3.17   | Insertion point of blades:    | Asymmetric              |
| 6.3.18   | Blade base:                   | Both sides pointed      |
| 6.3.19   | Corrugation:                  | Few stripes             |
| 6.3.20   | Midrib dorsal color:          | Light Green             |
| 6.3.21   | Midrib ventral color:         | Green                   |



### BUNCH

|        |                    |   |
|--------|--------------------|---|
| 6.4.6  | Bunch position:    | Hanging at 45 degrees                                 |
| 6.4.7  | Bunch shape:       | With a curve in the bunch axis                        |
| 6.4.8  | Bunch appearance:  | Lax   |
| 6.4.10 | Fruit positioning: | Biseriate   |
| 6.4.11 | Rachis type:       | Present   |
| 6.4.12 | Rachis position:   | Falling vertically                                    |
| 6.4.13 | Rachis appearance: | Neutral flowers near the bunch, rest of stalk is bare |
| 7.9    | Bunch weight:      | 1.38 kg   |
| 6.7.1  | Fruit position:    | Curved upward   |
| 7.10   | Number of hands:   | 4.0   |
| 7.11   | Number of fruits:  | 45.0  |



Bunch



Bunch & Rachis

### PEDUNCLE

|       |                  |                            |
|-------|------------------|----------------------------|
| 6.4.1 | Peduncle length: | 31-60 cm                   |
| 6.4.2 | Empty nodes:     | 2                          |
| 6.4.3 | Peduncle width:  | ≤6 cm                      |
| 6.4.4 | Peduncle color:  | Red Purple/Green<br>Yellow |
| 6.4.5 | Hairiness:       | Very hairy, short hairs    |



Peduncle



Male Bud

### MALE BUD

|        |                               |                                   |
|--------|-------------------------------|-----------------------------------|
| 6.6.1  | Flower behaviour:             | Falling before bract              |
| 6.4.14 | Bud type:                     | Normal                            |
| 6.4.15 | Bud shape:                    | Ovoid                             |
| 6.4.16 | Bud size:                     | ≤20 cm                            |
| 6.5.2  | Bract apex shape:             | Slightly pointed                  |
| 6.5.3  | Bract imbrication:            | Old bracts overlap at apex of bud |
| 6.5.4  | Color of bract external face: | Purple                            |
| 6.5.5  | Color of bract internal face: | Red Purple                        |
| 6.5.6  | Apex color:                   | Not tinted with yellow            |
| 6.5.7  | Color stripes:                | Without discolored lines          |
| 6.5.9  | Base fading:                  | Color homogeneous                 |
| 6.5.10 | Bract shape:                  | 0.23                              |
| 6.5.11 | Lifting:                      | Two or more at a time             |
| 6.5.12 | Behaviour:                    | Revolute                          |
| 6.5.13 | Wax:                          | Moderately waxy                   |
| 6.5.14 | Grooves:                      | Moderate grooving                 |



Opened Bract



Bract Shape



## DESCRIPTORS

### FLOWER

|        |                             |                           |
|--------|-----------------------------|---------------------------|
| 6.6.2  | Compound tepal basic color: | Yellow                    |
| 6.6.3  | Pigmentation:               | Pink Purple               |
| 6.6.4  | Lobe color:                 | Bright Yellow             |
| 6.6.5  | Lobe development:           | Very developed            |
| 6.6.6  | Free tepal color:           | Translucent white         |
| 6.6.7  | Free tepal shape:           | Oval                      |
| 6.6.8  | Appearance:                 | Simple folding under apex |
| 6.6.9  | Apex development:           | Developed                 |
| 6.6.10 | Apex shape:                 | Thread-like               |
| 6.6.11 | Anther exertion:            | Inserted                  |
| 6.6.12 | Filament color:             | Cream                     |
| 6.6.13 | Anther color:               | Yellow                    |
| 6.6.14 | Pollen sac color:           | Yellow                    |
| 6.6.16 | Style basic color:          | Cream                     |
| 6.6.18 | Style exertion:             | Exserted                  |
| 6.6.19 | Style shape:                | Straight                  |
| 6.6.20 | Stigma color:               | Yellow                    |
| 6.6.21 | Ovary shape:                | Arched                    |
| 6.6.22 | Ovary basic color:          | Yellow                    |
| 6.6.23 | Ovary pigmentation:         | With red purple           |
| 6.6.24 | Flower dominant color:      | Yellow                    |
| 6.6.25 | Irregular flowers:          | 1.0                       |

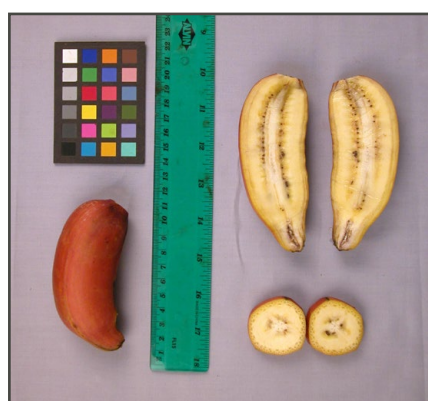


Flower

Pistil/Stamen

### HANDS & FRUITS

|        |                                 |                            |
|--------|---------------------------------|----------------------------|
| 7.12   | Exterior middle fruit length:   | 7.9 cm                     |
| 7.13   | Exterior middle fruit diameter: | 24.35 cm                   |
| 6.7.3  | Interior middle fruit length:   | 7.4 cm                     |
| 6.7.8  | Fruit pedicel length:           | ≤10 mm                     |
| 6.7.9  | Fruit pedicel width:            | >10 mm                     |
| 6.7.10 | Pedicel surface:                | Hairless                   |
| 6.7.11 | Fusion:                         | Very partial/not visible   |
| 6.7.4  | Fruit shape:                    | Straight                   |
| 6.7.5  | Transverse section:             | Slightly ridged            |
| 6.7.6  | Fruit apex:                     | Blunt-tipped               |
| 6.7.7  | Flower relicts:                 | Without any floral relicts |
| 6.7.12 | Immature fruit peel color:      | Red Purple                 |
| 6.7.18 | Pulp color before maturity:     | Cream                      |
| 6.7.13 | Mature fruit peel color:        | Orange Red                 |
| 6.7.14 | Fruit peel thickness:           | Two or less                |
| 6.7.15 | Fruit peel adherence:           | Does not peel easily       |
| 6.7.16 | Cracks in fruit peel:           | Without cracks             |
| 6.7.17 | Pulp in fruit:                  | With pulp                  |
| 6.7.19 | Pulp color at maturity:         | Yellow                     |
| 6.7.20 | Fruits fall:                    | Persistent                 |
| 6.7.21 | Flesh texture:                  | Firm                       |
| 6.7.22 | Fruit taste:                    | Sugary                     |
| 6.7.23 | Prescense of seed:              | Not present                |
| 6.7.24 | Seed surface:                   | -                          |
| 6.7.25 | Seed shape:                     | -                          |



Ripe Fruit



Fruit - Third Hand

# Khai Thong Ruang

KHAITHONG RUANG - AAA



## GENETIC (SSR)

| MARKER    | ALLELES |     |     |
|-----------|---------|-----|-----|
| mMaCIR01  | 230     | 252 | -   |
| mMaCIR03  | 90      | 99  | 103 |
| mMACIR07  | 130     | 141 | 150 |
| mMACIR08  | 241     | 249 | -   |
| mMACIR13  | 265     | 274 | 286 |
| mMACIR24  | 228     | 238 | -   |
| mMACIR27  | 217     | 223 | 227 |
| mMACIR39  | 309     | 329 | -   |
| mMACIR40  | 160     | 178 | -   |
| mMACIR45  | 264     | 266 | -   |
| mMACIR150 | 237     | 239 | -   |
| mMACIR152 | 141     | 144 | -   |
| mMACIR164 | 378     | 387 | -   |
| mMACIR196 | 149     | 162 | -   |
| mMACIR214 | 100     | -   | -   |
| mMACIR231 | 228     | 232 | 236 |
| mMACIR260 | 186     | 190 | 192 |
| mMACIR264 | 227     | 249 | -   |
| mMACIR307 | 143     | 145 | -   |
| Ma 1-32   | 220     | 235 | 241 |
| Ma 3-90   | 127     | 149 | 155 |

## PASSPORT

### TAXONOMY

|   |                               |
|---|-------------------------------|
| Genus:                                    | <i>Musa</i>                   |
| Species/Group:                            | AAA                           |
| Subspecies/Subgroup:                      | Ibota                         |
| <i>Musa</i> sect. <i>Musa</i> (Häkkinen): | <i>Musa</i> ( <i>Eumusa</i> ) |

### GENERAL

|           |                                  |
|-----------|----------------------------------|
| Synonyms: | -                                |
| Status:   | Traditional cultivar or landrace |
| Origin:   | Thailand                         |
| ITC code: | ITC0662                          |
| Donor:    | CIRAD, 1989                      |



## DESCRIPTORS



Pseudostem



Plant



Neck



Petiole



Petiole

## PLANT

|        |                         |                            |
|--------|-------------------------|----------------------------|
| 7.3    | Planting to shooting:   | 227 days                   |
| 7.15   | Leaves at flowering:    | 16                         |
| 7.5    | Plant crop cycle:       | 303 days                   |
| 7.16   | Leaves at harvest:      | 10.0                       |
| 6.3.22 | Cigar leaf color:       | Light Green                |
| 7.6    | Pseudostem height:      | 2.76 m                     |
| 7.7    | Pseudostem diameter:    | 16.0 cm                    |
| 6.2.3  | Pseudostem color:       | Green Yellow               |
| 6.2.5  | Underlying color:       | Light Green                |
| 6.2.6  | Pigmentation:           | Purple Brown               |
| 6.2.7  | Sap color:              | Watery                     |
| 7.8    | Height of ratoon:       | 3.66 m                     |
| 6.2.10 | Development of suckers: | Taller than parent         |
| 6.2.11 | Position of suckers:    | Close (growing vertically) |

## PETIOLE & LEAVES

|          |                               |                         |
|----------|-------------------------------|-------------------------|
| 6.1.1    | Leaf habit:                   | Erect                   |
| 6.1.2    | Dwarfism:                     | Normal                  |
| 6.3.1    | Blotches at the petiole base: | Small                   |
| 6.3.2    | Blotches color:               | Black-purple            |
| 6.3.3    | Petiole canal:                | Wide Erect              |
| 6.3.4    | Petiole margins:              | Winged and clasping     |
| 6.3.5    | Wing type:                    | Not dry                 |
| 6.3.6    | Petiole margin color:         | Medium Green            |
| 6.3.11   | Petiole length:               | 51 to 70 cm             |
| 6.3.7    | Rim color:                    | Light Green             |
| 6.3.9    | Leaf blade length:            | 262.0 cm                |
| 6.3.10   | Leaf blade width:             | 92.8 cm                 |
| 6.3.10.1 | Leaf ratio:                   | 2.8                     |
| 6.3.12   | Leaf upper surface:           | Green                   |
| 6.3.13   | Upper appearance:             | Dull                    |
| 6.3.14   | Leaf lower surface:           | Medium Green            |
| 6.3.15   | Lower appearance:             | Shiny                   |
| 6.3.16   | Wax on leaves:                | Very little/not visible |
| 6.3.17   | Insertion point of blades:    | Asymmetric              |
| 6.3.18   | Blade base:                   | Both sides pointed      |
| 6.3.19   | Corrugation:                  | Few stripes             |
| 6.3.20   | Midrib dorsal color:          | Green Yellow            |
| 6.3.21   | Midrib ventral color:         | Medium Green            |



### BUNCH

|        |                    |   |
|--------|--------------------|---|
| 6.4.6  | Bunch position:    | Hanging at 45 degrees                                 |
| 6.4.7  | Bunch shape:       | Cylindrical   |
| 6.4.8  | Bunch appearance:  | Very compact  |
| 6.4.10 | Fruit positioning: | Biseriate   |
| 6.4.11 | Rachis type:       | Present   |
| 6.4.12 | Rachis position:   | At an angle   |
| 6.4.13 | Rachis appearance: | Neutral flowers near the bunch, rest of stalk is bare |
| 7.9    | Bunch weight:      | 9.84 kg   |
| 6.7.1  | Fruit position:    | Curved upward   |
| 7.10   | Number of hands:   | 8.3   |
| 7.11   | Number of fruits:  | 158.5   |



Bunch

### PEDUNCLE

|       |                  |                         |
|-------|------------------|-------------------------|
| 6.4.1 | Peduncle length: | 31-60 cm                |
| 6.4.2 | Empty nodes:     | 1                       |
| 6.4.3 | Peduncle width:  | 7-12 cm                 |
| 6.4.4 | Peduncle color:  | Green                   |
| 6.4.5 | Hairiness:       | Very hairy, short hairs |



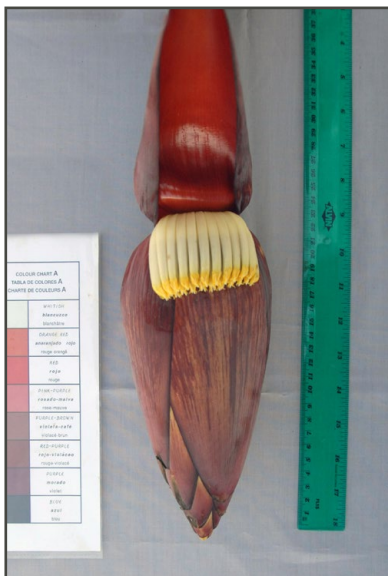
Peduncle



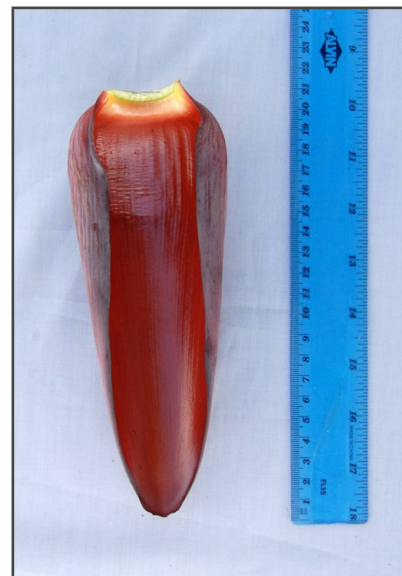
Male Bud

### MALE BUD

|        |                               |                               |
|--------|-------------------------------|-------------------------------|
| 6.6.1  | Flower behaviour:             | Falling with bract            |
| 6.4.14 | Bud type:                     | Normal                        |
| 6.4.15 | Bud shape:                    | Ovoid                         |
| 6.4.16 | Bud size:                     | 15.9 cm                       |
| 6.5.2  | Bract apex shape:             | Intermediate                  |
| 6.5.3  | Bract imbrication:            | Young bracts slightly overlap |
| 6.5.4  | Color of bract external face: | Purple Brown                  |
| 6.5.5  | Color of bract internal face: | Orange Red                    |
| 6.5.6  | Apex color:                   | Not tinted with yellow        |
| 6.5.7  | Color stripes:                | Without discolored lines      |
| 6.5.9  | Base fading:                  | Color homogeneous             |
| 6.5.10 | Bract shape:                  | 0.28                          |
| 6.5.11 | Lifting:                      | Two or more at a time         |
| 6.5.12 | Behaviour:                    | Revolute                      |
| 6.5.13 | Wax:                          | Moderately waxy               |
| 6.5.14 | Grooves:                      | Strongly grooved              |



Opened Bract



Bract Shape



## DESCRIPTORS

### FLOWER

|               |                             |                           |
|---------------|-----------------------------|---------------------------|
| <b>6.6.2</b>  | Compound tepal basic color: | White                     |
| <b>6.6.3</b>  | Pigmentation:               | None                      |
| <b>6.6.4</b>  | Lobe color:                 | Yellow                    |
| <b>6.6.5</b>  | Lobe development:           | Developed                 |
| <b>6.6.6</b>  | Free tepal color:           | Translucent white         |
| <b>6.6.7</b>  | Free tepal shape:           | Oval                      |
| <b>6.6.8</b>  | Appearance:                 | Simple folding under apex |
| <b>6.6.9</b>  | Apex development:           | Developed                 |
| <b>6.6.10</b> | Apex shape:                 | Triangular                |
| <b>6.6.11</b> | Anther exertion:            | Same level                |
| <b>6.6.12</b> | Filament color:             | White                     |
| <b>6.6.13</b> | Anther color:               | Cream                     |
| <b>6.6.14</b> | Pollen sac color:           | Ivory                     |
| <b>6.6.16</b> | Style basic color:          | White                     |
| <b>6.6.18</b> | Style exertion:             | Exserted                  |
| <b>6.6.19</b> | Style shape:                | Straight                  |
| <b>6.6.20</b> | Stigma color:               | Bright Yellow             |
| <b>6.6.21</b> | Ovary shape:                | Arched                    |
| <b>6.6.22</b> | Ovary basic color:          | Light Green               |
| <b>6.6.23</b> | Ovary pigmentation:         | Very few/not visible      |
| <b>6.6.24</b> | Flower dominant color:      | White                     |
| <b>6.6.25</b> | Irregular flowers:          | 1.0                       |



Flower

Pistil/Stamen

### HANDS & FRUITS

|               |                                 |                          |
|---------------|---------------------------------|--------------------------|
| <b>7.12</b>   | Exterior middle fruit length:   | 13.0 cm                  |
| <b>7.13</b>   | Exterior middle fruit diameter: | 25.3 cm                  |
| <b>6.7.3</b>  | Interior middle fruit length:   | 12.4 cm                  |
| <b>6.7.8</b>  | Fruit pedicel length:           | 11 to 20 mm              |
| <b>6.7.9</b>  | Fruit pedicel width:            | 5 to 10 mm               |
| <b>6.7.10</b> | Pedicel surface:                | Hairy                    |
| <b>6.7.11</b> | Fusion:                         | Very partial/not visible |
| <b>6.7.4</b>  | Fruit shape:                    | Straight, Curved         |
| <b>6.7.5</b>  | Transverse section:             | Rounded                  |
| <b>6.7.6</b>  | Fruit apex:                     | Blunt-tipped             |
| <b>6.7.7</b>  | Flower relicts:                 | Persistent style         |
| <b>6.7.12</b> | Immature fruit peel color:      | Light Green              |
| <b>6.7.18</b> | Pulp color before maturity:     | White                    |
| <b>6.7.13</b> | Mature fruit peel color:        | Yellow                   |
| <b>6.7.14</b> | Fruit peel thickness:           | Three or more            |
| <b>6.7.15</b> | Fruit peel adherence:           | Fruit peels easily       |
| <b>6.7.16</b> | Cracks in fruit peel:           | Cracked                  |
| <b>6.7.17</b> | Pulp in fruit:                  | With pulp                |
| <b>6.7.19</b> | Pulp color at maturity:         | White                    |
| <b>6.7.20</b> | Fruits fall:                    | Deciduous                |
| <b>6.7.21</b> | Flesh texture:                  | Firm                     |
| <b>6.7.22</b> | Fruit taste:                    | Sweet                    |
| <b>6.7.23</b> | Presence of seed:               | Not present              |
| <b>6.7.24</b> | Seed surface:                   | -                        |
| <b>6.7.25</b> | Seed shape:                     | -                        |



Ripe Fruit



Fruit - Third Hand

# Igitsiri (Intuntu)\*

IGITSIRI (INTUNTU) - AAA



## GENETIC (SSR)

| MARKER    | ALLELES |     |     |
|-----------|---------|-----|-----|
| mMaCIR01  | 238     | 248 | -   |
| mMaCIR03  | 99      | 101 | -   |
| mMACIR07  | 130     | 132 | 139 |
| mMACIR08  | 241     | 243 | 248 |
| mMACIR13  | 265     | 278 | -   |
| mMACIR24  | 222     | 228 | -   |
| mMACIR27  | 217     | 224 | 225 |
| mMACIR39  | 315     | 325 | -   |
| mMACIR40  | 163     | -   | -   |
| mMACIR45  | 259     | 266 | 269 |
| mMACIR150 | 237     | 243 | -   |
| mMACIR152 | 141     | -   | -   |
| mMACIR164 | 387     | 388 | -   |
| mMACIR196 | 145     | 162 | 166 |
| mMACIR214 | 105     | 107 | -   |
| mMACIR231 | 224     | 242 | 258 |
| mMACIR260 | 190     | 192 | -   |
| mMACIR264 | 238     | 249 | -   |
| mMACIR307 | 141     | 145 | 153 |
| Ma 1-32   | 241     | -   | -   |
| Ma 3-90   | 135     | 147 | -   |

## PASSPORT

### TAXONOMY

|   |                           |
|---|---------------------------|
| Genus:                                    | <i>Musa</i>               |
| Species/Group:                            | AAA                       |
| Subspecies/Subgroup:                      | Mutika/Lujugira<br>(beer) |
| <i>Musa</i> sect. <i>Musa</i> (Häkkinen): | <i>Musa</i> (Eumusa)      |

### GENERAL

|           |                                  |
|-----------|----------------------------------|
| Synonyms: | Intutu                           |
| Status:   | Traditional cultivar or landrace |
| Origin:   | Burundi                          |
| ITC code: | ITC0081                          |
| Donor:    | IRAZ, 1986                       |

\* Following review by personnel on the Taxonomic Advisory Group, this accession appears to be an off-type or, at least under the growing conditions at the USDA-ARS TARS site, did not show typical phenotypes for the accession.



## DESCRIPTORS



Pseudostem



Plant



Neck



Petiole



Petiole

## PLANT

|        |                         |                              |
|--------|-------------------------|------------------------------|
| 7.3    | Planting to shooting:   | 374 days                     |
| 7.15   | Leaves at flowering:    | 9.5                          |
| 7.5    | Plant crop cycle:       | 311 days                     |
| 7.16   | Leaves at harvest:      | 6.5                          |
| 6.3.22 | Cigar leaf color:       | Light Green                  |
| 7.6    | Pseudostem height:      | 2.40 m                       |
| 7.7    | Pseudostem diameter:    | 11.6 cm                      |
| 6.2.3  | Pseudostem color:       | Blue                         |
| 6.2.5  | Underlying color:       | Light Green                  |
| 6.2.6  | Pigmentation:           | Red Purple                   |
| 6.2.7  | Sap color:              | Watery                       |
| 7.8    | Height of ratoon:       | 2.33 m                       |
| 6.2.10 | Development of suckers: | More than 3/4 of parent size |
| 6.2.11 | Position of suckers:    | Close (growing vertically)   |

## PETIOLE & LEAVES

|          |                               |                             |
|----------|-------------------------------|-----------------------------|
| 6.1.1    | Leaf habit:                   | Intermediate                |
| 6.1.2    | Dwarfism:                     | Normal                      |
| 6.3.1    | Blotches at the petiole base: | Extensive                   |
| 6.3.2    | Blotches color:               | Black-purple                |
| 6.3.3    | Petiole canal:                | Open with margins spreading |
| 6.3.4    | Petiole margins:              | Winged and clasping         |
| 6.3.5    | Wing type:                    | Dry                         |
| 6.3.6    | Petiole margin color:         | Medium Green                |
| 6.3.11   | Petiole length:               | ≤50cm                       |
| 6.3.7    | Rim color:                    | Green                       |
| 6.3.9    | Leaf blade length:            | 188.0 cm                    |
| 6.3.10   | Leaf blade width:             | 67.0 cm                     |
| 6.3.10.1 | Leaf ratio:                   | 2.8                         |
| 6.3.12   | Leaf upper surface:           | Green                       |
| 6.3.13   | Upper appearance:             | Dull                        |
| 6.3.14   | Leaf lower surface:           | Green                       |
| 6.3.15   | Lower appearance:             | Dull                        |
| 6.3.16   | Wax on leaves:                | Moderately waxy             |
| 6.3.17   | Insertion point of blades:    | Symmetric                   |
| 6.3.18   | Blade base:                   | Both sides pointed          |
| 6.3.19   | Corrugation:                  | Few stripes                 |
| 6.3.20   | Midrib dorsal color:          | Light Green                 |
| 6.3.21   | Midrib ventral color:         | Medium Green                |



### BUNCH

|        |                    |  |
|--------|--------------------|--|
| 6.4.6  | Bunch position:    | Horizontal   |
| 6.4.7  | Bunch shape:       | Asymmetric   |
| 6.4.8  | Bunch appearance:  | Compact  |
| 6.4.10 | Fruit positioning: | Biseriate  |
| 6.4.11 | Rachis type:       | Present  |
| 6.4.12 | Rachis position:   | At an angle  |
| 6.4.13 | Rachis appearance: | Neutral/male flowers on the whole stalk and presence of withered bracts above the male bud |
| 7.9    | Bunch weight:      | 6.75 kg  |
| 6.7.1  | Fruit position:    | Perpendicular to the stalk   |
| 7.10   | Number of hands:   | 7.0  |
| 7.11   | Number of fruits:  | 83.0   |



Bunch



Bunch & Rachis

### PEDUNCLE

|       |                  |                         |
|-------|------------------|-------------------------|
| 6.4.1 | Peduncle length: | ≤30 cm                  |
| 6.4.2 | Empty nodes:     | 0                       |
| 6.4.3 | Peduncle width:  | ≤6 cm                   |
| 6.4.4 | Peduncle color:  | Medium Green            |
| 6.4.5 | Hairiness:       | Very hairy, short hairs |



Peduncle



Male Bud

### MALE BUD

|        |                               |                               |
|--------|-------------------------------|-------------------------------|
| 6.6.1  | Flower behaviour:             | Neutral                       |
| 6.4.14 | Bud type:                     | Degenerating before maturity  |
| 6.4.15 | Bud shape:                    | Intermediate                  |
| 6.4.16 | Bud size:                     | 20.6 cm                       |
| 6.5.2  | Bract apex shape:             | Obtuse                        |
| 6.5.3  | Bract imbrication:            | Young bracts slightly overlap |
| 6.5.4  | Color of bract external face: | Light Green                   |
| 6.5.5  | Color of bract internal face: | Yellow                        |
| 6.5.6  | Apex color:                   | Tinted with Yellow            |
| 6.5.7  | Color stripes:                | With discolored lines         |
| 6.5.9  | Base fading:                  | Color homogeneous             |
| 6.5.10 | Bract shape:                  | 0.36                          |
| 6.5.11 | Lifting:                      | Two or more at a time         |
| 6.5.12 | Behaviour:                    | Revolute                      |
| 6.5.13 | Wax:                          | Very little/not visible       |
| 6.5.14 | Grooves:                      | Few or not grooved            |



Opened Bract



Bract Shape



## DESCRIPTORS

### FLOWER

|        |                             |                           |
|--------|-----------------------------|---------------------------|
| 6.6.2  | Compound tepal basic color: | White                     |
| 6.6.3  | Pigmentation:               | None                      |
| 6.6.4  | Lobe color:                 | Bright Yellow             |
| 6.6.5  | Lobe development:           | Little/not visible        |
| 6.6.6  | Free tepal color:           | Translucent White         |
| 6.6.7  | Free tepal shape:           | Oval                      |
| 6.6.8  | Appearance:                 | Simple folding under apex |
| 6.6.9  | Apex development:           | Little/not visible        |
| 6.6.10 | Apex shape:                 | Triangular                |
| 6.6.11 | Anther exertion:            | Exserted                  |
| 6.6.12 | Filament color:             | White                     |
| 6.6.13 | Anther color:               | Yellow                    |
| 6.6.14 | Pollen sac color:           | Yellow                    |
| 6.6.16 | Style basic color:          | White                     |
| 6.6.18 | Style exertion:             | Inserted                  |
| 6.6.19 | Style shape:                | Straight                  |
| 6.6.20 | Stigma color:               | Orange                    |
| 6.6.21 | Ovary shape:                | Arched                    |
| 6.6.22 | Ovary basic color:          | White                     |
| 6.6.23 | Ovary pigmentation:         | Very few/not visible      |
| 6.6.24 | Flower dominant color:      | Yellow                    |
| 6.6.25 | Irregular flowers:          | 3.0                       |



Flower

Pistil/Stamen

### HANDS & FRUITS

|        |                                 |  |
|--------|---------------------------------|--|
| 7.12   | Exterior middle fruit length:   | 12.3 cm                                |
| 7.13   | Exterior middle fruit diameter: | 35.85 cm                               |
| 6.7.3  | Interior middle fruit length:   | 11.5 cm                                |
| 6.7.8  | Fruit pedicel length:           | ≤10 mm                                 |
| 6.7.9  | Fruit pedicel width:            | 5 to 10 mm                             |
| 6.7.10 | Pedicel surface:                | Hairless                               |
| 6.7.11 | Fusion:                         | Partially fused                        |
| 6.7.4  | Fruit shape:                    | Straight                               |
| 6.7.5  | Transverse section:             | Slightly ridged                        |
| 6.7.6  | Fruit apex:                     | Both pointed and rounded fruit present |
| 6.7.7  | Flower relicts:                 | Persistent Style                       |
| 6.7.12 | Immature fruit peel color:      | Light Green                            |
| 6.7.18 | Pulp color before maturity:     | Ivory                                  |
| 6.7.13 | Mature fruit peel color:        | Yellow                                 |
| 6.7.14 | Fruit peel thickness:           | Two or less                            |
| 6.7.15 | Fruit peel adherence:           | Fruit peels easily                     |
| 6.7.16 | Cracks in fruit peel:           | Without cracks                         |
| 6.7.17 | Pulp in fruit:                  | With pulp                              |
| 6.7.19 | Pulp color at maturity:         | Ivory                                  |
| 6.7.20 | Fruits fall:                    | Persistent                             |
| 6.7.21 | Flesh texture:                  | Firm                                   |
| 6.7.22 | Fruit taste:                    | Sugary                                 |
| 6.7.23 | Prescense of seed:              | Not present                            |
| 6.7.24 | Seed surface:                   | -                                      |
| 6.7.25 | Seed shape:                     | -                                      |



Ripe Fruit



Fruit - Third Hand

# Mbwazirume

MBWAZIRUME - AAA



## GENETIC (SSR)

| MARKER    | ALLELES |     |     |
|-----------|---------|-----|-----|
| mMaCIR01  | 238     | 248 | -   |
| mMaCIR03  | 99      | -   | -   |
| mMACIR07  | 130     | 132 | -   |
| mMACIR08  | 241     | 243 | 248 |
| mMACIR13  | 265     | 278 | -   |
| mMACIR24  | 222     | 228 | -   |
| mMACIR27  | 217     | 224 | 225 |
| mMACIR39  | 315     | 325 | -   |
| mMACIR40  | 163     | -   | -   |
| mMACIR45  | 259     | 266 | -   |
| mMACIR150 | 237     | 243 | -   |
| mMACIR152 | 144     | -   | -   |
| mMACIR164 | 387     | 388 | -   |
| mMACIR196 | 162     | 166 | -   |
| mMACIR214 | 103     | -   | -   |
| mMACIR231 | 224     | 242 | 258 |
| mMACIR260 | 190     | 192 | -   |
| mMACIR264 | 238     | 249 | -   |
| mMACIR307 | 141     | 145 | 153 |
| Ma 1-32   | 241     | -   | -   |
| Ma 3-90   | 135     | 147 | -   |

## PASSPORT

### TAXONOMY

|   |                               |
|---|-------------------------------|
| Genus:                                    | <i>Musa</i>                   |
| Species/Group:                            | AAA                           |
| Subspecies/Subgroup:                      | Mutika/Lujugira (beer)        |
| <i>Musa</i> sect. <i>Musa</i> (Häkkinen): | <i>Musa</i> ( <i>Eumusa</i> ) |

### GENERAL

|           |                                  |
|-----------|----------------------------------|
| Synonyms: | -                                |
| Status:   | Traditional cultivar or landrace |
| Origin:   | Burundi                          |
| ITC code: | ITC0084                          |
| Donor:    | IRAZ, 1986                       |



## DESCRIPTORS



Pseudostem



Plant



Neck



Petiole



Petiole

### PLANT

|        |                         |                                |
|--------|-------------------------|--------------------------------|
| 7.3    | Planting to shooting:   | 290 days                       |
| 7.15   | Leaves at flowering:    | 14.5                           |
| 7.5    | Plant crop cycle:       | 370 days                       |
| 7.16   | Leaves at harvest:      | 8.0                            |
| 6.3.22 | Cigar leaf color:       | Light Green                    |
| 7.6    | Pseudostem height:      | 2.41 m                         |
| 7.7    | Pseudostem diameter:    | 17.0 cm                        |
| 6.2.3  | Pseudostem color:       | Light Green                    |
| 6.2.5  | Underlying color:       | Light Green                    |
| 6.2.6  | Pigmentation:           | Purple Brown                   |
| 6.2.7  | Sap color:              | Watery                         |
| 7.8    | Height of ratoon:       | None                           |
| 6.2.10 | Development of suckers: | Between 1/4 and 3/4 of parent* |
| 6.2.11 | Position of suckers:    | Growing at an angle*           |

### PETIOLE & LEAVES

|          |                               |                             |
|----------|-------------------------------|-----------------------------|
| 6.1.1    | Leaf habit:                   | Intermediate                |
| 6.1.2    | Dwarfism:                     | Normal                      |
| 6.3.1    | Blotches at the petiole base: | Sparse blotching            |
| 6.3.2    | Blotches color:               | Dark brown                  |
| 6.3.3    | Petiole canal:                | Open with margins spreading |
| 6.3.4    | Petiole margins:              | Winged and clasping         |
| 6.3.5    | Wing type:                    | Dry                         |
| 6.3.6    | Petiole margin color:         | Medium Green                |
| 6.3.11   | Petiole length:               | ≤50cm                       |
| 6.3.7    | Rim color:                    | Light Green                 |
| 6.3.9    | Leaf blade length:            | 161.5 cm                    |
| 6.3.10   | Leaf blade width:             | 52.5 cm                     |
| 6.3.10.1 | Leaf ratio:                   | 3.1                         |
| 6.3.12   | Leaf upper surface:           | Medium Green                |
| 6.3.13   | Upper appearance:             | Dull                        |
| 6.3.14   | Leaf lower surface:           | Medium Green                |
| 6.3.15   | Lower appearance:             | Dull                        |
| 6.3.16   | Wax on leaves:                | Moderately waxy             |
| 6.3.17   | Insertion point of blades:    | Asymmetric                  |
| 6.3.18   | Blade base:                   | Both sides rounded          |
| 6.3.19   | Corrugation:                  | Very corrugated             |
| 6.3.20   | Midrib dorsal color:          | Light Green                 |
| 6.3.21   | Midrib ventral color:         | Light Green                 |



### BUNCH

|        |                    |   |
|--------|--------------------|---|
| 6.4.6  | Bunch position:    | Hanging vertically  |
| 6.4.7  | Bunch shape:       | Short cylinder  |
| 6.4.8  | Bunch appearance:  | Compact   |
| 6.4.10 | Fruit positioning: | Biseriate   |
| 6.4.11 | Rachis type:       | Present   |
| 6.4.12 | Rachis position:   | Falling vertically  |
| 6.4.13 | Rachis appearance: | Neutral/male flowers on the whole stalk without persistent bracts |
| 7.9    | Bunch weight:      | 14.01 kg  |
| 6.7.1  | Fruit position:    | Curved upward   |
| 7.10   | Number of hands:   | 6.0   |
| 7.11   | Number of fruits:  | 95.5  |



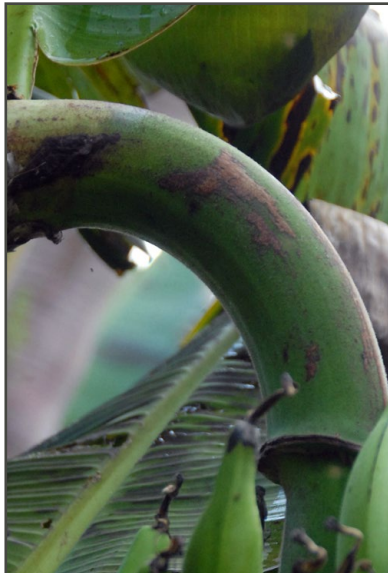
Bunch



Bunch & Rachis

### PEDUNCLE

|       |                  |                |
|-------|------------------|----------------|
| 6.4.1 | Peduncle length: | 31 - 60 cm     |
| 6.4.2 | Empty nodes:     | 1.5            |
| 6.4.3 | Peduncle width:  | ≤6 cm          |
| 6.4.4 | Peduncle color:  | Medium Green   |
| 6.4.5 | Hairiness:       | Slightly hairy |



Peduncle



Male Bud

### MALE BUD

|        |                               |                                     |
|--------|-------------------------------|-------------------------------------|
| 6.6.1  | Flower behaviour:             | Neutral                             |
| 6.4.14 | Bud type:                     | Normal                              |
| 6.4.15 | Bud shape:                    | Cordate                             |
| 6.4.16 | Bud size:                     | ≤20 cm                              |
| 6.5.2  | Bract apex shape:             | Obtuse and split                    |
| 6.5.3  | Bract imbrication:            | Young bracts slightly overlap       |
| 6.5.4  | Color of bract external face: | Light Green/Purple<br>Brown         |
| 6.5.5  | Color of bract internal face: | Orange Red                          |
| 6.5.6  | Apex color:                   | Not tinted with yellow              |
| 6.5.7  | Color stripes:                | With discolored lines               |
| 6.5.9  | Base fading:                  | Color discontinuing toward the base |
| 6.5.10 | Bract shape:                  | 0.41                                |
| 6.5.11 | Lifting:                      | Two or more at a time               |
| 6.5.12 | Behaviour:                    | Not revolute                        |
| 6.5.13 | Wax:                          | Very little/not visible             |
| 6.5.14 | Grooves:                      | Moderate grooving                   |



Opened Bract



Bract Shape



DESCRIPTORS

FLOWER

|        |                             |                           |
|--------|-----------------------------|---------------------------|
| 6.6.2  | Compound tepal basic color: | White                     |
| 6.6.3  | Pigmentation:               | None                      |
| 6.6.4  | Lobe color:                 | Yellow                    |
| 6.6.5  | Lobe development:           | Developed                 |
| 6.6.6  | Free tepal color:           | Translucent white         |
| 6.6.7  | Free tepal shape:           | Oval                      |
| 6.6.8  | Appearance:                 | Simple folding under apex |
| 6.6.9  | Apex development:           | Developed                 |
| 6.6.10 | Apex shape:                 | Triangular                |
| 6.6.11 | Anther exsertion:           | Exserted                  |
| 6.6.12 | Filament color:             | White                     |
| 6.6.13 | Anther color:               | Yellow                    |
| 6.6.14 | Pollen sac color:           | Pink Purple               |
| 6.6.16 | Style basic color:          | White                     |
| 6.6.18 | Style exsertion:            | Exserted                  |
| 6.6.19 | Style shape:                | Curved under stigma       |
| 6.6.20 | Stigma color:               | Orange                    |
| 6.6.21 | Ovary shape:                | Arched                    |
| 6.6.22 | Ovary basic color:          | White                     |
| 6.6.23 | Ovary pigmentation:         | Very few/not visible      |
| 6.6.24 | Flower dominant color:      | White                     |
| 6.6.25 | Irregular flowers:          | 5.0                       |



Flower

Pistil/Stamen

HANDS & FRUITS

|        |                                 |                    |
|--------|---------------------------------|--------------------|
| 7.12   | Exterior middle fruit length:   | 17.35 cm           |
| 7.13   | Exterior middle fruit diameter: | 37.0 cm            |
| 6.7.3  | Interior middle fruit length:   | 17.2 cm            |
| 6.7.8  | Fruit pedicel length:           | 11 to 20 mm        |
| 6.7.9  | Fruit pedicel width:            | 5 to 10 mm         |
| 6.7.10 | Pedicel surface:                | Hairless           |
| 6.7.11 | Fusion:                         | Partially fused    |
| 6.7.4  | Fruit shape:                    | Straight           |
| 6.7.5  | Transverse section:             | Slightly ridged    |
| 6.7.6  | Fruit apex:                     | Lengthily pointed  |
| 6.7.7  | Flower relicts:                 | Persistent style   |
| 6.7.12 | Immature fruit peel color:      | Light Green        |
| 6.7.18 | Pulp color before maturity:     | White              |
| 6.7.13 | Mature fruit peel color:        | Yellow             |
| 6.7.14 | Fruit peel thickness:           | Two or less        |
| 6.7.15 | Fruit peel adherence:           | Fruit peels easily |
| 6.7.16 | Cracks in fruit peel:           | Cracked            |
| 6.7.17 | Pulp in fruit:                  | With pulp          |
| 6.7.19 | Pulp color at maturity:         | White              |
| 6.7.20 | Fruits fall:                    | Persistent         |
| 6.7.21 | Flesh texture:                  | Firm               |
| 6.7.22 | Fruit taste:                    | Sweet              |
| 6.7.23 | Prescense of seed:              | Not present        |
| 6.7.24 | Seed surface:                   | -                  |
| 6.7.25 | Seed shape:                     | -                  |



Ripe Fruit



Fruit - Third Hand



| GENETIC (SSR) |         |     |     |
|---------------|---------|-----|-----|
| MARKER        | ALLELES |     |     |
| mMaCIR01      | 226     | 255 | -   |
| mMaCIR03      | 103     | 105 | -   |
| mMACIR07      | 128     | 139 | -   |
| mMACIR08      | 237     | 245 | -   |
| mMACIR13      | 261     | 263 | -   |
| mMACIR24      | 228     | -   | -   |
| mMACIR27      | 217     | 223 | -   |
| mMACIR39      | 309     | 315 | 323 |
| mMACIR40      | 158     | 163 | 178 |
| mMACIR45      | 266     | 269 | -   |
| mMACIR150     | 237     | -   | -   |
| mMACIR152     | 147     | 149 | -   |
| mMACIR164     | 278     | 378 | -   |
| mMACIR196     | 149     | 162 | -   |
| mMACIR214     | 100     | 103 | -   |
| mMACIR231     | 224     | 234 | 258 |
| mMACIR260     | 190     | 192 | -   |
| mMACIR264     | 234     | 249 | -   |
| mMACIR307     | 143     | 145 | -   |
| Ma 1-32       | 228     | -   | -   |
| Ma 3-90       | 135     | 149 | -   |

## PASSPORT

### TAXONOMY

|   |                               |
|---|-------------------------------|
| Genus:                                    | <i>Musa</i>                   |
| Species/Group:                            | AAA                           |
| Subspecies/Subgroup:                      | Rio                           |
| <i>Musa</i> sect. <i>Musa</i> (Häkkinen): | <i>Musa</i> ( <i>Eumusa</i> ) |

### GENERAL

|           |                                  |
|-----------|----------------------------------|
| Synonyms: | -                                |
| Status:   | Traditional cultivar or landrace |
| Origin:   | -                                |
| ITC code: | ITC0277                          |
| Donor:    | CIRAD, 1988                      |



DESCRIPTORS



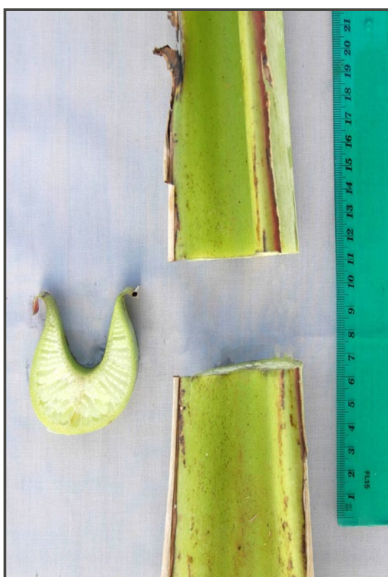
Pseudostem



Plant



Neck



Petiole



Petiole

PLANT

|        |                         |                               |
|--------|-------------------------|-------------------------------|
| 7.3    | Planting to shooting:   | 194 days                      |
| 7.15   | Leaves at flowering:    | 13.0                          |
| 7.5    | Plant crop cycle:       | 277 days                      |
| 7.16   | Leaves at harvest:      | 10.8                          |
| 6.3.22 | Cigar leaf color:       | Medium Green                  |
| 7.6    | Pseudostem height:      | 2.65 m                        |
| 7.7    | Pseudostem diameter:    | 15.8 cm                       |
| 6.2.3  | Pseudostem color:       | Green Yellow                  |
| 6.2.5  | Underlying color:       | Light Green                   |
| 6.2.6  | Pigmentation:           | Pink Purple                   |
| 6.2.7  | Sap color:              | Watery                        |
| 7.8    | Height of ratoon:       | 1.99 m                        |
| 6.2.10 | Development of suckers: | Between 1/4 and 3/4 of parent |
| 6.2.11 | Position of suckers:    | Close (growing vertically)    |

PETIOLE & LEAVES

|          |                               |                               |
|----------|-------------------------------|-------------------------------|
| 6.1.1    | Leaf habit:                   | Intermediate                  |
| 6.1.2    | Dwarfism:                     | Normal                        |
| 6.3.1    | Blotches at the petiole base: | Large                         |
| 6.3.2    | Blotches color:               | Black-purple                  |
| 6.3.3    | Petiole canal:                | Open with margins spreading   |
| 6.3.4    | Petiole margins:              | Winged and clasping           |
| 6.3.5    | Wing type:                    | Not dry                       |
| 6.3.6    | Petiole margin color:         | Pink Purple                   |
| 6.3.11   | Petiole length:               | ≤50 cm                        |
| 6.3.7    | Rim color:                    | Red Purple                    |
| 6.3.9    | Leaf blade length:            | 250.3 cm                      |
| 6.3.10   | Leaf blade width:             | 92.0 cm                       |
| 6.3.10.1 | Leaf ratio:                   | 2.7                           |
| 6.3.12   | Leaf upper surface:           | Green                         |
| 6.3.13   | Upper appearance:             | Shiny                         |
| 6.3.14   | Leaf lower surface:           | Green                         |
| 6.3.15   | Lower appearance:             | Dull                          |
| 6.3.16   | Wax on leaves:                | Very little/not visible       |
| 6.3.17   | Insertion point of blades:    | Asymmetric                    |
| 6.3.18   | Blade base:                   | One side rounded, one pointed |
| 6.3.19   | Corrugation:                  | Few stripes                   |
| 6.3.20   | Midrib dorsal color:          | Medium Green                  |
| 6.3.21   | Midrib ventral color:         | Light Green                   |



### BUNCH

|        |                    |   |
|--------|--------------------|---|
| 6.4.6  | Bunch position:    | Slightly angled                                       |
| 6.4.7  | Bunch shape:       | Short cylinder  |
| 6.4.8  | Bunch appearance:  | Very compact  |
| 6.4.10 | Fruit positioning: | Biseriate   |
| 6.4.11 | Rachis type:       | Present   |
| 6.4.12 | Rachis position:   | Falling vertically, with a curve                      |
| 6.4.13 | Rachis appearance: | Neutral flowers near the bunch, rest of stalk is bare |
| 7.9    | Bunch weight:      | 9.18 kg   |
| 6.7.1  | Fruit position:    | Curved upward, perpendicular to the stalk             |
| 7.10   | Number of hands:   | 5.3   |
| 7.11   | Number of fruits:  | 74.8  |



Bunch



Bunch & Rachis

### PEDUNCLE

|       |                  |          |
|-------|------------------|----------|
| 6.4.1 | Peduncle length: | 31-60 cm |
| 6.4.2 | Empty nodes:     | 1        |
| 6.4.3 | Peduncle width:  | 7-12 cm  |
| 6.4.4 | Peduncle color:  | Green    |
| 6.4.5 | Hairiness:       | Hairless |



Peduncle



Male Bud

### MALE BUD

|        |                               |  |
|--------|-------------------------------|--|
| 6.6.1  | Flower behaviour:             | Falling after bract                    |
| 6.4.14 | Bud type:                     | Normal                                 |
| 6.4.15 | Bud shape:                    | Rounded                                |
| 6.4.16 | Bud size:                     | 18.9 cm                                |
| 6.5.2  | Bract apex shape:             | Intermediate                           |
| 6.5.3  | Bract imbrication:            | Young bracts slightly overlap          |
| 6.5.4  | Color of bract external face: | Purple Brown                           |
| 6.5.5  | Color of bract internal face: | Orange Red                             |
| 6.5.6  | Apex color:                   | Not tinted with yellow                 |
| 6.5.7  | Color stripes:                | Both with and without discolored lines |
| 6.5.9  | Base fading:                  | Color discontinuing towards the base   |
| 6.5.10 | Bract shape:                  | 0.29                                   |
| 6.5.11 | Lifting:                      | One at time                            |
| 6.5.12 | Behaviour:                    | Revolute                               |
| 6.5.13 | Wax:                          | Very little/not visible                |
| 6.5.14 | Grooves:                      | Few or not grooved                     |



Opened Bract



Bract Shape



DESCRIPTORS

FLOWER

|        |                             |                              |
|--------|-----------------------------|------------------------------|
| 6.6.2  | Compound tepal basic color: | White                        |
| 6.6.3  | Pigmentation:               | None                         |
| 6.6.4  | Lobe color:                 | Bright Yellow                |
| 6.6.5  | Lobe development:           | Very developed               |
| 6.6.6  | Free tepal color:           | Translucent White            |
| 6.6.7  | Free tepal shape:           | Rectangular                  |
| 6.6.8  | Appearance:                 | Simple folding under apex    |
| 6.6.9  | Apex development:           | Developed                    |
| 6.6.10 | Apex shape:                 | Rectangular                  |
| 6.6.11 | Anther exsertion:           | Same level                   |
| 6.6.12 | Filament color:             | White                        |
| 6.6.13 | Anther color:               | Yellow                       |
| 6.6.14 | Pollen sac color:           | Ivory                        |
| 6.6.16 | Style basic color:          | White                        |
| 6.6.18 | Style exsertion:            | Exserted                     |
| 6.6.19 | Style shape:                | Straight, curved at the base |
| 6.6.20 | Stigma color:               | Bright Yellow                |
| 6.6.21 | Ovary shape:                | Arched                       |
| 6.6.22 | Ovary basic color:          | White, Yellow                |
| 6.6.23 | Ovary pigmentation:         | With Red Purple              |
| 6.6.24 | Flower dominant color:      | Yellow                       |
| 6.6.25 | Irregular flowers:          | 0.0                          |

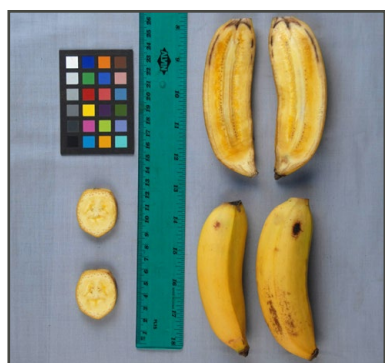


Flower

Pistil/Stamen

HANDS & FRUITS

|        |                                 |                          |
|--------|---------------------------------|--------------------------|
| 7.12   | Exterior middle fruit length:   | 16.2 cm                  |
| 7.13   | Exterior middle fruit diameter: | 27.5 cm                  |
| 6.7.3  | Interior middle fruit length:   | 14.8 cm                  |
| 6.7.8  | Fruit pedicel length:           | 11 to 20 mm              |
| 6.7.9  | Fruit pedicel width:            | >10 mm                   |
| 6.7.10 | Pedicel surface:                | Hairy                    |
| 6.7.11 | Fusion:                         | Very partial/not visible |
| 6.7.4  | Fruit shape:                    | Straight                 |
| 6.7.5  | Transverse section:             | Slightly ridged          |
| 6.7.6  | Fruit apex:                     | Blunt-tipped             |
| 6.7.7  | Flower relicts:                 | Persistent style         |
| 6.7.12 | Immature fruit peel color:      | Light Green              |
| 6.7.18 | Pulp color before maturity:     | Cream                    |
| 6.7.13 | Mature fruit peel color:        | Yellow                   |
| 6.7.14 | Fruit peel thickness:           | Three or more            |
| 6.7.15 | Fruit peel adherence:           | Fruit peels easily       |
| 6.7.16 | Cracks in fruit peel:           | Without cracks           |
| 6.7.17 | Pulp in fruit:                  | With pulp                |
| 6.7.19 | Pulp color at maturity:         | Yellow                   |
| 6.7.20 | Fruits fall:                    | Persistent               |
| 6.7.21 | Flesh texture:                  | Firm                     |
| 6.7.22 | Fruit taste:                    | Sugary                   |
| 6.7.23 | Prescense of seed:              | Not present              |
| 6.7.24 | Seed surface:                   | -                        |
| 6.7.25 | Seed shape:                     | -                        |



Ripe Fruit



Fruit - Third Hand

# Pisang Berangan

PISANG BERANGAN - AAA



## GENETIC (SSR)

| MARKER    | ALLELES |     |     |
|-----------|---------|-----|-----|
| mMaCIR01  | 230     | 232 | 234 |
| mMaCIR03  | 99      | 101 | 103 |
| mMACIR07  | 139     | 150 | 156 |
| mMACIR08  | 241     | 245 | -   |
| mMACIR13  | 251     | 277 | -   |
| mMACIR24  | 218     | 228 | -   |
| mMACIR27  | 220     | 227 | 228 |
| mMACIR39  | 311     | 315 | -   |
| mMACIR40  | 158     | 163 | 164 |
| mMACIR45  | 266     | 269 | -   |
| mMACIR150 | 237     | 239 | -   |
| mMACIR152 | 145     | 147 | -   |
| mMACIR164 | 387     | -   | -   |
| mMACIR196 | 145     | -   | -   |
| mMACIR214 | 100     | 103 | 107 |
| mMACIR231 | 226     | 232 | 256 |
| mMACIR260 | 190     | 192 | -   |
| mMACIR264 | 232     | 249 | -   |
| mMACIR307 | 141     | 143 | 145 |
| Ma 1-32   | 216     | 218 | -   |
| Ma 3-90   | 142     | 147 | 155 |

## PASSPORT

### TAXONOMY

|   |                                 |
|---|---------------------------------|
| Genus:                                    | <i>Musa</i>                     |
| Species/Group:                            | AAA                             |
| Subspecies/Subgroup:                      | Philippine Lacatan/<br>Sgr. 555 |
| <i>Musa</i> sect. <i>Musa</i> (Häkkinen): | <i>Musa</i> ( <i>Eumusa</i> )   |

### GENERAL

|           |                                  |
|-----------|----------------------------------|
| Synonyms: | -                                |
| Status:   | Traditional cultivar or landrace |
| Origin:   | Indonesia                        |
| ITC code: | ITC1287                          |
| Donor:    | United Plantations, 1993         |



## DESCRIPTORS



Pseudostem



Plant



Neck



Petiole



Petiole

## PLANT

|        |                         |                               |
|--------|-------------------------|-------------------------------|
| 7.3    | Planting to shooting:   | 349 days                      |
| 7.15   | Leaves at flowering:    | 11                            |
| 7.5    | Plant crop cycle:       | 437 days                      |
| 7.16   | Leaves at harvest:      | 7.5                           |
| 6.3.22 | Cigar leaf color:       | Light Green                   |
| 7.6    | Pseudostem height:      | 3.35 m                        |
| 7.7    | Pseudostem diameter:    | 19.5 cm                       |
| 6.2.3  | Pseudostem color:       | Medium Green                  |
| 6.2.5  | Underlying color:       | Green Yellow                  |
| 6.2.6  | Pigmentation:           | Pink Purple                   |
| 6.2.7  | Sap color:              | Milky                         |
| 7.8    | Height of ratoon:       | 2.46 m                        |
| 6.2.10 | Development of suckers: | Between 1/4 and 3/4 of parent |
| 6.2.11 | Position of suckers:    | Close (growing vertically)    |

## PETIOLE & LEAVES

|          |                               |                               |
|----------|-------------------------------|-------------------------------|
| 6.1.1    | Leaf habit:                   | Erect                         |
| 6.1.2    | Dwarfism:                     | Normal                        |
| 6.3.1    | Blotches at the petiole base: | Small                         |
| 6.3.2    | Blotches color:               | Dark brown                    |
| 6.3.3    | Petiole canal:                | Open with margins spreading   |
| 6.3.4    | Petiole margins:              | Winged and clasping           |
| 6.3.5    | Wing type:                    | Dry                           |
| 6.3.6    | Petiole margin color:         | Medium Green                  |
| 6.3.11   | Petiole length:               | ≤50 cm                        |
| 6.3.7    | Rim color:                    | None                          |
| 6.3.9    | Leaf blade length:            | 295.0 cm                      |
| 6.3.10   | Leaf blade width:             | 87.0 cm                       |
| 6.3.10.1 | Leaf ratio:                   | 3.4                           |
| 6.3.12   | Leaf upper surface:           | Dark Green                    |
| 6.3.13   | Upper appearance:             | Shiny                         |
| 6.3.14   | Leaf lower surface:           | Green                         |
| 6.3.15   | Lower appearance:             | Shiny                         |
| 6.3.16   | Wax on leaves:                | Few wax                       |
| 6.3.17   | Insertion point of blades:    | Asymmetric                    |
| 6.3.18   | Blade base:                   | One side rounded, one pointed |
| 6.3.19   | Corrugation:                  | Even, smooth                  |
| 6.3.20   | Midrib dorsal color:          | Light Green                   |
| 6.3.21   | Midrib ventral color:         | Medium Green                  |



# Pisang Berangan

## DESCRIPTORS

### BUNCH

|        |                    |                    |
|--------|--------------------|--------------------|
| 6.4.6  | Bunch position:    | Hanging vertically |
| 6.4.7  | Bunch shape:       | Cylindrical        |
| 6.4.8  | Bunch appearance:  | Lax                |
| 6.4.10 | Fruit positioning: | Biseriate          |
| 6.4.11 | Rachis type:       | Present            |
| 6.4.12 | Rachis position:   | Falling vertically |
| 6.4.13 | Rachis appearance: | Bare               |
| 7.9    | Bunch weight:      | 12.23 kg           |
| 6.7.1  | Fruit position:    | Curved upward      |
| 7.10   | Number of hands:   | 7.0                |
| 7.11   | Number of fruits:  | 144.0              |



Bunch



Bunch & Rachis

### PEDUNCLE

|       |                  |                         |
|-------|------------------|-------------------------|
| 6.4.1 | Peduncle length: | ≤30 cm                  |
| 6.4.2 | Empty nodes:     | 2                       |
| 6.4.3 | Peduncle width:  | 7-12 cm                 |
| 6.4.4 | Peduncle color:  | Medium Green            |
| 6.4.5 | Hairiness:       | Very hairy, short hairs |



Peduncle



Male Bud

### MALE BUD

|        |                               |                                      |
|--------|-------------------------------|--------------------------------------|
| 6.6.1  | Flower behaviour:             | Falling with bract                   |
| 6.4.14 | Bud type:                     | Normal                               |
| 6.4.15 | Bud shape:                    | Rounded                              |
| 6.4.16 | Bud size:                     | 17.8 cm                              |
| 6.5.2  | Bract apex shape:             | Intermediate                         |
| 6.5.3  | Bract imbrication:            | Old bracts overlap at apex of bud    |
| 6.5.4  | Color of bract external face: | Purple Brown                         |
| 6.5.5  | Color of bract internal face: | Orange Red                           |
| 6.5.6  | Apex color:                   | Not tinted with yellow               |
| 6.5.7  | Color stripes:                | With discolored lines                |
| 6.5.9  | Base fading:                  | Color discontinuing towards the base |
| 6.5.10 | Bract shape:                  | 0.33                                 |
| 6.5.11 | Lifting:                      | One at a time                        |
| 6.5.12 | Behaviour:                    | Revolvute                            |
| 6.5.13 | Wax:                          | Very little/not visible              |
| 6.5.14 | Grooves:                      | Few or not grooved                   |



Opened Bract



Bract Shape



## DESCRIPTORS

### FLOWER

|        |                             |                           |
|--------|-----------------------------|---------------------------|
| 6.6.2  | Compound tepal basic color: | Cream                     |
| 6.6.3  | Pigmentation:               | None                      |
| 6.6.4  | Lobe color:                 | Yellow                    |
| 6.6.5  | Lobe development:           | Developed                 |
| 6.6.6  | Free tepal color:           | Translucent white         |
| 6.6.7  | Free tepal shape:           | Rectangular               |
| 6.6.8  | Appearance:                 | Simple folding under apex |
| 6.6.9  | Apex development:           | Little/not visible        |
| 6.6.10 | Apex shape:                 | Thread-like               |
| 6.6.11 | Anther exertion:            | Same level                |
| 6.6.12 | Filament color:             | Cream/Grey                |
| 6.6.13 | Anther color:               | Cream                     |
| 6.6.14 | Pollen sac color:           | Beige Pink                |
| 6.6.16 | Style basic color:          | Cream/Grey                |
| 6.6.18 | Style exertion:             | Exserted                  |
| 6.6.19 | Style shape:                | Straight                  |
| 6.6.20 | Stigma color:               | Black Charcoal            |
| 6.6.21 | Ovary shape:                | Arched                    |
| 6.6.22 | Ovary basic color:          | White                     |
| 6.6.23 | Ovary pigmentation:         | Very few/not visible      |
| 6.6.24 | Flower dominant color:      | Cream                     |
| 6.6.25 | Irregular flowers:          | 0.0                       |



Flower

Pistil/Stamen

### HANDS & FRUITS

|        |                                 |                            |
|--------|---------------------------------|----------------------------|
| 7.12   | Exterior middle fruit length:   | 15.0 cm                    |
| 7.13   | Exterior middle fruit diameter: | 27.9 cm                    |
| 6.7.3  | Interior middle fruit length:   | 13.7 cm                    |
| 6.7.8  | Fruit pedicel length:           | 11 to 20 mm                |
| 6.7.9  | Fruit pedicel width:            | -                          |
| 6.7.10 | Pedicel surface:                | Hairless                   |
| 6.7.11 | Fusion:                         | Very partial/not visible   |
| 6.7.4  | Fruit shape:                    | Straight                   |
| 6.7.5  | Transverse section:             | -                          |
| 6.7.6  | Fruit apex:                     | Pointed                    |
| 6.7.7  | Flower relicts:                 | Without any floral relicts |
| 6.7.12 | Immature fruit peel color:      | Light Green                |
| 6.7.18 | Pulp color before maturity:     | White                      |
| 6.7.13 | Mature fruit peel color:        | -                          |
| 6.7.14 | Fruit peel thickness:           | -                          |
| 6.7.15 | Fruit peel adherence:           | -                          |
| 6.7.16 | Cracks in fruit peel:           | -                          |
| 6.7.17 | Pulp in fruit:                  | -                          |
| 6.7.19 | Pulp color at maturity:         | -                          |
| 6.7.20 | Fruits fall:                    | -                          |
| 6.7.21 | Flesh texture:                  | -                          |
| 6.7.22 | Fruit taste:                    | -                          |
| 6.7.23 | Prescense of seed:              | -                          |
| 6.7.24 | Seed surface:                   | -                          |
| 6.7.25 | Seed shape:                     | -                          |



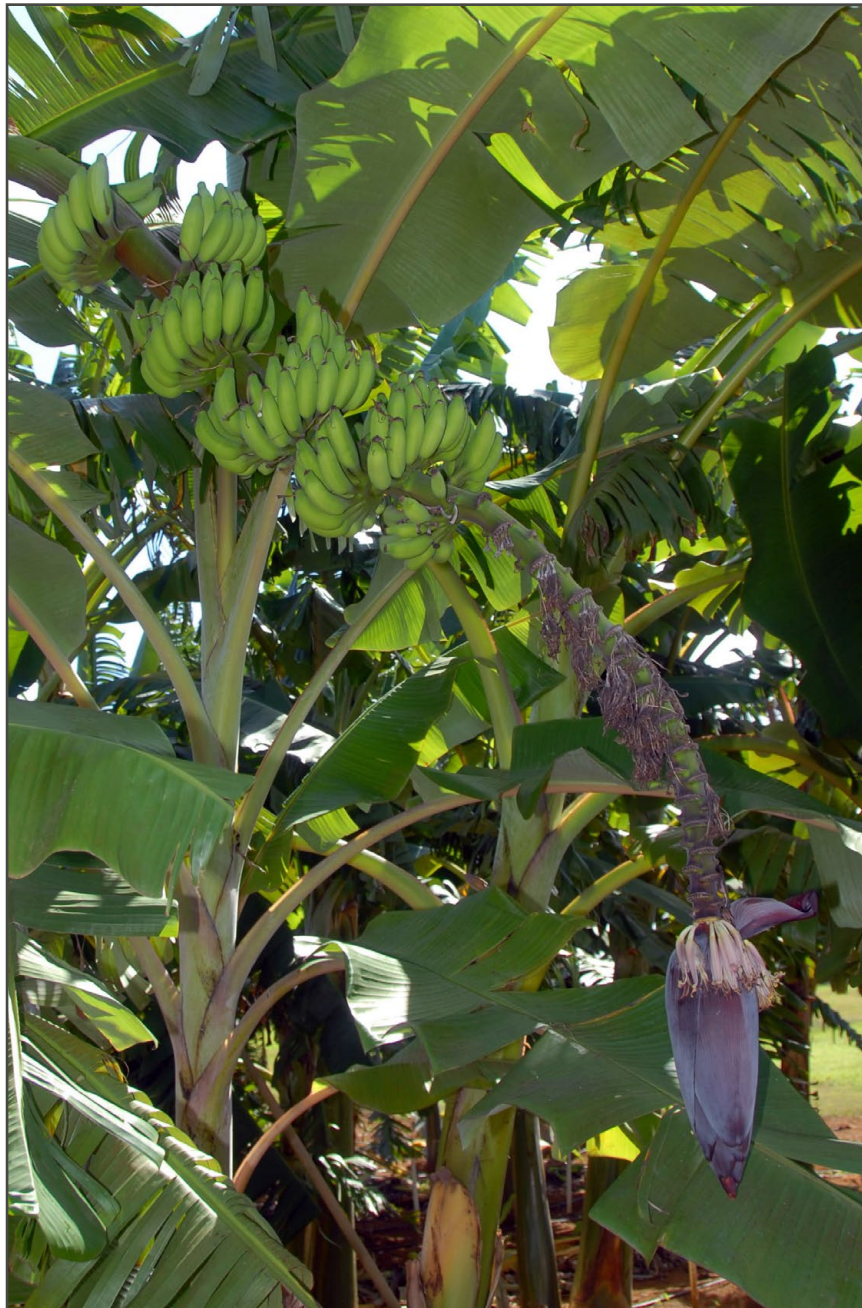
Ripe Fruit



Fruit - Third Hand

# Safet Velchi

SAFET VELCHI - AB



## GENETIC (SSR)

| MARKER    | ALLELES |     |   |
|-----------|---------|-----|---|
| mMaCIR01  | 236     | -   | - |
| mMaCIR03  | 100     | 103 | - |
| mMACIR07  | 145     | 151 | - |
| mMACIR08  | 245     | -   | - |
| mMACIR13  | 251     | 265 | - |
| mMACIR24  | 220     | 238 | - |
| mMACIR27  | 217     | 223 | - |
| mMACIR39  | 315     | 336 | - |
| mMACIR40  | 160     | 181 | - |
| mMACIR45  | 257     | 260 | - |
| mMACIR150 | 237     | 243 | - |
| mMACIR152 | 141     | 160 | - |
| mMACIR164 | 278     | 380 | - |
| mMACIR196 | 145     | 163 | - |
| mMACIR214 | 100     | 105 | - |
| mMACIR231 | 224     | 230 | - |
| mMACIR260 | 192     | -   | - |
| mMACIR264 | 224     | 227 | - |
| mMACIR307 | 143     | 149 | - |
| Ma 1-32   | 221     | 241 | - |
| Ma 3-90   | 131     | 149 | - |

## PASSPORT

### TAXONOMY

|   |                               |
|---|-------------------------------|
| Genus:                                    | <i>Musa</i>                   |
| Species/Group:                            | AB                            |
| Subspecies/Subgroup:                      | Ney Poovan                    |
| <i>Musa</i> sect. <i>Musa</i> (Häkkinen): | <i>Musa</i> ( <i>Eumusa</i> ) |

### GENERAL

|           |                                  |
|-----------|----------------------------------|
| Synonyms: | -                                |
| Status:   | Traditional cultivar or landrace |
| Origin:   | India                            |
| ITC code: | ITC0245                          |
| Donor:    | CIRAD, 1987                      |



## DESCRIPTORS



Pseudostem



Plant



Neck



Petiole



Petiole

## PLANT

|        |                         |                              |
|--------|-------------------------|------------------------------|
| 7.3    | Planting to shooting:   | 191 days                     |
| 7.15   | Leaves at flowering:    | 17.5                         |
| 7.5    | Plant crop cycle:       | 275 days                     |
| 7.16   | Leaves at harvest       | 13.0                         |
| 6.3.22 | Cigar leaf color:       | Light Green                  |
| 7.6    | Pseudostem height:      | 2.94 m                       |
| 7.7    | Pseudostem diameter:    | 13.6 cm                      |
| 6.2.3  | Pseudostem color:       | Medium Green                 |
| 6.2.5  | Underlying color:       | Medium Green                 |
| 6.2.6  | Pigmentation:           | None                         |
| 6.2.7  | Sap color:              | Milky                        |
| 7.8    | Height of ratoon:       | 2.80 m                       |
| 6.2.10 | Development of suckers: | More than 3/4 of parent size |
| 6.2.11 | Position of suckers:    | Close (growing vertically)   |

## PETIOLE & LEAVES

|          |                               |                         |
|----------|-------------------------------|-------------------------|
| 6.1.1    | Leaf habit:                   | Intermediate            |
| 6.1.2    | Dwarfism:                     | Normal                  |
| 6.3.1    | Blotches at the petiole base: | Without pigmentation    |
| 6.3.2    | Blotches color:               | Dark brown              |
| 6.3.3    | Petiole canal:                | Straight Erect          |
| 6.3.4    | Petiole margins:              | Not winged and clasping |
| 6.3.5    | Wing type:                    | -                       |
| 6.3.6    | Petiole margin color:         | Medium Green            |
| 6.3.11   | Petiole length:               | 51 to 70 cm             |
| 6.3.7    | Rim color:                    | Pink Purple             |
| 6.3.9    | Leaf blade length:            | 234.7 cm                |
| 6.3.10   | Leaf blade width:             | 69.7 cm                 |
| 6.3.10.1 | Leaf ratio:                   | 3.4                     |
| 6.3.12   | Leaf upper surface:           | Green                   |
| 6.3.13   | Upper appearance:             | Shiny                   |
| 6.3.14   | Leaf lower surface:           | Green                   |
| 6.3.15   | Lower appearance:             | Dull                    |
| 6.3.16   | Wax on leaves:                | Very waxy               |
| 6.3.17   | Insertion point of blades:    | Asymmetric              |
| 6.3.18   | Blade base:                   | Both sides rounded      |
| 6.3.19   | Corrugation:                  | Few stripes             |
| 6.3.20   | Midrib dorsal color:          | Light Green             |
| 6.3.21   | Midrib ventral color:         | Medium Green            |



### BUNCH

|        |                    |   |
|--------|--------------------|---|
| 6.4.6  | Bunch position:    | Hanging at 45 degrees                                 |
| 6.4.7  | Bunch shape:       | With a curve in the bunch axis                        |
| 6.4.8  | Bunch appearance:  | Compact   |
| 6.4.10 | Fruit positioning: | Biseriate   |
| 6.4.11 | Rachis type:       | Present   |
| 6.4.12 | Rachis position:   | Falling vertically                                    |
| 6.4.13 | Rachis appearance: | Neutral flowers near the bunch, rest of stalk is bare |
| 7.9    | Bunch weight:      | 8.63 kg   |
| 6.7.1  | Fruit position:    | Curved upward   |
| 7.10   | Number of hands:   | 11.3  |
| 7.11   | Number of fruits:  | 161.0   |



Bunch



Bunch & Rachis

### PEDUNCLE

|       |                  |           |
|-------|------------------|-----------|
| 6.4.1 | Peduncle length: | ≤30 cm    |
| 6.4.2 | Empty nodes:     | 1         |
| 6.4.3 | Peduncle width:  | 7 - 12 cm |
| 6.4.4 | Peduncle color:  | Green     |
| 6.4.5 | Hairiness:       | Hairless  |



Peduncle



Male Bud

### MALE BUD

|        |                               |                          |
|--------|-------------------------------|--------------------------|
| 6.6.1  | Flower behaviour:             | Falling after bract      |
| 6.4.14 | Bud type:                     | Normal                   |
| 6.4.15 | Bud shape:                    | Lanceolate               |
| 6.4.16 | Bud size:                     | 24.3 cm                  |
| 6.5.2  | Bract apex shape:             | Intermediate             |
| 6.5.3  | Bract imbrication:            | Slightly pointed         |
| 6.5.4  | Color of bract external face: | Purple                   |
| 6.5.5  | Color of bract internal face: | Red                      |
| 6.5.6  | Apex color:                   | Not tinted with yellow   |
| 6.5.7  | Color stripes:                | Without discolored lines |
| 6.5.9  | Base fading:                  | Color homogeneous        |
| 6.5.10 | Bract shape:                  | 0.38                     |
| 6.5.11 | Lifting:                      | One at a time            |
| 6.5.12 | Behaviour:                    | Revolute                 |
| 6.5.13 | Wax:                          | Very waxy                |
| 6.5.14 | Grooves:                      | Strongly grooved         |



Opened Bract



Bract Shape



## DESCRIPTORS

### FLOWER

|        |                             |                           |
|--------|-----------------------------|---------------------------|
| 6.6.2  | Compound tepal basic color: | Cream                     |
| 6.6.3  | Pigmentation:               | Pink Purple               |
| 6.6.4  | Lobe color:                 | Yellow                    |
| 6.6.5  | Lobe development:           | Developed                 |
| 6.6.6  | Free tepal color:           | Tinted with pink          |
| 6.6.7  | Free tepal shape:           | Oval                      |
| 6.6.8  | Appearance:                 | Simple folding under apex |
| 6.6.9  | Apex development:           | Very developed            |
| 6.6.10 | Apex shape:                 | Thread-like               |
| 6.6.11 | Anther exertion:            | Same level                |
| 6.6.12 | Filament color:             | Yellow                    |
| 6.6.13 | Anther color:               | Yellow                    |
| 6.6.14 | Pollen sac color:           | Yellow                    |
| 6.6.16 | Style basic color:          | White                     |
| 6.6.18 | Style exertion:             | Exserted                  |
| 6.6.19 | Style shape:                | Curved at the base        |
| 6.6.20 | Stigma color:               | Yellow                    |
| 6.6.21 | Ovary shape:                | Arched                    |
| 6.6.22 | Ovary basic color:          | Cream                     |
| 6.6.23 | Ovary pigmentation:         | With Red Purple           |
| 6.6.24 | Flower dominant color:      | Pink Purple               |
| 6.6.25 | Irregular flowers:          | 7.7                       |



Flower

Pistil/Stamen

### HANDS & FRUITS

|        |                                 |                            |
|--------|---------------------------------|----------------------------|
| 7.12   | Exterior middle fruit length:   | 11.5                       |
| 7.13   | Exterior middle fruit diameter: | 28.8                       |
| 6.7.3  | Interior middle fruit length:   | 11.0                       |
| 6.7.8  | Fruit pedicel length:           | ≥21 mm                     |
| 6.7.9  | Fruit pedicel width:            | 5 to 10 mm                 |
| 6.7.10 | Pedicel surface:                | Hairless                   |
| 6.7.11 | Fusion:                         | Very partial/not visible   |
| 6.7.4  | Fruit shape:                    | Straight                   |
| 6.7.5  | Transverse section:             | Rounded                    |
| 6.7.6  | Fruit apex:                     | Blunt-tipped               |
| 6.7.7  | Flower relicts:                 | Without any floral relicts |
| 6.7.12 | Immature fruit peel color:      | Light Green                |
| 6.7.18 | Pulp color before maturity:     | Cream                      |
| 6.7.13 | Mature fruit peel color:        | Yellow                     |
| 6.7.14 | Fruit peel thickness:           | Two or less                |
| 6.7.15 | Fruit peel adherence:           | Fruit peels easily         |
| 6.7.16 | Cracks in fruit peel:           | Without cracks             |
| 6.7.17 | Pulp in fruit:                  | With pulp                  |
| 6.7.19 | Pulp color at maturity:         | White                      |
| 6.7.20 | Fruits fall:                    | Persistent                 |
| 6.7.21 | Flesh texture:                  | Firm                       |
| 6.7.22 | Fruit taste:                    | Sweet and acidic           |
| 6.7.23 | Prescense of seed:              | Not present                |
| 6.7.24 | Seed surface:                   | -                          |
| 6.7.25 | Seed shape:                     | -                          |



Ripe Fruit



Fruit - Third Hand

# Uzakan



UZAKAN - AAB

## GENETIC (SSR)

| MARKER    | ALLELES |     |     |
|-----------|---------|-----|-----|
| mMaCIR01  | 248     | 279 | -   |
| mMaCIR03  | 101     | 106 | -   |
| mMACIR07  | 139     | 152 | -   |
| mMACIR08  | 241     | -   | -   |
| mMACIR13  | 246     | 265 | 284 |
| mMACIR24  | 220     | 228 | -   |
| mMACIR27  | 217     | -   | -   |
| mMACIR39  | 315     | 336 | -   |
| mMACIR40  | 162     | 164 | -   |
| mMACIR45  | 266     | 269 | -   |
| mMACIR150 | 243     | -   | -   |
| mMACIR152 | 141     | 176 | -   |
| mMACIR164 | 294     | 386 | -   |
| mMACIR196 | 145     | 159 | 162 |
| mMACIR214 | 103     | 105 | -   |
| mMACIR231 | 226     | 230 | 242 |
| mMACIR260 | 188     | 190 | 192 |
| mMACIR264 | 224     | 245 | 249 |
| mMACIR307 | 145     | 149 | -   |
| Ma 1-32   | 221     | 227 | -   |
| Ma 3-90   | 131     | 142 | -   |

## PASSPORT

### TAXONOMY

|   |                               |
|---|-------------------------------|
| Genus:                                    | <i>Musa</i>                   |
| Species/Group:                            | AAB                           |
| Subspecies/Subgroup:                      | Iholena                       |
| <i>Musa</i> sect. <i>Musa</i> (Häkkinen): | <i>Musa</i> ( <i>Eumusa</i> ) |

### GENERAL

|           |                                  |
|-----------|----------------------------------|
| Synonyms: | -                                |
| Status:   | Traditional cultivar or landrace |
| Origin:   | Papua New Guinea                 |
| ITC code: | ITC0825                          |
| Donor:    | QDPI Brisbane, 1990              |



DESCRIPTORS



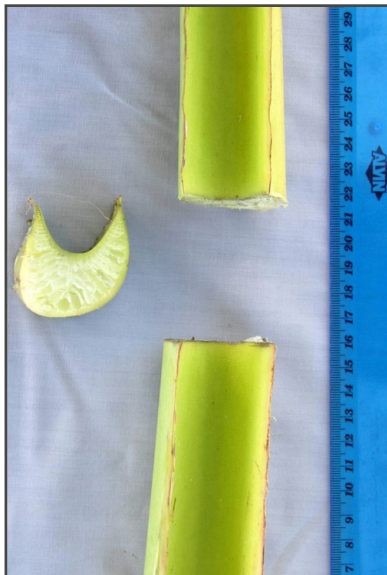
Pseudostem



Plant



Neck



Petiole



Petiole

PLANT

|        |                         |                                  |
|--------|-------------------------|----------------------------------|
| 7.3    | Planting to shooting:   | 210 days                         |
| 7.15   | Leaves at flowering:    | 20                               |
| 7.5    | Plant crop cycle:       | 268 days                         |
| 7.16   | Leaves at harvest:      | 13.5                             |
| 6.3.22 | Cigar leaf color:       | Purple Brown                     |
| 7.6    | Pseudostem height:      | 4.11 m                           |
| 7.7    | Pseudostem diameter:    | 20.3 cm                          |
| 6.2.3  | Pseudostem color:       | Green Yellow/<br>Purple Brown    |
| 6.2.5  | Underlying color:       | Light Green                      |
| 6.2.6  | Pigmentation:           | Pink Purple                      |
| 6.2.7  | Sap color:              | Watery                           |
| 7.8    | Height of ratoon:       | 1.88 m                           |
| 6.2.10 | Development of suckers: | Between 1/4 and<br>3/4 of parent |
| 6.2.11 | Position of suckers:    | Close (growing<br>vertically)    |

PETIOLE & LEAVES

|          |                               |                     |
|----------|-------------------------------|---------------------|
| 6.1.1    | Leaf habit:                   | Intermediate        |
| 6.1.2    | Dwarfism:                     | Normal              |
| 6.3.1    | Blotches at the petiole base: | Large               |
| 6.3.2    | Blotches color:               | Dark brown          |
| 6.3.3    | Petiole canal:                | Wide Erect          |
| 6.3.4    | Petiole margins:              | Winged and clasping |
| 6.3.5    | Wing type:                    | Dry                 |
| 6.3.6    | Petiole margin color:         | Light Green         |
| 6.3.11   | Petiole length:               | ≤50 cm              |
| 6.3.7    | Rim color:                    | Pink Purple         |
| 6.3.9    | Leaf blade length:            | 209.0 cm            |
| 6.3.10   | Leaf blade width:             | 62.0 cm             |
| 6.3.10.1 | Leaf ratio:                   | 3.5                 |
| 6.3.12   | Leaf upper surface:           | Green               |
| 6.3.13   | Upper appearance:             | Shiny               |
| 6.3.14   | Leaf lower surface:           | Medium Green        |
| 6.3.15   | Lower appearance:             | Dull                |
| 6.3.16   | Wax on leaves:                | Moderate            |
| 6.3.17   | Insertion point of blades:    | Asymmetric          |
| 6.3.18   | Blade base:                   | Both sides pointed  |
| 6.3.19   | Corrugation:                  | Few stripes         |
| 6.3.20   | Midrib dorsal color:          | Light Green         |
| 6.3.21   | Midrib ventral color:         | Medium Green        |



### BUNCH

|        |                    |                            |
|--------|--------------------|----------------------------|
| 6.4.6  | Bunch position:    | Hanging vertically         |
| 6.4.7  | Bunch shape:       | Short cylinder             |
| 6.4.8  | Bunch appearance:  | Compact                    |
| 6.4.10 | Fruit positioning: | Biseriate                  |
| 6.4.11 | Rachis type:       | Present                    |
| 6.4.12 | Rachis position:   | Falling vertically         |
| 6.4.13 | Rachis appearance: | Bare                       |
| 7.9    | Bunch weight:      | 18.76 kg                   |
| 6.7.1  | Fruit position:    | Perpendicular to the stalk |
| 7.10   | Number of hands:   | 8.5                        |
| 7.11   | Number of fruits:  | 116.3                      |



Bunch



Bunch & Rachis

### PEDUNCLE

|       |                  |                               |
|-------|------------------|-------------------------------|
| 6.4.1 | Peduncle length: | ≥61 cm                        |
| 6.4.2 | Empty nodes:     | 2                             |
| 6.4.3 | Peduncle width:  | ≤6 cm                         |
| 6.4.4 | Peduncle color:  | Medium Green/<br>Purple Brown |
| 6.4.5 | Hairiness:       | Hairless                      |



Peduncle



Male Bud

### MALE BUD

|        |                               |                                       |
|--------|-------------------------------|---------------------------------------|
| 6.6.1  | Flower behavior:              | Falling before bract                  |
| 6.4.14 | Bud type:                     | Degenerating before maturity          |
| 6.4.15 | Bud shape:                    | Lanceolate                            |
| 6.4.16 | Bud size:                     | 13.4 cm                               |
| 6.5.2  | Bract apex shape:             | Pointed                               |
| 6.5.3  | Bract imbrication:            | Old bracts overlap at the apex of bud |
| 6.5.4  | Color of bract external face: | Red Purple                            |
| 6.5.5  | Color of bract internal face: | Orange Red                            |
| 6.5.6  | Apex color:                   | Tinted with yellow                    |
| 6.5.7  | Color stripes:                | Without discoloring lines             |
| 6.5.9  | Base fading:                  | Color homogeneous                     |
| 6.5.10 | Bract shape:                  | 0.29                                  |
| 6.5.11 | Lifting:                      | Two or more at a time                 |
| 6.5.12 | Behavior:                     | Revolvute                             |
| 6.5.13 | Wax:                          | Moderately waxy                       |
| 6.5.14 | Grooves:                      | Strongly grooved                      |



Opened Bract



Bract Shape



DESCRIPTORS

FLOWER

|        |                             |                           |
|--------|-----------------------------|---------------------------|
| 6.6.2  | Compound tepal basic color: | Yellow                    |
| 6.6.3  | Pigmentation:               | None                      |
| 6.6.4  | Lobe color:                 | Bright Yellow             |
| 6.6.5  | Lobe development:           | Very developed            |
| 6.6.6  | Free tepal color:           | Opaque white              |
| 6.6.7  | Free tepal shape:           | Oval                      |
| 6.6.8  | Appearance:                 | Simple folding under apex |
| 6.6.9  | Apex development:           | Little/not visible        |
| 6.6.10 | Apex shape:                 | Thread-like               |
| 6.6.11 | Anther exsertion:           | Same level                |
| 6.6.12 | Filament color:             | White                     |
| 6.6.13 | Anther color:               | Yellow                    |
| 6.6.14 | Pollen sac color:           | Yellow w/Brown            |
| 6.6.16 | Style basic color:          | White                     |
| 6.6.18 | Style exsertion:            | Exserted                  |
| 6.6.19 | Style shape:                | Straight, Curved          |
| 6.6.20 | Stigma color:               | Yellow                    |
| 6.6.21 | Ovary shape:                | Straight                  |
| 6.6.22 | Ovary basic color:          | Yellow                    |
| 6.6.23 | Ovary pigmentation:         | Very few/not visible      |
| 6.6.24 | Flower dominant color:      | Yellow                    |
| 6.6.25 | Irregular flowers:          | 4.5                       |



Flower

Pistil/Stamen

HANDS & FRUITS

|        |                                 |                            |
|--------|---------------------------------|----------------------------|
| 7.12   | Exterior middle fruit length:   | 18.1 cm                    |
| 7.13   | Exterior middle fruit diameter: | 28.3 cm                    |
| 6.7.3  | Interior middle fruit length:   | 18.0 cm                    |
| 6.7.8  | Fruit pedicel length:           | ≥21 mm                     |
| 6.7.9  | Fruit pedicel width:            | 5 to 10 mm                 |
| 6.7.10 | Pedicel surface:                | Hairless                   |
| 6.7.11 | Fusion:                         | Very partial/not visible   |
| 6.7.4  | Fruit shape:                    | Straight                   |
| 6.7.5  | Transverse section:             | Slightly ridged            |
| 6.7.6  | Fruit apex:                     | Bottle-necked              |
| 6.7.7  | Flower relicts:                 | Without any floral relicts |
| 6.7.12 | Immature fruit peel color:      | Yellow                     |
| 6.7.18 | Pulp color before maturity:     | Ivory                      |
| 6.7.13 | Mature fruit peel color:        | Yellow                     |
| 6.7.14 | Fruit peel thickness:           | Two or less                |
| 6.7.15 | Fruit peel adherence:           | Fruit peels easily         |
| 6.7.16 | Cracks in fruit peel:           | Without cracks             |
| 6.7.17 | Pulp in fruit:                  | With pulp                  |
| 6.7.19 | Pulp color at maturity:         | Ivory                      |
| 6.7.20 | Fruits fall:                    | Persistent                 |
| 6.7.21 | Flesh texture:                  | Firm                       |
| 6.7.22 | Fruit taste:                    | Astringent                 |
| 6.7.23 | Prescense of seed:              | Not present                |
| 6.7.24 | Seed surface:                   | -                          |
| 6.7.25 | Seed shape:                     | -                          |



Ripe Fruit



Fruit - Third Hand

# Pisang Ceylan

PISANG CEYLAN - AAB



## GENETIC (SSR)

| MARKER    | ALLELES |     |     |
|-----------|---------|-----|-----|
| mMaCIR01  | 232     | 236 | 273 |
| mMaCIR03  | 100     | 103 | 106 |
| mMACIR07  | 139     | 141 | 169 |
| mMACIR08  | 243     | 245 | -   |
| mMACIR13  | 265     | 269 | 276 |
| mMACIR24  | 220     | 232 | 238 |
| mMACIR27  | 217     | 223 | -   |
| mMACIR39  | 311     | 315 | 336 |
| mMACIR40  | 163     | 181 | -   |
| mMACIR45  | 257     | 266 | -   |
| mMACIR150 | 237     | -   | -   |
| mMACIR152 | 141     | 147 | 163 |
| mMACIR164 | 278     | 380 | -   |
| mMACIR196 | 145     | 159 | -   |
| mMACIR214 | 100     | 105 | 106 |
| mMACIR231 | 224     | 230 | 256 |
| mMACIR260 | 190     | 199 | -   |
| mMACIR264 | 217     | 224 | 227 |
| mMACIR307 | 143     | 149 | -   |
| Ma 1-32   | 216     | 221 | 235 |
| Ma 3-90   | 138     | 149 | -   |

## PASSPORT

### TAXONOMY

|                             |               |
|-----------------------------|---------------|
| Genus:                      | <i>Musa</i>   |
| Species/Group:              | AAB           |
| Subspecies/Subgroup:        | Mysore        |
| Musa sect. Musa (Häkkinen): | Musa (Eumusa) |

### GENERAL

|           |                                  |
|-----------|----------------------------------|
| Synonyms: | -                                |
| Status:   | Traditional cultivar or landrace |
| Origin:   | -                                |
| ITC code: | ITC1441                          |
| Donor:    | CIRAD,1999                       |



## DESCRIPTORS



Pseudostem



Plant



Neck



Petiole



Petiole

## PLANT

|        |                         |                                 |
|--------|-------------------------|---------------------------------|
| 7.3    | Planting to shooting:   | 208 days                        |
| 7.15   | Leaves at flowering:    | 15                              |
| 7.5    | Plant crop cycle:       | 283 days                        |
| 7.16   | Leaves at harvest:      | 10.5                            |
| 6.3.22 | Cigar leaf color:       | Light Green/<br>Purple Brown    |
| 7.6    | Pseudostem height:      | 3.16 m                          |
| 7.7    | Pseudostem diameter:    | 17.6 cm                         |
| 6.2.3  | Pseudostem color:       | Green Yellow                    |
| 6.2.5  | Underlying color:       | Light Green                     |
| 6.2.6  | Pigmentation:           | Purple Brown                    |
| 6.2.7  | Sap color:              | Milky                           |
| 7.8    | Height of ratoon:       | 2.14 m                          |
| 6.2.10 | Development of suckers: | More than 3/4 of<br>parent size |
| 6.2.11 | Position of suckers:    | Close (growing<br>vertically)   |

## PETIOLE & LEAVES

|          |                                  |                            |
|----------|----------------------------------|----------------------------|
| 6.1.1    | Leaf habit:                      | Intermediate               |
| 6.1.2    | Dwarfism:                        | Normal                     |
| 6.3.1    | Blotches at the<br>petiole base: | Sparse blotching           |
| 6.3.2    | Blotches color:                  | Brown-black                |
| 6.3.3    | Petiole canal:                   | Wide Erect                 |
| 6.3.4    | Petiole margins:                 | Winged and clasping        |
| 6.3.5    | Wing type:                       | Not dry                    |
| 6.3.6    | Petiole margin color:            | Green                      |
| 6.3.11   | Petiole length:                  | 51 to 70 cm                |
| 6.3.7    | Rim color:                       | Purple Brown               |
| 6.3.9    | Leaf blade length:               | 271.0 cm                   |
| 6.3.10   | Leaf blade width:                | 93.3 cm                    |
| 6.3.10.1 | Leaf ratio:                      | 2.9                        |
| 6.3.12   | Leaf upper surface:              | Green                      |
| 6.3.13   | Upper appearance:                | Shiny                      |
| 6.3.14   | Leaf lower surface:              | Medium Green               |
| 6.3.15   | Lower appearance:                | Dull                       |
| 6.3.16   | Wax on leaves:                   | Moderate                   |
| 6.3.17   | Insertion point of<br>blades:    | Symmetric                  |
| 6.3.18   | Blade base:                      | Both sides rounded         |
| 6.3.19   | Corrugation:                     | Few stripes                |
| 6.3.20   | Midrib dorsal color:             | Light Green/<br>PinkPurple |
| 6.3.21   | Midrib ventral color:            | Medium Green               |



### BUNCH

|        |                    |                       |
|--------|--------------------|-----------------------|
| 6.4.6  | Bunch position:    | Hanging at 45 degrees |
| 6.4.7  | Bunch shape:       | Cylindrical           |
| 6.4.8  | Bunch appearance:  | Very compact          |
| 6.4.10 | Fruit positioning: | Uniseriate            |
| 6.4.11 | Rachis type:       | Truncated             |
| 6.4.12 | Rachis position:   | Falling vertically    |
| 6.4.13 | Rachis appearance: | Bare                  |
| 7.9    | Bunch weight:      | 10.10 kg              |
| 6.7.1  | Fruit position:    | Curved upward         |
| 7.10   | Number of hands:   | 11.5                  |
| 7.11   | Number of fruits:  | 176.3                 |



Bunch



Bunch & Rachis

### PEDUNCLE

|       |                  |                         |
|-------|------------------|-------------------------|
| 6.4.1 | Peduncle length: | ≥61 cm                  |
| 6.4.2 | Empty nodes:     | 2                       |
| 6.4.3 | Peduncle width:  | 7-12 cm                 |
| 6.4.4 | Peduncle color:  | Green                   |
| 6.4.5 | Hairiness:       | Very hairy, short hairs |



Peduncle



Male Bud

### MALE BUD

|        |                               |                               |
|--------|-------------------------------|-------------------------------|
| 6.6.1  | Flower behavior:              | Falling before bract          |
| 6.4.14 | Bud type:                     | Normal                        |
| 6.4.15 | Bud shape:                    | Intermediate                  |
| 6.4.16 | Bud size:                     | 19.0 cm                       |
| 6.5.2  | Bract apex shape:             | Intermediate                  |
| 6.5.3  | Bract imbrication:            | Young bracts slightly overlap |
| 6.5.4  | Color of bract external face: | Purple                        |
| 6.5.5  | Color of bract internal face: | Red Purple                    |
| 6.5.6  | Apex color:                   | Not tinted with yellow        |
| 6.5.7  | Color stripes:                | Without discolored lines      |
| 6.5.9  | Base fading:                  | Color homogeneous             |
| 6.5.10 | Bract shape:                  | 0.32                          |
| 6.5.11 | Lifting:                      | Two or more at a time         |
| 6.5.12 | Behavior:                     | Revolute                      |
| 6.5.13 | Wax:                          | Very waxy                     |
| 6.5.14 | Grooves:                      | Strongly grooved              |



Opened Bract



Bract Shape



## DESCRIPTORS

### FLOWER

|        |                             |                           |
|--------|-----------------------------|---------------------------|
| 6.6.2  | Compound tepal basic color: | White                     |
| 6.6.3  | Pigmentation:               | Pink Purple               |
| 6.6.4  | Lobe color:                 | Bright Yellow             |
| 6.6.5  | Lobe development:           | Developed                 |
| 6.6.6  | Free tepal color:           | Translucent white         |
| 6.6.7  | Free tepal shape:           | Oval                      |
| 6.6.8  | Appearance:                 | Simple folding under apex |
| 6.6.9  | Apex development:           | Little/not visible        |
| 6.6.10 | Apex shape:                 | Triangular                |
| 6.6.11 | Anther exertion:            | Same level                |
| 6.6.12 | Filament color:             | White                     |
| 6.6.13 | Anther color:               | Yellow                    |
| 6.6.14 | Pollen sac color:           | Yellow                    |
| 6.6.16 | Style basic color:          | White                     |
| 6.6.18 | Style exertion:             | Exserted                  |
| 6.6.19 | Style shape:                | Curved at the base        |
| 6.6.20 | Stigma color:               | Yellow                    |
| 6.6.21 | Ovary shape:                | Arched                    |
| 6.6.22 | Ovary basic color:          | Cream                     |
| 6.6.23 | Ovary pigmentation:         | With Red Purple           |
| 6.6.24 | Flower dominant color:      | Cream                     |
| 6.6.25 | Irregular flowers:          | 0.0                       |



Flower

Pistil/Stamen

### HANDS & FRUITS

|        |                                 |                            |
|--------|---------------------------------|----------------------------|
| 7.12   | Exterior middle fruit length:   | 13.2 cm                    |
| 7.13   | Exterior middle fruit diameter: | 26.0 cm                    |
| 6.7.3  | Interior middle fruit length:   | 12.6 cm                    |
| 6.7.8  | Fruit pedicel length:           | ≥21 mm                     |
| 6.7.9  | Fruit pedicel width:            | >10 mm                     |
| 6.7.10 | Pedicel surface:                | Hairless                   |
| 6.7.11 | Fusion:                         | Very partial/not visible   |
| 6.7.4  | Fruit shape:                    | Straight                   |
| 6.7.5  | Transverse section:             | Slightly ridged            |
| 6.7.6  | Fruit apex:                     | Blunt-tipped               |
| 6.7.7  | Flower relicts:                 | Without any floral relicts |
| 6.7.12 | Immature fruit peel color:      | Light Green                |
| 6.7.18 | Pulp color before maturity:     | Ivory                      |
| 6.7.13 | Mature fruit peel color:        | Yellow                     |
| 6.7.14 | Fruit peel thickness:           | Two or less                |
| 6.7.15 | Fruit peel adherence:           | Fruit peels easily         |
| 6.7.16 | Cracks in fruit peel:           | Cracked                    |
| 6.7.17 | Pulp in fruit:                  | With pulp                  |
| 6.7.19 | Pulp color at maturity:         | Cream                      |
| 6.7.20 | Fruits fall:                    | Persistent                 |
| 6.7.21 | Flesh texture:                  | Firm                       |
| 6.7.22 | Fruit taste:                    | Sweet and acidic           |
| 6.7.23 | Presence of seed:               | Not present                |
| 6.7.24 | Seed surface:                   | -                          |
| 6.7.25 | Seed shape:                     | -                          |



Ripe Fruit



Fruit - Third Hand

# Figue Pomme Géante

FIGUE POMME GÉANTE - AAB



## GENETIC (SSR)

| MARKER    | ALLELES |     |     |
|-----------|---------|-----|-----|
| mMaCIR01  | 236     | 271 | -   |
| mMaCIR03  | 99      | 100 | 103 |
| mMACIR07  | 145     | 151 | -   |
| mMACIR08  | 245     | -   | -   |
| mMACIR13  | 265     | 269 | -   |
| mMACIR24  | 222     | 238 | -   |
| mMACIR27  | 223     | -   | -   |
| mMACIR39  | 315     | 336 | -   |
| mMACIR40  | 160     | 181 | -   |
| mMACIR45  | 257     | 260 | 266 |
| mMACIR150 | 237     | -   | -   |
| mMACIR152 | 141     | 163 | -   |
| mMACIR164 | 278     | 380 | -   |
| mMACIR196 | 145     | 159 | -   |
| mMACIR214 | 100     | 105 | -   |
| mMACIR231 | 224     | 234 | -   |
| mMACIR260 | 190     | 192 | -   |
| mMACIR264 | 224     | 227 | -   |
| mMACIR307 | 143     | 149 | -   |
| Ma 1-32   | 235     | 241 | -   |
| Ma 3-90   | 149     | -   | -   |

## PASSPORT

### TAXONOMY

|   |                               |
|---|-------------------------------|
| Genus:                                    | <i>Musa</i>                   |
| Species/Group:                            | AAB                           |
| Subspecies/Subgroup:                      | Silk                          |
| <i>Musa</i> sect. <i>Musa</i> (Häkkinen): | <i>Musa</i> ( <i>Eumusa</i> ) |

### GENERAL

|           |                                  |
|-----------|----------------------------------|
| Synonyms: | -                                |
| Status:   | Traditional cultivar or landrace |
| Origin:   | -                                |
| ITC code: | ITC0769                          |
| Donor:    | CIRAD, 1990                      |



## DESCRIPTORS



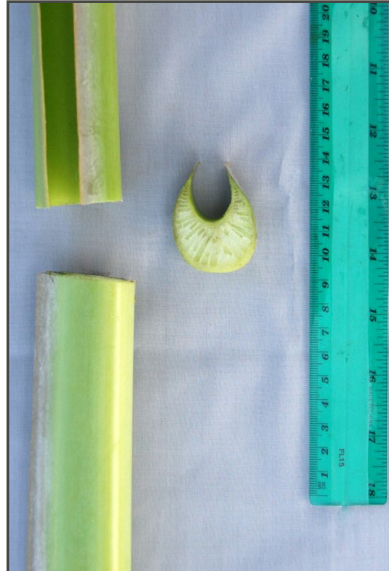
Pseudostem



Plant



Neck



Petiole



Petiole

## PLANT

|        |                         |                              |
|--------|-------------------------|------------------------------|
| 7.3    | Planting to shooting:   | 222 days                     |
| 7.15   | Leaves at flowering:    | 16                           |
| 7.5    | Plant crop cycle:       | 299 days                     |
| 7.16   | Leaves at harvest:      | 13.3                         |
| 6.3.22 | Cigar leaf color:       | Light Green                  |
| 7.6    | Pseudostem height:      | 3.29 m                       |
| 7.7    | Pseudostem diameter:    | 18.2 cm                      |
| 6.2.3  | Pseudostem color:       | Medium Green                 |
| 6.2.5  | Underlying color:       | Light Green                  |
| 6.2.6  | Pigmentation:           | Pink Purple                  |
| 6.2.7  | Sap color:              | Watery                       |
| 7.8    | Height of ratoon:       | 2.40 m                       |
| 6.2.10 | Development of suckers: | More than 3/4 of parent size |
| 6.2.11 | Position of suckers:    | Close (growing vertically)   |

## PETIOLE & LEAVES

|          |                               |                     |
|----------|-------------------------------|---------------------|
| 6.1.1    | Leaf habit:                   | Intermediate        |
| 6.1.2    | Dwarfism:                     |                     |
| 6.3.1    | Blotches at the petiole base: | Sparse blotching    |
| 6.3.2    | Blotches color:               | Brown-black         |
| 6.3.3    | Petiole canal:                | Wide Erect          |
| 6.3.4    | Petiole margins:              | Winged and clasping |
| 6.3.5    | Wing type:                    | Not dry             |
| 6.3.6    | Petiole margin color:         | Light Green         |
| 6.3.11   | Petiole length:               | 51 to 70 cm         |
| 6.3.7    | Rim color:                    | Pink Purple         |
| 6.3.9    | Leaf blade length:            | 257.3 cm            |
| 6.3.10   | Leaf blade width:             | 70.5 cm             |
| 6.3.10.1 | Leaf ratio:                   | 3.6                 |
| 6.3.12   | Leaf upper surface:           | Green               |
| 6.3.13   | Upper appearance:             | Shiny               |
| 6.3.14   | Leaf lower surface:           | Medium Green        |
| 6.3.15   | Lower appearance:             | Dull                |
| 6.3.16   | Wax on leaves:                | Few wax             |
| 6.3.17   | Insertion point of blades:    | Asymmetric          |
| 6.3.18   | Blade base:                   | Both sides pointed  |
| 6.3.19   | Corrugation:                  | Few stripes         |
| 6.3.20   | Midrib dorsal color:          | Light Green         |
| 6.3.21   | Midrib ventral color:         | Medium Green        |



# Figue Pomme Géante

## DESCRIPTORS

### BUNCH

|        |                    |   |
|--------|--------------------|---|
| 6.4.6  | Bunch position:    | Slightly angled                                       |
| 6.4.7  | Bunch shape:       | With a curve in the bunch axis                        |
| 6.4.8  | Bunch appearance:  | Lax   |
| 6.4.10 | Fruit positioning: | Biseriate   |
| 6.4.11 | Rachis type:       | Present   |
| 6.4.12 | Rachis position:   | Falling vertically                                    |
| 6.4.13 | Rachis appearance: | Neutral flowers near the bunch, rest of stalk is bare |
| 7.9    | Bunch weight:      | 6.43 kg   |
| 6.7.1  | Fruit position:    | Curved upward   |
| 7.10   | Number of hands:   | 7.3   |
| 7.11   | Number of fruits:  | 84.3  |



Bunch



Bunch & Rachis

### PEDUNCLE

|       |                  |              |
|-------|------------------|--------------|
| 6.4.1 | Peduncle length: | 31 - 60 cm   |
| 6.4.2 | Empty nodes:     | 1            |
| 6.4.3 | Peduncle width:  | 7 - 12 cm    |
| 6.4.4 | Peduncle color:  | Medium Green |
| 6.4.5 | Hairiness:       | Hairless     |



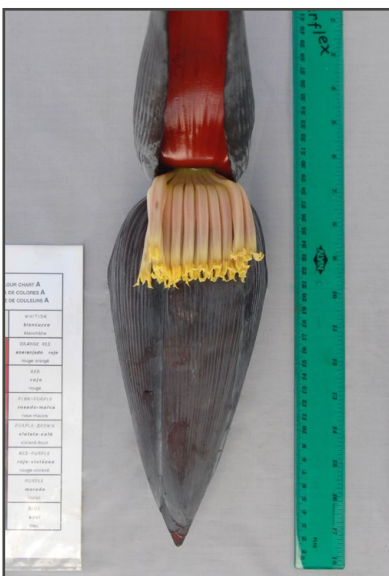
Peduncle



Male Bud

### MALE BUD

|        |                               |                               |
|--------|-------------------------------|-------------------------------|
| 6.6.1  | Flower behavior:              | Falling with bract            |
| 6.4.14 | Bud type:                     | Normal                        |
| 6.4.15 | Bud shape:                    | Intermediate                  |
| 6.4.16 | Bud size:                     | 21.8 cm                       |
| 6.5.2  | Bract apex shape:             | Obtuse and split              |
| 6.5.3  | Bract imbrication:            | Young bracts slightly overlap |
| 6.5.4  | Color of bract external face: | Purple Brown                  |
| 6.5.5  | Color of bract internal face: | Red                           |
| 6.5.6  | Apex color:                   | Not tinted with yellow        |
| 6.5.7  | Color stripes:                | Without discoloring lines     |
| 6.5.9  | Base fading:                  | Color homogeneous             |
| 6.5.10 | Bract shape:                  | 0.28                          |
| 6.5.11 | Lifting:                      | One at a time                 |
| 6.5.12 | Behavior:                     | Revolvute                     |
| 6.5.13 | Wax:                          | Moderately waxy               |
| 6.5.14 | Grooves:                      | Moderate grooving             |



Opened Bract



Bract Shape



## DESCRIPTORS

### FLOWER

|               |                             |                            |
|---------------|-----------------------------|----------------------------|
| <b>6.6.2</b>  | Compound tepal basic color: | White                      |
| <b>6.6.3</b>  | Pigmentation:               | Pink Purple                |
| <b>6.6.4</b>  | Lobe color:                 | Bright Yellow              |
| <b>6.6.5</b>  | Lobe development:           | Developed                  |
| <b>6.6.6</b>  | Free tepal color:           | Translucent white          |
| <b>6.6.7</b>  | Free tepal shape:           | Oval                       |
| <b>6.6.8</b>  | Appearance:                 | Several folding under apex |
| <b>6.6.9</b>  | Apex development:           | Very developed             |
| <b>6.6.10</b> | Apex shape:                 | Thread-like                |
| <b>6.6.11</b> | Anther exsertion:           | Inserted                   |
| <b>6.6.12</b> | Filament color:             | White                      |
| <b>6.6.13</b> | Anther color:               | Cream                      |
| <b>6.6.14</b> | Pollen sac color:           | Rusty Brown                |
| <b>6.6.16</b> | Style basic color:          | White                      |
| <b>6.6.18</b> | Style exsertion:            | Exserted                   |
| <b>6.6.19</b> | Style shape:                | Curved twice               |
| <b>6.6.20</b> | Stigma color:               | Orange                     |
| <b>6.6.21</b> | Ovary shape:                | Straight                   |
| <b>6.6.22</b> | Ovary basic color:          | White                      |
| <b>6.6.23</b> | Ovary pigmentation:         | Very few/not visible       |
| <b>6.6.24</b> | Flower dominant color:      | White                      |
| <b>6.6.25</b> | Irregular flowers:          | 1.0                        |



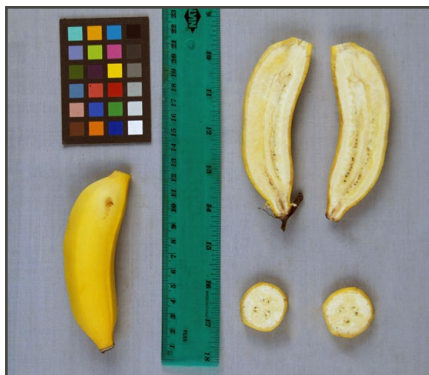
Flower



Pistil/Stamen

### HANDS & FRUITS

|               |                                 |                            |
|---------------|---------------------------------|----------------------------|
| <b>7.12</b>   | Exterior middle fruit length:   | 14.7 cm                    |
| <b>7.13</b>   | Exterior middle fruit diameter: | 27.2 cm                    |
| <b>6.7.3</b>  | Interior middle fruit length:   | 12.9 cm                    |
| <b>6.7.8</b>  | Fruit pedicel length:           | ≥21 mm                     |
| <b>6.7.9</b>  | Fruit pedicel width:            | 5 to 10 mm                 |
| <b>6.7.10</b> | Pedicel surface:                | Hairless                   |
| <b>6.7.11</b> | Fusion:                         | Partially fused            |
| <b>6.7.4</b>  | Fruit shape:                    | Straight                   |
| <b>6.7.5</b>  | Transverse section:             | Slightly ridged            |
| <b>6.7.6</b>  | Fruit apex:                     | Blunt-tipped               |
| <b>6.7.7</b>  | Flower relicts:                 | Without any floral relicts |
| <b>6.7.12</b> | Immature fruit peel color:      | Light Green                |
| <b>6.7.18</b> | Pulp color before maturity:     | White                      |
| <b>6.7.13</b> | Mature fruit peel color:        | Yellow                     |
| <b>6.7.14</b> | Fruit peel thickness:           | Two or less                |
| <b>6.7.15</b> | Fruit peel adherence:           | Fruit peels easily         |
| <b>6.7.16</b> | Cracks in fruit peel:           | Cracked                    |
| <b>6.7.17</b> | Pulp in fruit:                  | With pulp                  |
| <b>6.7.19</b> | Pulp color at maturity:         | White                      |
| <b>6.7.20</b> | Fruits fall:                    | Desiduous                  |
| <b>6.7.21</b> | Flesh texture:                  | Firm                       |
| <b>6.7.22</b> | Fruit taste:                    | Sweet and acidic           |
| <b>6.7.23</b> | Prescence of seed:              | Not present                |
| <b>6.7.24</b> | Seed surface:                   | -                          |
| <b>6.7.25</b> | Seed shape:                     | -                          |



Ripe Fruit



Fruit - Third Hand



| GENETIC (SSR) |         |     |     |
|---------------|---------|-----|-----|
| MARKER        | ALLELES |     |     |
| mMaCIR01      | 236     | 240 | 271 |
| mMaCIR03      | 100     | 101 | 103 |
| mMACIR07      | 136     | 145 | 151 |
| mMACIR08      | 241     | 245 | -   |
| mMACIR13      | 265     | 267 | 268 |
| mMACIR24      | 222     | 228 | 234 |
| mMACIR27      | 225     | 227 | -   |
| mMACIR39      | 315     | 336 | -   |
| mMACIR40      | 163     | 181 | -   |
| mMACIR45      | 257     | 266 | 269 |
| mMACIR150     | 237     | 241 | -   |
| mMACIR152     | 144     | 163 | -   |
| mMACIR164     | 278     | 378 | 387 |
| mMACIR196     | 145     | 159 | 162 |
| mMACIR214     | 100     | 103 | 105 |
| mMACIR231     | 224     | 234 | 258 |
| mMACIR260     | 190     | 192 | 202 |
| mMACIR264     | 224     | 241 | -   |
| mMACIR307     | 143     | 145 | 149 |
| Ma 1-32       | 221     | 227 | 228 |
| Ma 3-90       | 129     | 131 | 149 |

## PASSPORT

### TAXONOMY

|                             |               |
|-----------------------------|---------------|
| Genus:                      | <i>Musa</i>   |
| Species/Group:              | AAB           |
| Subspecies/Subgroup:        | Pome          |
| Musa sect. Musa (Häkkinen): | Musa (Eumusa) |

### GENERAL

|           |                                  |
|-----------|----------------------------------|
| Synonyms: | -                                |
| Status:   | Traditional cultivar or landrace |
| Origin:   | Cameroon                         |
| ITC code: | ITC0649                          |
| Donor:    | CIRAD, 1989                      |



## DESCRIPTORS



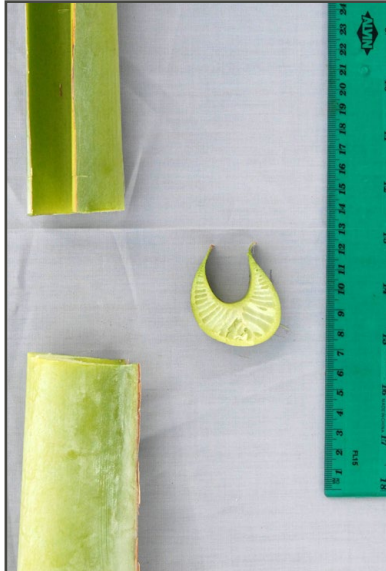
Pseudostem



Plant



Neck



Petiole



Petiole

## PLANT

|        |                         |                            |
|--------|-------------------------|----------------------------|
| 7.3    | Planting to shooting:   | 179 days                   |
| 7.15   | Leaves at flowering:    | 16                         |
| 7.5    | Plant crop cycle:       | 287 days                   |
| 7.16   | Leaves at harvest:      | 11.0                       |
| 6.3.22 | Cigar leaf color:       | Light Green                |
| 7.6    | Pseudostem height:      | 3.42 m                     |
| 7.7    | Pseudostem diameter:    | 16.3 cm                    |
| 6.2.3  | Pseudostem color:       | Green Yellow               |
| 6.2.5  | Underlying color:       | Light Green                |
| 6.2.6  | Pigmentation:           | Pink Purple                |
| 6.2.7  | Sap color:              | Milky                      |
| 7.8    | Height of ratoon:       | 2.28 m                     |
| 6.2.10 | Development of suckers: | Taller than parent         |
| 6.2.11 | Position of suckers:    | Close (growing vertically) |

## PETIOLE &amp; LEAVES

|          |                               |                     |
|----------|-------------------------------|---------------------|
| 6.1.1    | Leaf habit:                   | Intermediate        |
| 6.1.2    | Dwarfism:                     | Normal              |
| 6.3.1    | Blotches at the petiole base: | Small               |
| 6.3.2    | Blotches color:               | Dark brown          |
| 6.3.3    | Petiole canal:                | Wide Erect          |
| 6.3.4    | Petiole margins:              | Winged and clasping |
| 6.3.5    | Wing type:                    | Not dry             |
| 6.3.6    | Petiole margin color:         | Light Green         |
| 6.3.11   | Petiole length:               | 51 to 70 cm         |
| 6.3.7    | Rim color:                    | Pink Purple         |
| 6.3.9    | Leaf blade length:            | 288.0 cm            |
| 6.3.10   | Leaf blade width:             | 79.0 cm             |
| 6.3.10.1 | Leaf ratio:                   | 3.7                 |
| 6.3.12   | Leaf upper surface:           | Dark Green          |
| 6.3.13   | Upper appearance:             | Dull                |
| 6.3.14   | Leaf lower surface:           | Medium Green        |
| 6.3.15   | Lower appearance:             | Dull                |
| 6.3.16   | Wax on leaves:                | Few wax             |
| 6.3.17   | Insertion point of blades:    | Asymmetric          |
| 6.3.18   | Blade base:                   | Both sides rounded  |
| 6.3.19   | Corrugation:                  | Few stripes         |
| 6.3.20   | Midrib dorsal color:          | Light Green         |
| 6.3.21   | Midrib ventral color:         | Medium Green        |



### BUNCH

|        |                    |                       |
|--------|--------------------|-----------------------|
| 6.4.6  | Bunch position:    | Hanging at 45 degrees |
| 6.4.7  | Bunch shape:       | Short cylinder        |
| 6.4.8  | Bunch appearance:  | Lax                   |
| 6.4.10 | Fruit positioning: | Biseriate             |
| 6.4.11 | Rachis type:       | Present               |
| 6.4.12 | Rachis position:   | Falling vertically    |
| 6.4.13 | Rachis appearance: | Bare                  |
| 7.9    | Bunch weight:      | 7.41 kg               |
| 6.7.1  | Fruit position:    | Curved upward         |
| 7.10   | Number of hands:   | 7.5                   |
| 7.11   | Number of fruits:  | 90.0                  |



Bunch



Bunch & Rachis

### PEDUNCLE

|       |                  |              |
|-------|------------------|--------------|
| 6.4.1 | Peduncle length: | ≥61 cm       |
| 6.4.2 | Empty nodes:     | 2            |
| 6.4.3 | Peduncle width:  | ≤6 cm        |
| 6.4.4 | Peduncle color:  | Medium Green |
| 6.4.5 | Hairiness:       | Hairless     |



Peduncle



Male Bud

### MALE BUD

|        |                               |                               |
|--------|-------------------------------|-------------------------------|
| 6.6.1  | Flower behavior:              | Falling after bract           |
| 6.4.14 | Bud type:                     | Normal                        |
| 6.4.15 | Bud shape:                    | Ovoid                         |
| 6.4.16 | Bud size:                     | 18.2 cm                       |
| 6.5.2  | Bract apex shape:             | Obtuse and split              |
| 6.5.3  | Bract imbrication:            | Young bracts slightly overlap |
| 6.5.4  | Color of bract external face: | Purple Brown                  |
| 6.5.5  | Color of bract internal face: | Red                           |
| 6.5.6  | Apex color:                   | Tinted with yellow            |
| 6.5.7  | Color stripes:                | Without discolored lines      |
| 6.5.9  | Base fading:                  | Color homogeneous             |
| 6.5.10 | Bract shape:                  | 0.35                          |
| 6.5.11 | Lifting:                      | Two or more at a time         |
| 6.5.12 | Behavior:                     | Revolute                      |
| 6.5.13 | Wax:                          | Moderately waxy               |
| 6.5.14 | Grooves:                      | Strongly grooved              |



Opened Bract



Bract Shape



## DESCRIPTORS

## FLOWER

|        |                             |                                   |
|--------|-----------------------------|-----------------------------------|
| 6.6.2  | Compound tepal basic color: | White                             |
| 6.6.3  | Pigmentation:               | Pink Purple                       |
| 6.6.4  | Lobe color:                 | Bright Yellow                     |
| 6.6.5  | Lobe development:           | Developed                         |
| 6.6.6  | Free tepal color:           | Opaque white                      |
| 6.6.7  | Free tepal shape:           | Rounded                           |
| 6.6.8  | Appearance:                 | Several folding under apex        |
| 6.6.9  | Apex development:           | Little/not visible                |
| 6.6.10 | Apex shape:                 | Triangular                        |
| 6.6.11 | Anther exertion:            | Inserted                          |
| 6.6.12 | Filament color:             | White                             |
| 6.6.13 | Anther color:               | Yellow                            |
| 6.6.14 | Pollen sac color:           | Rusty Brown                       |
| 6.6.16 | Style basic color:          | White                             |
| 6.6.18 | Style exertion:             | Exserted                          |
| 6.6.19 | Style shape:                | Straight, curved under the stigma |
| 6.6.20 | Stigma color:               | Yellow                            |
| 6.6.21 | Ovary shape:                | Straight                          |
| 6.6.22 | Ovary basic color:          | White                             |
| 6.6.23 | Ovary pigmentation:         | With Red-purple                   |
| 6.6.24 | Flower dominant color:      | Cream/Pink Purple                 |
| 6.6.25 | Irregular flowers:          | 0.5                               |



Flower

Pistil/Stamen

## HANDS &amp; FRUITS

|        |                                 |                            |
|--------|---------------------------------|----------------------------|
| 7.12   | Exterior middle fruit length:   | 15.5 cm                    |
| 7.13   | Exterior middle fruit diameter: | 29.5 cm                    |
| 6.7.3  | Interior middle fruit length:   | 14.5 cm                    |
| 6.7.8  | Fruit pedicel length:           | ≥21 mm                     |
| 6.7.9  | Fruit pedicel width:            | 5 to 10 mm                 |
| 6.7.10 | Pedicel surface:                | Hairless                   |
| 6.7.11 | Fusion:                         | Very partial/not visible   |
| 6.7.4  | Fruit shape:                    | Straight                   |
| 6.7.5  | Transverse section:             | Slightly ridged            |
| 6.7.6  | Fruit apex:                     | Bottle-necked              |
| 6.7.7  | Flower relicts:                 | Without any floral relicts |
| 6.7.12 | Immature fruit peel color:      | Light Green                |
| 6.7.18 | Pulp color before maturity:     | White                      |
| 6.7.13 | Mature fruit peel color:        | Yellow                     |
| 6.7.14 | Fruit peel thickness:           | Three or more              |
| 6.7.15 | Fruit peel adherence:           | Fruit peels easily         |
| 6.7.16 | Cracks in fruit peel:           | Without cracks             |
| 6.7.17 | Pulp in fruit:                  | With pulp                  |
| 6.7.19 | Pulp color at maturity:         | White                      |
| 6.7.20 | Fruits fall:                    | Deciduous                  |
| 6.7.21 | Flesh texture:                  | Firm                       |
| 6.7.22 | Fruit taste:                    | Sweet and acidic           |
| 6.7.23 | Prescense of seed:              | Not present                |
| 6.7.24 | Seed surface:                   | -                          |
| 6.7.25 | Seed shape:                     | -                          |



Ripe Fruit



Fruit - Third Hand

# Mai'a popo'ulu moa

MAI'A POPO'ULU MOA - AAB



## GENETIC (SSR)

| MARKER    | ALLELES |     |     |
|-----------|---------|-----|-----|
| mMaCIR01  | 240     | -   | -   |
| mMaCIR03  | 101     | 106 | -   |
| mMACIR07  | 136     | 152 | -   |
| mMACIR08  | 241     | -   | -   |
| mMACIR13  | 246     | 251 | 268 |
| mMACIR24  | 220     | 228 | -   |
| mMACIR27  | 217     | 225 | -   |
| mMACIR39  | 315     | 336 | -   |
| mMACIR40  | 162     | 181 | -   |
| mMACIR45  | 257     | 266 | -   |
| mMACIR150 | 237     | 243 | -   |
| mMACIR152 | 141     | 163 | -   |
| mMACIR164 | 294     | 385 | 387 |
| mMACIR196 | 145     | 159 | -   |
| mMACIR214 | 103     | 105 | -   |
| mMACIR231 | 224     | 230 | -   |
| mMACIR260 | 192     | 206 | -   |
| mMACIR264 | 224     | 230 | 241 |
| mMACIR307 | 145     | 149 | -   |
| Ma 1-32   | 221     | 227 | 232 |
| Ma 3-90   | 131     | 142 | -   |

## PASSPORT

### TAXONOMY

|                             |               |
|-----------------------------|---------------|
| Genus:                      | <i>Musa</i>   |
| Species/Group:              | AAB           |
| Subspecies/Subgroup:        | Maoli/Popoulu |
| Musa sect. Musa (Häkkinen): | Musa (Eumusa) |

### GENERAL

|           |                                  |
|-----------|----------------------------------|
| Synonyms: | -                                |
| Status:   | Traditional cultivar or landrace |
| Origin:   | Pacific region                   |
| ITC code: | ITC0335                          |
| Donor:    | IITA, 1987                       |



## DESCRIPTORS



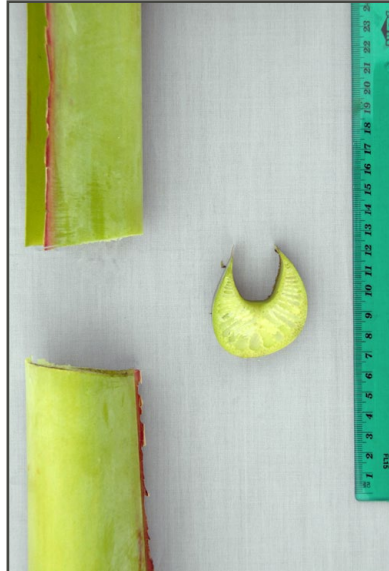
Pseudostem



Plant



Neck



Petiole



Petiole

## PLANT

|        |                         |                               |
|--------|-------------------------|-------------------------------|
| 7.3    | Planting to shooting:   | 193 days                      |
| 7.15   | Leaves at flowering:    | 15                            |
| 7.5    | Plant crop cycle:       | 270 days                      |
| 7.16   | Leaves at harvest:      | 11.3                          |
| 6.3.22 | Cigar leaf color:       | Green                         |
| 7.6    | Pseudostem height:      | 3.75 m                        |
| 7.7    | Pseudostem diameter:    | 19.9 cm                       |
| 6.2.3  | Pseudostem color:       | Medium Green                  |
| 6.2.5  | Underlying color:       | Medium Green                  |
| 6.2.6  | Pigmentation:           | Cream                         |
| 6.2.7  | Sap color:              | Watery                        |
| 7.8    | Height of ratoon:       | 1.13 m                        |
| 6.2.10 | Development of suckers: | Between 1/4 and 3/4 of parent |
| 6.2.11 | Position of suckers:    | Close (growing vertically)    |

## PETIOLE & LEAVES

|          |                               |                         |
|----------|-------------------------------|-------------------------|
| 6.1.1    | Leaf habit:                   | Intermediate            |
| 6.1.2    | Dwarfism:                     | Normal                  |
| 6.3.1    | Blotches at the petiole base: | Sparse blotching        |
| 6.3.2    | Blotches color:               | Dark brown              |
| 6.3.3    | Petiole canal:                | Straight Erect          |
| 6.3.4    | Petiole margins:              | Not winged and clasping |
| 6.3.5    | Wing type:                    | -                       |
| 6.3.6    | Petiole margin color:         | Pink Purple             |
| 6.3.11   | Petiole length:               | 51 to 70 cm             |
| 6.3.7    | Rim color:                    | Red Purple              |
| 6.3.9    | Leaf blade length:            | 261.3 cm                |
| 6.3.10   | Leaf blade width:             | 79.0 cm                 |
| 6.3.10.1 | Leaf ratio:                   | 3.3                     |
| 6.3.12   | Leaf upper surface:           | Dark Green              |
| 6.3.13   | Upper appearance:             | Shiny                   |
| 6.3.14   | Leaf lower surface:           | Green                   |
| 6.3.15   | Lower appearance:             | Dull                    |
| 6.3.16   | Wax on leaves:                | Few wax                 |
| 6.3.17   | Insertion point of blades:    | Symmetric               |
| 6.3.18   | Blade base:                   | Both sides rounded      |
| 6.3.19   | Corrugation:                  | Few stripes             |
| 6.3.20   | Midrib dorsal color:          | Light Green             |
| 6.3.21   | Midrib ventral color:         | Medium Green            |



# Mai'a popo'ulu moa

## DESCRIPTORS

### BUNCH

|        |                    |  |
|--------|--------------------|--|
| 6.4.6  | Bunch position:    | Hanging vertically                       |
| 6.4.7  | Bunch shape:       | Truncated cone shape                     |
| 6.4.8  | Bunch appearance:  | Compact                                  |
| 6.4.10 | Fruit positioning: | Biseriate                                |
| 6.4.11 | Rachis type:       | Present                                  |
| 6.4.12 | Rachis position:   | Falling vertically                       |
| 6.4.13 | Rachis appearance: | Bare                                     |
| 7.9    | Bunch weight:      | 20.3 kg                                  |
| 6.7.1  | Fruit position:    | Curved upward;<br>Perpendicular to stalk |
| 7.10   | Number of hands:   | 8.3                                      |
| 7.11   | Number of fruits:  | 82.0                                     |



Bunch



Bunch & Rachis

### PEDUNCLE

|       |                  |              |
|-------|------------------|--------------|
| 6.4.1 | Peduncle length: | 31-60 cm     |
| 6.4.2 | Empty nodes:     | 1            |
| 6.4.3 | Peduncle width:  | ≤6 cm        |
| 6.4.4 | Peduncle color:  | Medium Green |
| 6.4.5 | Hairiness:       | Hairless     |



Peduncle



Male Bud

### MALE BUD

|        |                               |                                       |
|--------|-------------------------------|---------------------------------------|
| 6.6.1  | Flower behavior:              | Falling before bract                  |
| 6.4.14 | Bud type:                     | Degenerating before maturity          |
| 6.4.15 | Bud shape:                    | Lanceolate                            |
| 6.4.16 | Bud size:                     | ≤20 cm                                |
| 6.5.2  | Bract apex shape:             | Slightly pointed                      |
| 6.5.3  | Bract imbrication:            | Young bracts slightly overlap         |
| 6.5.4  | Color of bract external face: | Purple                                |
| 6.5.5  | Color of bract internal face: | Red                                   |
| 6.5.6  | Apex color:                   | Tinted with yellow                    |
| 6.5.7  | Color stripes:                | Without discolored lines (not ridged) |
| 6.5.9  | Base fading:                  | Color homogeneous                     |
| 6.5.10 | Bract shape:                  | 0.33                                  |
| 6.5.11 | Lifting:                      | Two or more at time                   |
| 6.5.12 | Behavior:                     | Revolute                              |
| 6.5.13 | Wax:                          | Very wax                              |
| 6.5.14 | Grooves:                      | Strongly grooved                      |



Opened Bract



Bract Shape



## DESCRIPTORS

### FLOWER

|        |                             |                     |
|--------|-----------------------------|---------------------|
| 6.6.2  | Compound tepal basic color: | Cream               |
| 6.6.3  | Pigmentation:               | Pink Purple         |
| 6.6.4  | Lobe color:                 | Bright Yellow       |
| 6.6.5  | Lobe development:           | Very developed      |
| 6.6.6  | Free tepal color:           | Tinted with pink    |
| 6.6.7  | Free tepal shape:           | Fan-shaped          |
| 6.6.8  | Appearance:                 | More or less smooth |
| 6.6.9  | Apex development:           | Very developed      |
| 6.6.10 | Apex shape:                 | Triangular          |
| 6.6.11 | Anther exertion:            | Exserted            |
| 6.6.12 | Filament color:             | White               |
| 6.6.13 | Anther color:               | Yellow              |
| 6.6.14 | Pollen sac color:           | Cream               |
| 6.6.16 | Style basic color:          | White               |
| 6.6.18 | Style exertion:             | Same level          |
| 6.6.19 | Style shape:                | Straight            |
| 6.6.20 | Stigma color:               | Yellow              |
| 6.6.21 | Ovary shape:                | Arched              |
| 6.6.22 | Ovary basic color:          | Light Green         |
| 6.6.23 | Ovary pigmentation:         | With red purple     |
| 6.6.24 | Flower dominant color:      | Yellow/White        |
| 6.6.25 | Irregular flowers:          | 2.6                 |

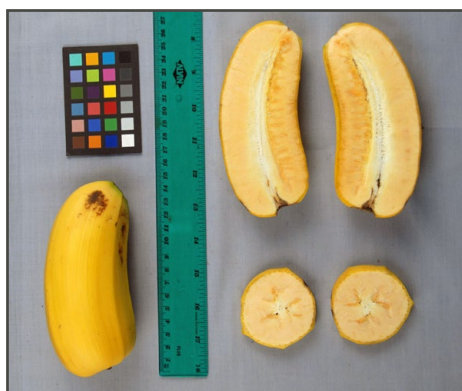


Flower

Pistil/Stamen

### HANDS & FRUITS

|        |                                 |                          |
|--------|---------------------------------|--------------------------|
| 7.12   | Exterior middle fruit length:   | 18.4 cm                  |
| 7.13   | Exterior middle fruit diameter: | 40.8 cm                  |
| 6.7.3  | Interior middle fruit length:   | 17.2 cm                  |
| 6.7.8  | Fruit pedicel length:           | ≥21 mm                   |
| 6.7.9  | Fruit pedicel width:            | >10 mm                   |
| 6.7.10 | Pedicel surface:                | Hairless                 |
| 6.7.11 | Fusion:                         | Very partial/not visible |
| 6.7.4  | Fruit shape:                    | Straight                 |
| 6.7.5  | Transverse section:             | Slightly ridged          |
| 6.7.6  | Fruit apex:                     | Rounded                  |
| 6.7.7  | Flower relicts:                 | Persistent style         |
| 6.7.12 | Immature fruit peel color:      | Light Green              |
| 6.7.18 | Pulp color before maturity:     | Ivory                    |
| 6.7.13 | Mature fruit peel color:        | Yellow                   |
| 6.7.14 | Fruit peel thickness:           | Two or less              |
| 6.7.15 | Fruit peel adherence:           | Fruit peels easily       |
| 6.7.16 | Cracks in fruit peel:           | Without cracks           |
| 6.7.17 | Pulp in fruit:                  | With pulp                |
| 6.7.19 | Pulp color at maturity:         | Ivory                    |
| 6.7.20 | Fruits fall:                    | Persistent               |
| 6.7.21 | Flesh texture:                  | Firm                     |
| 6.7.22 | Fruit taste:                    | Astringent               |
| 6.7.23 | Presence of seed:               | Not present              |
| 6.7.24 | Seed surface:                   | -                        |
| 6.7.25 | Seed shape:                     | -                        |



Ripe Fruit



Fruit - Third Hand

# Pisang Rajah



## GENETIC (SSR)

| MARKER    | ALLELES |     |     |
|-----------|---------|-----|-----|
| mMaCIR01  | 246     | 250 | 281 |
| mMaCIR03  | 99      | 103 | 106 |
| mMACIR07  | 150     | -   | -   |
| mMACIR08  | 241     | 245 | -   |
| mMACIR13  | 246     | 265 | 272 |
| mMACIR24  | 220     | 228 | -   |
| mMACIR27  | 217     | -   | -   |
| mMACIR39  | 311     | 317 | 336 |
| mMACIR40  | 158     | 178 | -   |
| mMACIR45  | 257     | 266 | 269 |
| mMACIR150 | 237     | 243 | -   |
| mMACIR152 | 144     | 145 | 173 |
| mMACIR164 | 294     | 387 | -   |
| mMACIR196 | 149     | 158 | 159 |
| mMACIR214 | 100     | 105 | -   |
| mMACIR231 | 226     | 232 | 234 |
| mMACIR260 | 190     | 192 | 206 |
| mMACIR264 | 224     | 230 | 249 |
| mMACIR307 | 143     | 145 | 149 |
| Ma 1-32   | 224     | 232 | -   |
| Ma 3-90   | 142     | 147 | -   |

## PASSPORT

### TAXONOMY

|                             |               |
|-----------------------------|---------------|
| Genus:                      | <i>Musa</i>   |
| Species/Group:              | AAB           |
| Subspecies/Subgroup:        | Pisang Raja   |
| Musa sect. Musa (Häkkinen): | Musa (Eumusa) |

### GENERAL

|           |                                  |
|-----------|----------------------------------|
| Synonyms: | South Johnson                    |
| Status:   | Traditional cultivar or landrace |
| Origin:   | Malaysia/Indonesia               |
| ITC code: | ITC0587                          |
| Donor:    | QDPI, MHRS, 1989                 |



## DESCRIPTORS



Pseudostem



Plant



Neck



Petiole



Petiole

## PLANT

|        |                         |                                 |
|--------|-------------------------|---------------------------------|
| 7.3    | Planting to shooting:   | 256 days                        |
| 7.15   | Leaves at flowering:    | 13                              |
| 7.5    | Plant crop cycle:       | 368 days                        |
| 7.16   | Leaves at harvest:      | 10.5                            |
| 6.3.22 | Cigar leaf color:       | Light Green                     |
| 7.6    | Pseudostem height:      | 2.61 m                          |
| 7.7    | Pseudostem diameter:    | 14.3 cm                         |
| 6.2.3  | Pseudostem color:       | Pink Purple/<br>Green Yellow    |
| 6.2.5  | Underlying color:       | Green Yellow                    |
| 6.2.6  | Pigmentation:           | Pink Purple                     |
| 6.2.7  | Sap color:              | Milky                           |
| 7.8    | Height of ratoon:       | 3.49 m                          |
| 6.2.10 | Development of suckers: | More than 3/4 of<br>parent size |
| 6.2.11 | Position of suckers:    | Close (growing<br>vertically)   |

## PETIOLE & LEAVES

|          |                                  |                         |
|----------|----------------------------------|-------------------------|
| 6.1.1    | Leaf habit:                      | Intermediate            |
| 6.1.2    | Dwarfism:                        | Normal                  |
| 6.3.1    | Blotches at the<br>petiole base: | Sparse blotching        |
| 6.3.2    | Blotches color:                  | Brown-black             |
| 6.3.3    | Petiole canal:                   | Straight Erect          |
| 6.3.4    | Petiole margins:                 | Winged and clasping     |
| 6.3.5    | Wing type:                       | Dry                     |
| 6.3.6    | Petiole margin color:            | Medium Green            |
| 6.3.11   | Petiole length:                  | ≤50 cm                  |
| 6.3.7    | Rim color:                       | Pink Purple             |
| 6.3.9    | Leaf blade length:               | 248.0 cm                |
| 6.3.10   | Leaf blade width:                | 73.8 cm                 |
| 6.3.10.1 | Leaf ratio:                      | 3.3                     |
| 6.3.12   | Leaf upper surface:              | Dark Green              |
| 6.3.13   | Upper appearance:                | Dull                    |
| 6.3.14   | Leaf lower surface:              | Medium Green            |
| 6.3.15   | Lower appearance:                | Dull                    |
| 6.3.16   | Wax on leaves:                   | Very little/not visible |
| 6.3.17   | Insertion point of<br>blades:    | Asymmetric              |
| 6.3.18   | Blade base:                      | Both sides rounded      |
| 6.3.19   | Corrugation:                     | Very corrugated         |
| 6.3.20   | Midrib dorsal color:             | Light Green             |
| 6.3.21   | Midrib ventral color:            | Medium Green            |



### BUNCH

|        |                    |   |
|--------|--------------------|---|
| 6.4.6  | Bunch position:    | Slightly angled   |
| 6.4.7  | Bunch shape:       | Short cylinder  |
| 6.4.8  | Bunch appearance:  | Lax   |
| 6.4.10 | Fruit positioning: | Biseriate   |
| 6.4.11 | Rachis type:       | Present   |
| 6.4.12 | Rachis position:   | Falling vertically  |
| 6.4.13 | Rachis appearance: | Neutral/male flowers on the whole stalk without persistent bracts |
| 7.9    | Bunch weight:      | 5.14 kg   |
| 6.7.1  | Fruit position:    | Curved upward   |
| 7.10   | Number of hands:   | 4.8   |
| 7.11   | Number of fruits:  | 58.5  |



Bunch



Bunch & Rachis

### PEDUNCLE

|       |                  |                |
|-------|------------------|----------------|
| 6.4.1 | Peduncle length: | ≥61 cm         |
| 6.4.2 | Empty nodes:     | 2              |
| 6.4.3 | Peduncle width:  | 7-12 cm        |
| 6.4.4 | Peduncle color:  | Medium Green   |
| 6.4.5 | Hairiness:       | Slightly hairy |



Peduncle



Male Bud

### MALE BUD

|        |                               |                               |
|--------|-------------------------------|-------------------------------|
| 6.6.1  | Flower behavior:              | Falling before bract          |
| 6.4.14 | Bud type:                     | Normal                        |
| 6.4.15 | Bud shape:                    | Intermediate                  |
| 6.4.16 | Bud size:                     | 22.6 cm                       |
| 6.5.2  | Bract apex shape:             | Obtuse and split              |
| 6.5.3  | Bract imbrication:            | Young bracts slightly overlap |
| 6.5.4  | Color of bract external face: | Red Purple                    |
| 6.5.5  | Color of bract internal face: | Red                           |
| 6.5.6  | Apex color:                   | Tinted with yellow            |
| 6.5.7  | Color stripes:                | Without discolored lines      |
| 6.5.9  | Base fading:                  | Color homogeneous             |
| 6.5.10 | Bract shape:                  | 0.35                          |
| 6.5.11 | Lifting:                      | Two or more at a time         |
| 6.5.12 | Behavior:                     | Not revolute                  |
| 6.5.13 | Wax:                          | Moderately waxy               |
| 6.5.14 | Grooves:                      | Moderate grooving             |



Opened Bract



Bract Shape



## DESCRIPTORS

### FLOWER

|        |                             |                           |
|--------|-----------------------------|---------------------------|
| 6.6.2  | Compound tepal basic color: | Yellow                    |
| 6.6.3  | Pigmentation:               | None                      |
| 6.6.4  | Lobe color:                 | Orange                    |
| 6.6.5  | Lobe development:           | Very developed            |
| 6.6.6  | Free tepal color:           | Tinted with yellow        |
| 6.6.7  | Free tepal shape:           | Oval                      |
| 6.6.8  | Appearance:                 | Simple folding under apex |
| 6.6.9  | Apex development:           | Little/not visible        |
| 6.6.10 | Apex shape:                 | Thread-like               |
| 6.6.11 | Anther exertion:            | Same level                |
| 6.6.12 | Filament color:             | Yellow                    |
| 6.6.13 | Anther color:               | Bright Yellow             |
| 6.6.14 | Pollen sac color:           | Yellow                    |
| 6.6.16 | Style basic color:          | White                     |
| 6.6.18 | Style exertion:             | Same level                |
| 6.6.19 | Style shape:                | Straight                  |
| 6.6.20 | Stigma color:               | Yellow                    |
| 6.6.21 | Ovary shape:                | Arched                    |
| 6.6.22 | Ovary basic color:          | Cream                     |
| 6.6.23 | Ovary pigmentation:         | With Red-purple           |
| 6.6.24 | Flower dominant color:      | Yellow                    |
| 6.6.25 | Irregular flowers:          | 0.0                       |



Flower

Pistil/Stamen

### HANDS & FRUITS

|        |                                 |                            |
|--------|---------------------------------|----------------------------|
| 7.12   | Exterior middle fruit length:   | 15.4 cm                    |
| 7.13   | Exterior middle fruit diameter: | 16.4 cm                    |
| 6.7.3  | Interior middle fruit length:   | 14.8 cm                    |
| 6.7.8  | Fruit pedicel length:           | ≥21 mm                     |
| 6.7.9  | Fruit pedicel width:            | >10 mm                     |
| 6.7.10 | Pedicel surface:                | Hairless                   |
| 6.7.11 | Fusion:                         | Very partial/not visible   |
| 6.7.4  | Fruit shape:                    | Straight                   |
| 6.7.5  | Transverse section:             | Pronounced ridges          |
| 6.7.6  | Fruit apex:                     | Blunt-tipped               |
| 6.7.7  | Flower relicts:                 | Without any floral relicts |
| 6.7.12 | Immature fruit peel color:      | Light Green                |
| 6.7.18 | Pulp color before maturity:     | Ivory                      |
| 6.7.13 | Mature fruit peel color:        | Bright Yellow              |
| 6.7.14 | Fruit peel thickness:           | Three or more              |
| 6.7.15 | Fruit peel adherence:           | Fruit peels easily         |
| 6.7.16 | Cracks in fruit peel:           | Without cracks             |
| 6.7.17 | Pulp in fruit:                  | With pulp                  |
| 6.7.19 | Pulp color at maturity:         | Cream                      |
| 6.7.20 | Fruits fall:                    | Persistent                 |
| 6.7.21 | Flesh texture:                  | Firm                       |
| 6.7.22 | Fruit taste:                    | Sugary                     |
| 6.7.23 | Presence of seed:               | Not present                |
| 6.7.24 | Seed surface:                   | -                          |
| 6.7.25 | Seed shape:                     | -                          |



Ripe Fruit



Fruit - Third Hand

# Obubit Ntanga Green Mutant

OBUBIT NTANGA GREEN MUTANT - AAB



## GENETIC (SSR)

| MARKER    | ALLELES |     |     |
|-----------|---------|-----|-----|
| mMaCIR01  | 240     | 248 | 279 |
| mMaCIR03  | 101     | 106 | -   |
| mMACIR07  | 136     | 139 | 152 |
| mMACIR08  | 241     | -   | -   |
| mMACIR13  | 246     | 265 | -   |
| mMACIR24  | 220     | 228 | -   |
| mMACIR27  | 217     | 225 | -   |
| mMACIR39  | 315     | 336 | -   |
| mMACIR40  | 164     | 181 | -   |
| mMACIR45  | 266     | 269 | -   |
| mMACIR150 | 237     | -   | -   |
| mMACIR152 | 141     | 176 | -   |
| mMACIR164 | 294     | 387 | -   |
| mMACIR196 | 159     | 162 | -   |
| mMACIR214 | 105     | 107 | -   |
| mMACIR231 | 226     | 230 | -   |
| mMACIR260 | 190     | 192 | -   |
| mMACIR264 | 224     | 233 | 241 |
| mMACIR307 | 145     | 149 | -   |
| Ma 1-32   | 227     | 232 | -   |
| Ma 3-90   | 131     | 142 | 147 |

## PASSPORT

### TAXONOMY

|   |                      |
|---|----------------------|
| Genus:                                    | <i>Musa</i>          |
| Species/Group:                            | AAB                  |
| Subspecies/Subgroup:                      | Plantain (French)    |
| <i>Musa</i> sect. <i>Musa</i> (Häkkinen): | <i>Musa</i> (Eumusa) |

### GENERAL

|           |            |
|-----------|------------|
| Synonyms: | -          |
| Status:   | -          |
| Origin:   | Nigeria    |
| ITC code: | ITC0519    |
| Donor:    | IITA, 1988 |



# Obubit Ntanga Green Mutant

## DESCRIPTORS



Pseudostem



Plant



Neck



Petiole



Petiole

## PLANT

|        |                         |                               |
|--------|-------------------------|-------------------------------|
| 7.3    | Planting to shooting:   | 221 days                      |
| 7.15   | Leaves at flowering:    | 14.0                          |
| 7.5    | Plant crop cycle:       | 335 days                      |
| 7.16   | Leaves at harvest:      | 7.8                           |
| 6.3.22 | Cigar leaf color:       | Light Green                   |
| 7.6    | Pseudostem height:      | 3.62 m                        |
| 7.7    | Pseudostem diameter:    | 20.2 cm                       |
| 6.2.3  | Pseudostem color:       | Orange Red                    |
| 6.2.5  | Underlying color:       | Light Green                   |
| 6.2.6  | Pigmentation:           | Purple brown                  |
| 6.2.7  | Sap color:              | Milky                         |
| 7.8    | Height of ratoon:       | 2.65 m                        |
| 6.2.10 | Development of suckers: | Between 1/4 and 3/4 of parent |
| 6.2.11 | Position of suckers:    | Close (growing vertically)    |

## PETIOLE & LEAVES

|          |                               |                     |
|----------|-------------------------------|---------------------|
| 6.1.1    | Leaf habit                    | Intermediate        |
| 6.1.2    | Dwarfism:                     | Normal              |
| 6.3.1    | Blotches at the petiole base: | Sparse blotching    |
| 6.3.2    | Blotches color:               | Brown-black         |
| 6.3.3    | Petiole canal:                | Wide Erect          |
| 6.3.4    | Petiole margins:              | Winged and clasping |
| 6.3.5    | Wing type:                    | Dry                 |
| 6.3.6    | Petiole margin color:         | Medium Green        |
| 6.3.11   | Petiole length:               | ≤50 cm              |
| 6.3.7    | Rim color:                    | Red Purple          |
| 6.3.9    | Leaf blade length:            | 235.5 cm            |
| 6.3.10   | Leaf blade width:             | 87.5 cm             |
| 6.3.10.1 | Leaf ratio:                   | 2.7                 |
| 6.3.12   | Leaf upper surface:           | Dark Green          |
| 6.3.13   | Upper appearance:             | Shiny               |
| 6.3.14   | Leaf lower surface:           | Medium Green        |
| 6.3.15   | Lower appearance:             | Dull                |
| 6.3.16   | Wax on leaves:                | Moderately wax      |
| 6.3.17   | Insertion point of blades:    | Asymmetric          |
| 6.3.18   | Blade base:                   | Both sides rounded  |
| 6.3.19   | Corrugation:                  | Few stripes         |
| 6.3.20   | Midrib dorsal color:          | Light Green         |
| 6.3.21   | Midrib ventral color:         | Green               |



# Obubit Ntanga Green Mutant

## DESCRIPTORS

### BUNCH

|        |                    |  |
|--------|--------------------|--|
| 6.4.6  | Bunch position:    | Hanging vertically   |
| 6.4.7  | Bunch shape:       | Short cylinder   |
| 6.4.8  | Bunch appearance:  | Compact  |
| 6.4.10 | Fruit positioning: | Biseriate  |
| 6.4.11 | Rachis type:       | Present  |
| 6.4.12 | Rachis position:   | Falling vertically   |
| 6.4.13 | Rachis appearance: | Neutral/male flowers and presence of withered bracts on the entire stalk |
| 7.9    | Bunch weight:      | 29.96 kg   |
| 6.7.1  | Fruit position:    | Several/ Perpendicular being the most common                             |
| 7.10   | Number of hands:   | 8.3  |
| 7.11   | Number of fruits:  | 114.0  |



Bunch



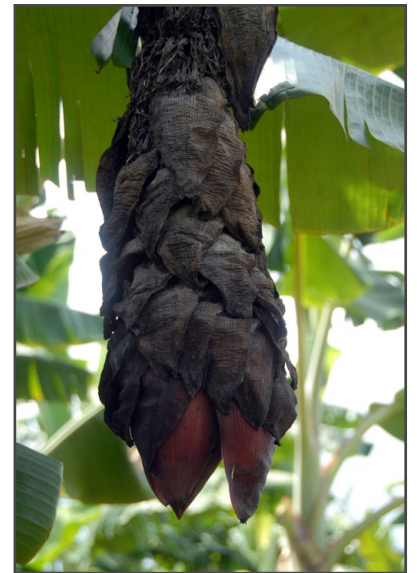
Bunch & Rachis

### PEDUNCLE

|       |                  |          |
|-------|------------------|----------|
| 6.4.1 | Peduncle length: | 31-60 cm |
| 6.4.2 | Empty nodes:     | 1.5      |
| 6.4.3 | Peduncle width:  | ≤6 cm    |
| 6.4.4 | Peduncle color:  | Green    |
| 6.4.5 | Hairiness:       | Hairless |



Peduncle



Male Bud

### MALE BUD

|        |                               |                                      |
|--------|-------------------------------|--------------------------------------|
| 6.6.1  | Flower behaviour:             | Neutral                              |
| 6.4.14 | Bud type:                     | Normal                               |
| 6.4.15 | Bud shape:                    | Ovoid                                |
| 6.4.16 | Bud size:                     | 13.1 cm                              |
| 6.5.2  | Bract apex shape:             | Pointed                              |
| 6.5.3  | Bract imbrication:            | Old bracts overlap at apex of bud    |
| 6.5.4  | Color of bract external face: | Red Purple                           |
| 6.5.5  | Color of bract internal face: | Pink Purple                          |
| 6.5.6  | Apex color:                   | Tinted with yellow                   |
| 6.5.7  | Color stripes:                | Without discolored lines             |
| 6.5.9  | Base fading:                  | Color discontinuing towards the base |
| 6.5.10 | Bract shape:                  | 0.34                                 |
| 6.5.11 | Lifting:                      | Not lifting                          |
| 6.5.12 | Behaviour:                    | Not revolute                         |
| 6.5.13 | Wax:                          | Very little/not visible              |
| 6.5.14 | Grooves:                      | Moderate grooving                    |



Opened Bract



Bract Shape



# Obubit Ntanga Green Mutant

## DESCRIPTORS

### FLOWER

|        |                             |                            |
|--------|-----------------------------|----------------------------|
| 6.6.2  | Compound tepal basic color: | Yellow                     |
| 6.6.3  | Pigmentation:               | None                       |
| 6.6.4  | Lobe color:                 | Bright Yellow              |
| 6.6.5  | Lobe development:           | Very developed             |
| 6.6.6  | Free tepal color:           | Translucent white          |
| 6.6.7  | Free tepal shape:           | Oval                       |
| 6.6.8  | Appearance:                 | Several folding under apex |
| 6.6.9  | Apex development:           | Little/not visible         |
| 6.6.10 | Apex shape:                 | Triangular                 |
| 6.6.11 | Anther exsertion:           | Exserted                   |
| 6.6.12 | Filament color:             | Cream                      |
| 6.6.13 | Anther color :              | Yellow                     |
| 6.6.14 | Pollen sac color:           | Yellow                     |
| 6.6.16 | Style basic color:          | White                      |
| 6.6.18 | Style exsertion:            | Exserted                   |
| 6.6.19 | Style shape:                | Curved at the base         |
| 6.6.20 | Stigma color:               | Yellow                     |
| 6.6.21 | Ovary shape:                | Arched                     |
| 6.6.22 | Ovary basic color:          | White                      |
| 6.6.23 | Ovary pigmentation:         | Very few/not visible       |
| 6.6.24 | Flower dominant color:      | Yellow                     |
| 6.6.25 | Irregular flowers:          | 1.3                        |

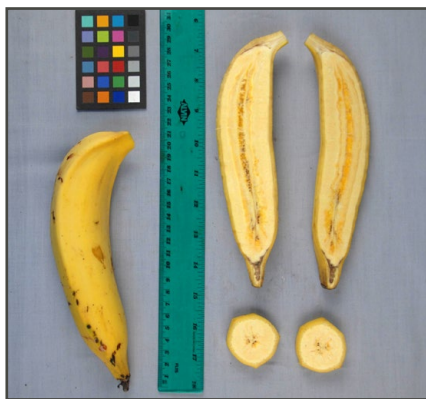


Flower

Pistil/Stamen

### HANDS & FRUITS

|        |                                 |                          |
|--------|---------------------------------|--------------------------|
| 7.12   | Exterior middle fruit length:   | 24.7 cm                  |
| 7.13   | Exterior middle fruit diameter: | 21.8 cm                  |
| 6.7.3  | Interior middle fruit length:   | 24.8 cm                  |
| 6.7.8  | Fruit pedicel length:           | ≥21 mm                   |
| 6.7.9  | Fruit pedicel width:            | >10 mm                   |
| 6.7.10 | Pedicel surface:                | Hairless                 |
| 6.7.11 | Fusion:                         | Very partial/not visible |
| 6.7.4  | Fruit shape:                    | Straight - distal part   |
| 6.7.5  | Transverse section:             | Slightly ridged          |
| 6.7.6  | Fruit apex:                     | Blunt-tipped             |
| 6.7.7  | Flower relicts:                 | Persistent style         |
| 6.7.12 | Immature fruit peel color:      | Light Green              |
| 6.7.18 | Pulp color before maturity:     | Ivory                    |
| 6.7.13 | Mature fruit peel color:        | Yellow                   |
| 6.7.14 | Fruit peel thickness:           | Two or less              |
| 6.7.15 | Fruit peel adherence:           | Does not peel easily     |
| 6.7.16 | Cracks in fruit peel:           | Without cracks           |
| 6.7.17 | Pulp in fruit:                  | With pulp                |
| 6.7.19 | Pulp color at maturity:         | Yellow                   |
| 6.7.20 | Fruits fall:                    | Persistent               |
| 6.7.21 | Flesh texture:                  | Firm                     |
| 6.7.22 | Fruit taste:                    | Astringent               |
| 6.7.23 | Prescense of seed:              | Not present              |
| 6.7.24 | Seed surface:                   | -                        |
| 6.7.25 | Seed shape:                     | -                        |



Ripe Fruit



Fruit - Third Hand

# Pisang Palembang\*

PISANG PALEMBANG - AAB



## GENETIC (SSR)

| MARKER    | ALLELES |     |     |
|-----------|---------|-----|-----|
| mMaCIR01  | 236     | 271 | -   |
| mMaCIR03  | 99      | 100 | 103 |
| mMACIR07  | 145     | 151 | -   |
| mMACIR08  | 245     | -   | -   |
| mMACIR13  | 263     | 265 | 269 |
| mMACIR24  | 222     | 238 | -   |
| mMACIR27  | 223     | -   | -   |
| mMACIR39  | 315     | 336 | -   |
| mMACIR40  | 160     | -   | -   |
| mMACIR45  | 257     | 259 | 266 |
| mMACIR150 | 237     | -   | -   |
| mMACIR152 | 141     | 163 | -   |
| mMACIR164 | 278     | 380 | -   |
| mMACIR196 | 145     | 159 | -   |
| mMACIR214 | 100     | 105 | -   |
| mMACIR231 | 224     | 234 | -   |
| mMACIR260 | 190     | 192 | -   |
| mMACIR264 | 224     | 227 | -   |
| mMACIR307 | 143     | 149 | -   |
| Ma 1-32   | 235     | 241 | -   |
| Ma 3-90   | 142     | 149 | -   |

## PASSPORT

### TAXONOMY

|                             |               |
|-----------------------------|---------------|
| Genus:                      | <i>Musa</i>   |
| Species/Group:              | AAB           |
| Subspecies/Subgroup:        | Pisang Kelat  |
| Musa sect. Musa (Häkkinen): | Musa (Eumusa) |

### GENERAL

|           |                                  |
|-----------|----------------------------------|
| Synonyms: | -                                |
| Status:   | Traditional cultivar or landrace |
| Origin:   | Malaysia                         |
| ITC code: | ITC0450                          |
| Donor:    | FHIA, 1988                       |

\* Following review by personnel on the Taxonomic Advisory Group, this accession appears to be an off-type or, at least under the growing conditions at the USDA-ARS TARS site, did not show typical phenotypes for the accession.



## DESCRIPTORS



Pseudostem



Plant



Neck



Petiole



Petiole

## PLANT

|        |                         |                              |
|--------|-------------------------|------------------------------|
| 7.3    | Planting to shooting:   | 295 days                     |
| 7.15   | Leaves at flowering:    | 12                           |
| 7.5    | Plant crop cycle:       | 380 days                     |
| 7.16   | Leaves at harvest:      | 7.7                          |
| 6.3.22 | Cigar leaf color:       | Light Green                  |
| 7.6    | Pseudostem height:      | 3.73 m                       |
| 7.7    | Pseudostem diameter:    | 15.7 cm                      |
| 6.2.3  | Pseudostem color:       | Medium Green                 |
| 6.2.5  | Underlying color:       | Light Green                  |
| 6.2.6  | Pigmentation:           | Pink Purple                  |
| 6.2.7  | Sap color:              | Watery                       |
| 7.8    | Height of ratoon:       | 3.36 m                       |
| 6.2.10 | Development of suckers: | More than 3/4 of parent size |
| 6.2.11 | Position of suckers:    | Close (growing vertically)   |

## PETIOLE & LEAVES

|          |                               |                               |
|----------|-------------------------------|-------------------------------|
| 6.1.1    | Leaf habit:                   | Erect                         |
| 6.1.2    | Dwarfism:                     | Normal                        |
| 6.3.1    | Blotches at the petiole base: | Small                         |
| 6.3.2    | Blotches color:               | Dark Brown                    |
| 6.3.3    | Petiole canal:                | Wide Erect                    |
| 6.3.4    | Petiole margins:              | Winged and clasping           |
| 6.3.5    | Wing type:                    | Not dry                       |
| 6.3.6    | Petiole margin color:         | Purple Brown                  |
| 6.3.11   | Petiole length:               | ≥71 cm                        |
| 6.3.7    | Rim color:                    | Pink Purple                   |
| 6.3.9    | Leaf blade length:            | 234.3 cm                      |
| 6.3.10   | Leaf blade width:             | 78.5 cm                       |
| 6.3.10.1 | Leaf ratio:                   | 3.0                           |
| 6.3.12   | Leaf upper surface:           | Dark Green                    |
| 6.3.13   | Upper appearance:             | Dull                          |
| 6.3.14   | Leaf lower surface:           | Light Green                   |
| 6.3.15   | Lower appearance:             | Dull                          |
| 6.3.16   | Wax on leaves:                | Moderate                      |
| 6.3.17   | Insertion point of blades:    | Symmetric                     |
| 6.3.18   | Blade base:                   | One side rounded, one pointed |
| 6.3.19   | Corrugation:                  | Very corrugated               |
| 6.3.20   | Midrib dorsal color:          | Light Green                   |
| 6.3.21   | Midrib ventral color:         | Medium Green                  |



# Pisang Palembang

## DESCRIPTORS

### BUNCH

|        |                    |   |
|--------|--------------------|---|
| 6.4.6  | Bunch position:    | Horizontal  |
| 6.4.7  | Bunch shape:       | Short cylinder  |
| 6.4.8  | Bunch appearance:  | Lax   |
| 6.4.10 | Fruit positioning: | Biseriate   |
| 6.4.11 | Rachis type:       | Present   |
| 6.4.12 | Rachis position:   | Falling vertically  |
| 6.4.13 | Rachis appearance: | Small bunch from neutral/ hermaphrodite flowers just above the male bud |
| 7.9    | Bunch weight:      | 3.35 kg   |
| 6.7.1  | Fruit position:    | Perpendicular to the stalk  |
| 7.10   | Number of hands:   | 7.7   |
| 7.11   | Number of fruits:  | 81.0  |



Bunch



Bunch & Rachis

### PEDUNCLE

|       |                  |              |
|-------|------------------|--------------|
| 6.4.1 | Peduncle length: | 31-60 cm     |
| 6.4.2 | Empty nodes:     | None         |
| 6.4.3 | Peduncle width:  | ≤6 cm        |
| 6.4.4 | Peduncle color:  | Medium Green |
| 6.4.5 | Hairiness:       | Hairless     |



Peduncle



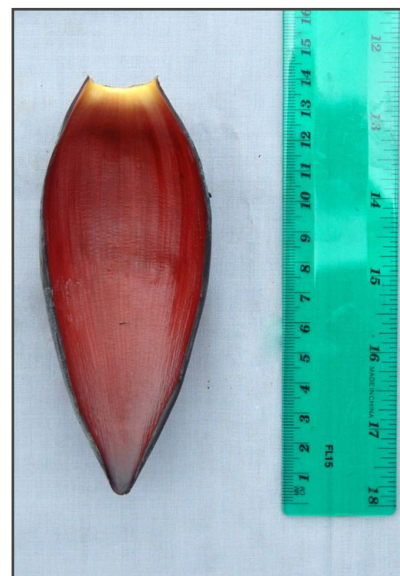
Male Bud

### MALE BUD

|        |                               |                               |
|--------|-------------------------------|-------------------------------|
| 6.6.1  | Flower behaviour:             | -                             |
| 6.4.14 | Bud type:                     | Degenerating before maturity  |
| 6.4.15 | Bud shape:                    | Like a top                    |
| 6.4.16 | Bud size:                     | 10.0 cm                       |
| 6.5.2  | Bract apex shape:             | Slightly pointed              |
| 6.5.3  | Bract imbrication:            | Young bracts slightly overlap |
| 6.5.4  | Color of bract external face: | Purple                        |
| 6.5.5  | Color of bract internal face: | Red                           |
| 6.5.6  | Apex color:                   | -                             |
| 6.5.7  | Color stripes:                | -                             |
| 6.5.9  | Base fading:                  | -                             |
| 6.5.10 | Bract shape:                  | -                             |
| 6.5.11 | Lifting:                      | -                             |
| 6.5.12 | Behaviour:                    | Revolute                      |
| 6.5.13 | Wax:                          | -                             |
| 6.5.14 | Grooves:                      | -                             |



Opened Bract



Bract Shape



## DESCRIPTORS

### FLOWER

|        |                             |        |
|--------|-----------------------------|--------|
| 6.6.2  | Compound tepal basic color: | Cream  |
| 6.6.3  | Pigmentation:               | -      |
| 6.6.4  | Lobe color:                 | Yellow |
| 6.6.5  | Lobe development:           | -      |
| 6.6.6  | Free tepal color:           | -      |
| 6.6.7  | Free tepal shape:           | -      |
| 6.6.8  | Appearance:                 | -      |
| 6.6.9  | Apex development:           | -      |
| 6.6.10 | Apex shape:                 | -      |
| 6.6.11 | Anther exsertion:           | -      |
| 6.6.12 | Filament color:             | -      |
| 6.6.13 | Anther color:               | Ivory  |
| 6.6.14 | Pollen sac color:           | -      |
| 6.6.16 | Style basic color:          | -      |
| 6.6.18 | Style exsertion:            | -      |
| 6.6.19 | Style shape:                | -      |
| 6.6.20 | Stigma color:               | -      |
| 6.6.21 | Ovary shape:                | -      |
| 6.6.22 | Ovary basic color:          | -      |
| 6.6.23 | Ovary pigmentation:         | -      |
| 6.6.24 | Flower dominant color:      | Cream  |
| 6.6.25 | Irregular flowers:          | -      |



Flower

Pistil/Stamen

### HANDS & FRUITS

|        |                                 |                  |
|--------|---------------------------------|------------------|
| 7.12   | Exterior middle fruit length:   | 10.0 cm          |
| 7.13   | Exterior middle fruit diameter: | 26.0 cm          |
| 6.7.3  | Interior middle fruit length:   | 8.8 cm           |
| 6.7.8  | Fruit pedicel length:           | 11 to 20 mm      |
| 6.7.9  | Fruit pedicel width:            | 1                |
| 6.7.10 | Pedicel surface:                | -                |
| 6.7.11 | Fusion:                         | Partially fused  |
| 6.7.4  | Fruit shape:                    | -                |
| 6.7.5  | Transverse section:             | 33               |
| 6.7.6  | Fruit apex:                     | Blunt-tipped     |
| 6.7.7  | Flower relicts:                 | Persistent style |
| 6.7.12 | Immature fruit peel color:      | -                |
| 6.7.18 | Pulp color before maturity:     | -                |
| 6.7.13 | Mature fruit peel color:        | -                |
| 6.7.14 | Fruit peel thickness:           | -                |
| 6.7.15 | Fruit peel adherence:           | -                |
| 6.7.16 | Cracks in fruit peel:           | -                |
| 6.7.17 | Pulp in fruit:                  | -                |
| 6.7.19 | Pulp color at maturity:         | -                |
| 6.7.20 | Fruits fall:                    | -                |
| 6.7.21 | Flesh texture:                  | -                |
| 6.7.22 | Fruit taste:                    | -                |
| 6.7.23 | Prescense of seed:              | -                |
| 6.7.24 | Seed surface:                   | -                |
| 6.7.25 | Seed shape:                     | -                |



Ripe Fruit



Fruit - Third Hand



GENETIC (SSR)

| MARKER    | ALLELES |     |     |
|-----------|---------|-----|-----|
| mMaCIR01  | 252     | 290 | -   |
| mMaCIR03  | 100     | -   | -   |
| mMACIR07  | 136     | 139 | 145 |
| mMACIR08  | 241     | -   | -   |
| mMACIR13  | 246     | 251 | 265 |
| mMACIR24  | 222     | 228 | -   |
| mMACIR27  | 217     | -   | -   |
| mMACIR39  | 315     | 325 | 336 |
| mMACIR40  | 162     | 181 | -   |
| mMACIR45  | 257     | 266 | -   |
| mMACIR150 | 239     | 241 | 243 |
| mMACIR152 | 163     | 176 | -   |
| mMACIR164 | 278     | 387 | -   |
| mMACIR196 | 159     | 162 | -   |
| mMACIR214 | 103     | 105 | -   |
| mMACIR231 | 224     | 230 | -   |
| mMACIR260 | 190     | 206 | -   |
| mMACIR264 | 224     | 243 | -   |
| mMACIR307 | 145     | 149 | -   |
| Ma 1-32   | 221     | 227 | -   |
| Ma 3-90   | 131     | 142 | 144 |

PASSPORT

TAXONOMY

|   |                               |
|---|-------------------------------|
| Genus:                                    | <i>Musa</i>                   |
| Species/Group:                            | ABB                           |
| Subspecies/Subgroup:                      | Bluggoe                       |
| <i>Musa</i> sect. <i>Musa</i> (Häkkinen): | <i>Musa</i> ( <i>Eumusa</i> ) |

GENERAL

|           |                                  |
|-----------|----------------------------------|
| Synonyms: | -                                |
| Status:   | Traditional cultivar or landrace |
| Origin:   | -                                |
| ITC code: | ITC0767                          |
| Donor:    | CIRAD, 1990                      |



## DESCRIPTORS



Pseudostem



Plant



Neck



Petiole



Petiole

## PLANT

|        |                         |                              |
|--------|-------------------------|------------------------------|
| 7.3    | Planting to shooting:   | 205 days                     |
| 7.15   | Leaves at flowering:    | 20                           |
| 7.5    | Plant crop cycle:       | 291 days                     |
| 7.16   | Leaves at harvest:      | 12.3                         |
| 6.3.22 | Cigar leaf color:       | Light Green                  |
| 7.6    | Pseudostem height:      | 3.25 m                       |
| 7.7    | Pseudostem diameter:    | 15.5 cm                      |
| 6.2.3  | Pseudostem color:       | Medium Green                 |
| 6.2.5  | Underlying color:       | Medium Green                 |
| 6.2.6  | Pigmentation:           | Cream                        |
| 6.2.7  | Sap color:              | Watery                       |
| 7.8    | Height of ratoon:       | 2.31 m                       |
| 6.2.10 | Development of suckers: | More than 3/4 of parent size |
| 6.2.11 | Position of suckers:    | Close (growing vertically)   |

## PETIOLE &amp; LEAVES

|          |                               |                         |
|----------|-------------------------------|-------------------------|
| 6.1.1    | Leaf habit:                   | Intermediate            |
| 6.1.2    | Dwarfism:                     | Normal                  |
| 6.3.1    | Blotches at the petiole base: | Sparse blotching        |
| 6.3.2    | Blotches color:               | Dark brown              |
| 6.3.3    | Petiole canal:                | Straight Erect          |
| 6.3.4    | Petiole margins:              | Not winged and clasping |
| 6.3.5    | Wing type:                    | -                       |
| 6.3.6    | Petiole margin color:         | Medium Green            |
| 6.3.11   | Petiole length:               | 51 to 70 cm             |
| 6.3.7    | Rim color:                    | Watery Green            |
| 6.3.9    | Leaf blade length:            | 185.8 cm                |
| 6.3.10   | Leaf blade width:             | 56.0 cm                 |
| 6.3.10.1 | Leaf ratio:                   | 3.3                     |
| 6.3.12   | Leaf upper surface:           | Dark Green              |
| 6.3.13   | Upper appearance:             | Shiny                   |
| 6.3.14   | Leaf lower surface:           | Watery Green            |
| 6.3.15   | Lower appearance:             | Dull                    |
| 6.3.16   | Wax on leaves:                | Very waxy               |
| 6.3.17   | Insertion point of blades:    | Symmetric               |
| 6.3.18   | Blade base:                   | Both sides rounded      |
| 6.3.19   | Corrugation:                  | Few stripes             |
| 6.3.20   | Midrib dorsal color:          | Light Green             |
| 6.3.21   | Midrib ventral color:         | Green                   |



### BUNCH

|        |                    |                            |
|--------|--------------------|----------------------------|
| 6.4.6  | Bunch position:    | Hanging vertically         |
| 6.4.7  | Bunch shape:       | Short cylinder             |
| 6.4.8  | Bunch appearance:  | Lax                        |
| 6.4.10 | Fruit positioning: | Biseriate                  |
| 6.4.11 | Rachis type:       | Present                    |
| 6.4.12 | Rachis position:   | Falling vertically         |
| 6.4.13 | Rachis appearance: | Bare                       |
| 7.9    | Bunch weight:      | 7.95 kg                    |
| 6.7.1  | Fruit position:    | Perpendicular to the stalk |
| 7.10   | Number of hands:   | 6.0                        |
| 7.11   | Number of fruits:  | 50.8                       |



Bunch



Bunch & Rachis

### PEDUNCLE

|       |                  |              |
|-------|------------------|--------------|
| 6.4.1 | Peduncle length: | ≥61 cm       |
| 6.4.2 | Empty nodes:     | 2            |
| 6.4.3 | Peduncle width:  | ≤6 cm        |
| 6.4.4 | Peduncle color:  | Medium Green |
| 6.4.5 | Hairiness:       | Hairless     |



Peduncle



Male Bud

### MALE BUD

|        |                               |                               |
|--------|-------------------------------|-------------------------------|
| 6.6.1  | Flower behavior:              | Falling before bract          |
| 6.4.14 | Bud type:                     | Degenerating before maturity  |
| 6.4.15 | Bud shape:                    | Lanceolate                    |
| 6.4.16 | Bud size:                     | <20 cm                        |
| 6.5.2  | Bract apex shape:             | Intermediate                  |
| 6.5.3  | Bract imbrication:            | Young bracts slightly overlap |
| 6.5.4  | Color of bract external face: | Purple Brown                  |
| 6.5.5  | Color of bract internal face: | Red                           |
| 6.5.6  | Apex color:                   | Tinted with yellow            |
| 6.5.7  | Color stripes:                | Without discolored lines      |
| 6.5.9  | Base fading:                  | Color homogeneous             |
| 6.5.10 | Bract shape:                  | 0.46                          |
| 6.5.11 | Lifting:                      | Two or more at a time         |
| 6.5.12 | Behavior:                     | Revolute                      |
| 6.5.13 | Wax:                          | Very waxy                     |
| 6.5.14 | Grooves:                      | Moderate grooving             |



Opened Bract



Bract Shape



## DESCRIPTORS

## FLOWER

|        |                             |                     |
|--------|-----------------------------|---------------------|
| 6.6.2  | Compound tepal basic color: | Cream               |
| 6.6.3  | Pigmentation:               | Red                 |
| 6.6.4  | Lobe color:                 | Bright Yellow       |
| 6.6.5  | Lobe development:           | Developed           |
| 6.6.6  | Free tepal color:           | Tinted with pink    |
| 6.6.7  | Free tepal shape:           | Oval                |
| 6.6.8  | Appearance:                 | More or less smooth |
| 6.6.9  | Apex development:           | Very developed      |
| 6.6.10 | Apex shape:                 | Triangular          |
| 6.6.11 | Anther exertion:            | Exserted            |
| 6.6.12 | Filament color:             | White               |
| 6.6.13 | Anther color:               | Yellow              |
| 6.6.14 | Pollen sac color:           | Ivory               |
| 6.6.16 | Style basic color:          | White               |
| 6.6.18 | Style exertion:             | Exserted            |
| 6.6.19 | Style shape:                | Straight            |
| 6.6.20 | Stigma color:               | Yellow              |
| 6.6.21 | Ovary shape:                | Straight            |
| 6.6.22 | Ovary basic color:          | White               |
| 6.6.23 | Ovary pigmentation:         | With Red-purple     |
| 6.6.24 | Flower dominant color:      | Pink Purple         |
| 6.6.25 | Irregular flowers:          | 0.8                 |



Flower

Pistil/Stamen

## HANDS &amp; FRUITS

|        |                                 |                          |
|--------|---------------------------------|--------------------------|
| 7.12   | Exterior middle fruit length:   | 16.5 cm                  |
| 7.13   | Exterior middle fruit diameter: | 41.4 cm                  |
| 6.7.3  | Interior middle fruit length:   | 16.3 cm                  |
| 6.7.8  | Fruit pedicel length:           | ≥21 mm                   |
| 6.7.9  | Fruit pedicel width:            | 5 to 10 mm               |
| 6.7.10 | Pedicel surface:                | Hairless                 |
| 6.7.11 | Fusion:                         | Very partial/not visible |
| 6.7.4  | Fruit shape:                    | Straight                 |
| 6.7.5  | Transverse section:             | Slightly ridged          |
| 6.7.6  | Fruit apex:                     | Pointed                  |
| 6.7.7  | Flower relicts:                 | Persistent style         |
| 6.7.12 | Immature fruit peel color:      | Light Green              |
| 6.7.18 | Pulp color before maturity:     | Ivory                    |
| 6.7.13 | Mature fruit peel color:        | Bright Yellow            |
| 6.7.14 | Fruit peel thickness:           | Three or more            |
| 6.7.15 | Fruit peel adherence:           | Fruit peels easily       |
| 6.7.16 | Cracks in fruit peel:           | Without cracks           |
| 6.7.17 | Pulp in fruit:                  | With pulp                |
| 6.7.19 | Pulp color at maturity:         | Ivory                    |
| 6.7.20 | Fruits fall:                    | Persistent               |
| 6.7.21 | Flesh texture:                  | Firm                     |
| 6.7.22 | Fruit taste:                    | Astringent               |
| 6.7.23 | Prescense of seed:              | Not present              |
| 6.7.24 | Seed surface:                   | -                        |
| 6.7.25 | Seed shape:                     | -                        |



Ripe Fruit



Fruit - Third Hand

# Namwa Khom

NAMWA KHOM - ABB



## GENETIC (SSR)

| MARKER    | ALLELES |     |     |
|-----------|---------|-----|-----|
| mMaCIR01  | 252     | 281 | 290 |
| mMaCIR03  | 100     | 103 | -   |
| mMACIR07  | 150     | 151 | -   |
| mMACIR08  | 245     | -   | -   |
| mMACIR13  | 251     | 265 | 269 |
| mMACIR24  | 228     | -   | -   |
| mMACIR27  | 223     | -   | -   |
| mMACIR39  | 309     | 336 | 341 |
| mMACIR40  | 160     | -   | -   |
| mMACIR45  | 257     | -   | -   |
| mMACIR150 | 237     | 239 | 241 |
| mMACIR152 | 141     | 160 | 163 |
| mMACIR164 | 296     | 380 | -   |
| mMACIR196 | 155     | 159 | -   |
| mMACIR214 | 100     | 103 | 105 |
| mMACIR231 | 224     | 230 | 234 |
| mMACIR260 | 192     | -   | -   |
| mMACIR264 | 224     | 227 | -   |
| mMACIR307 | 143     | 149 | -   |
| Ma 1-32   | 221     | -   | -   |
| Ma 3-90   | 131     | 144 | 149 |

## PASSPORT

### TAXONOMY

|                             |               |
|-----------------------------|---------------|
| Genus:                      | <i>Musa</i>   |
| Species/Group:              | ABB           |
| Subspecies/Subgroup:        | Pisang Awak   |
| Musa sect. Musa (Häkkinen): | Musa (Eumusa) |

### GENERAL

|           |                                  |
|-----------|----------------------------------|
| Synonyms: | -                                |
| Status:   | Traditional cultivar or landrace |
| Origin:   | Thailand                         |
| ITC code: | ITC0659                          |
| Donor:    | CIRAD, 1989                      |



## DESCRIPTORS



Pseudostem



Plant



Neck



Petiole



Petiole

## PLANT

|        |                         |                              |
|--------|-------------------------|------------------------------|
| 7.3    | Planting to shooting:   | 218 days                     |
| 7.15   | Leaves at flowering:    | 20                           |
| 7.5    | Plant crop cycle:       | 362 days                     |
| 7.16   | Leaves at harvest:      | 12.3                         |
| 6.3.22 | Cigar leaf color:       | Medium Green                 |
| 7.6    | Pseudostem height:      | 2.42 m                       |
| 7.7    | Pseudostem diameter:    | 21.3 cm                      |
| 6.2.3  | Pseudostem color:       | Green Yellow/Pink Purple     |
| 6.2.5  | Underlying color:       | Light Green                  |
| 6.2.6  | Pigmentation:           | Pink Purple                  |
| 6.2.7  | Sap color:              | Watery                       |
| 7.8    | Height of ratoon:       | 2.45 m                       |
| 6.2.10 | Development of suckers: | More than 3/4 of parent size |
| 6.2.11 | Position of suckers:    | Close (growing vertically)   |

## PETIOLE & LEAVES

|          |                               |                         |
|----------|-------------------------------|-------------------------|
| 6.1.1    | Leaf habit:                   | Intermediate            |
| 6.1.2    | Dwarfism:                     | Dwarf type              |
| 6.3.1    | Blotches at the petiole base: | Sparse blotching        |
| 6.3.2    | Blotches color:               | Brown-black             |
| 6.3.3    | Petiole canal:                | Straight Erect          |
| 6.3.4    | Petiole margins:              | Not winged and clasping |
| 6.3.5    | Wing type:                    | Dry                     |
| 6.3.6    | Petiole margin color:         | Medium Green            |
| 6.3.11   | Petiole length:               | ≤50 cm                  |
| 6.3.7    | Rim color:                    | Light Green             |
| 6.3.9    | Leaf blade length:            | 145.5 cm                |
| 6.3.10   | Leaf blade width:             | 75.3 cm                 |
| 6.3.10.1 | Leaf ratio:                   | 1.9                     |
| 6.3.12   | Leaf upper surface:           | Dark Green              |
| 6.3.13   | Upper appearance:             | Shiny                   |
| 6.3.14   | Leaf lower surface:           | Green                   |
| 6.3.15   | Lower appearance:             | Dull                    |
| 6.3.16   | Wax on leaves:                | Moderate                |
| 6.3.17   | Insertion point of blades:    | Symmetric               |
| 6.3.18   | Blade base:                   | Both sides rounded      |
| 6.3.19   | Corrugation:                  | Very corrugated         |
| 6.3.20   | Midrib dorsal color:          | Light Green             |
| 6.3.21   | Midrib ventral color:         | Medium Green            |



### BUNCH

|        |                    |                    |
|--------|--------------------|--------------------|
| 6.4.6  | Bunch position:    | Hanging vertically |
| 6.4.7  | Bunch shape:       | Short cylinder     |
| 6.4.8  | Bunch appearance:  | Compact            |
| 6.4.10 | Fruit positioning: | Biseriate          |
| 6.4.11 | Rachis type:       | Present            |
| 6.4.12 | Rachis position:   | Falling vertically |
| 6.4.13 | Rachis appearance: | Bare               |
| 7.9    | Bunch weight:      | 20.1 kg            |
| 6.7.1  | Fruit position:    | Curved upward      |
| 7.10   | Number of hands:   | 10.8               |
| 7.11   | Number of fruits:  | 183.5              |



Bunch



Bunch & Rachis

### PEDUNCLE

|       |                  |              |
|-------|------------------|--------------|
| 6.4.1 | Peduncle length: | 31-60 cm     |
| 6.4.2 | Empty nodes:     | 2            |
| 6.4.3 | Peduncle width:  | 7-12 cm      |
| 6.4.4 | Peduncle color:  | Medium Green |
| 6.4.5 | Hairiness:       | Hairless     |



Peduncle



Male Bud

### MALE BUD

|        |                               |                               |
|--------|-------------------------------|-------------------------------|
| 6.6.1  | Flower behavior:              | Falling after bract           |
| 6.4.14 | Bud type:                     | Normal                        |
| 6.4.15 | Bud shape:                    | Ovoid                         |
| 6.4.16 | Bud size:                     | 23.0 cm                       |
| 6.5.2  | Bract apex shape:             | Obtuse and split              |
| 6.5.3  | Bract imbrication:            | Young bracts slightly overlap |
| 6.5.4  | Color of bract external face: | Red Purple                    |
| 6.5.5  | Color of bract internal face: | Red                           |
| 6.5.6  | Apex color:                   | Tinted with yellow            |
| 6.5.7  | Color stripes:                | Without discolored lines      |
| 6.5.9  | Base fading:                  | Color homogeneous             |
| 6.5.10 | Bract shape:                  | 0.26                          |
| 6.5.11 | Lifting:                      | Two or more at a time         |
| 6.5.12 | Behavior:                     | Not revolute                  |
| 6.5.13 | Wax:                          | Moderately waxy               |
| 6.5.14 | Grooves:                      | Moderate grooving             |



Opened Bract



Bract Shape



## DESCRIPTORS

### FLOWER

|        |                             |                           |
|--------|-----------------------------|---------------------------|
| 6.6.2  | Compound tepal basic color: | Cream                     |
| 6.6.3  | Pigmentation:               | Pink Purple               |
| 6.6.4  | Lobe color:                 | Bright Yellow             |
| 6.6.5  | Lobe development:           | Very developed            |
| 6.6.6  | Free tepal color:           | Tinted with pink          |
| 6.6.7  | Free tepal shape:           | Oval                      |
| 6.6.8  | Appearance:                 | Simple folding under apex |
| 6.6.9  | Apex development:           | Little/not visible        |
| 6.6.10 | Apex shape:                 | Triangular                |
| 6.6.11 | Anther exertion:            | Same level                |
| 6.6.12 | Filament color:             | White                     |
| 6.6.13 | Anther color:               | Bright Yellow             |
| 6.6.14 | Pollen sac color:           | Pink Purple               |
| 6.6.16 | Style basic color:          | White                     |
| 6.6.18 | Style exertion:             | Exserted                  |
| 6.6.19 | Style shape:                | Straight                  |
| 6.6.20 | Stigma color:               | Yellow                    |
| 6.6.21 | Ovary shape:                | Arched                    |
| 6.6.22 | Ovary basic color:          | White                     |
| 6.6.23 | Ovary pigmentation:         | Very few/not visible      |
| 6.6.24 | Flower dominant color:      | Bright Yellow             |
| 6.6.25 | Irregular flowers:          | 1.8                       |



Flower

Pistil/Stamen

### HANDS & FRUITS

|        |                                 |                                    |
|--------|---------------------------------|------------------------------------|
| 7.12   | Exterior middle fruit length:   | 14.5 cm                            |
| 7.13   | Exterior middle fruit diameter: | 33.1 cm                            |
| 6.7.3  | Interior middle fruit length:   | 13.3 cm                            |
| 6.7.8  | Fruit pedicel length:           | ≥21 mm                             |
| 6.7.9  | Fruit pedicel width:            | 5 to 10 mm                         |
| 6.7.10 | Pedicel surface:                | Hairless                           |
| 6.7.11 | Fusion:                         | Very partial/not visible           |
| 6.7.4  | Fruit shape:                    | Straight                           |
| 6.7.5  | Transverse section:             | Slightly ridged                    |
| 6.7.6  | Fruit apex:                     | Blunt-tipped                       |
| 6.7.7  | Flower relicts:                 | Without floral relicts             |
| 6.7.12 | Immature fruit peel color:      | Silvery                            |
| 6.7.18 | Pulp color before maturity:     | White                              |
| 6.7.13 | Mature fruit peel color:        | Yellow                             |
| 6.7.14 | Fruit peel thickness:           | Two or less                        |
| 6.7.15 | Fruit peel adherence:           | Fruit peels easily                 |
| 6.7.16 | Cracks in fruit peel:           | Without cracks                     |
| 6.7.17 | Pulp in fruit:                  | With pulp                          |
| 6.7.19 | Pulp color at maturity:         | White                              |
| 6.7.20 | Fruits fall:                    | Deciduous                          |
| 6.7.21 | Flesh texture:                  | Firm                               |
| 6.7.22 | Fruit taste:                    | Mild, slightly tasty, or tasteless |
| 6.7.23 | Prescense of seed:              | Not present                        |
| 6.7.24 | Seed surface:                   | -                                  |
| 6.7.25 | Seed shape:                     | -                                  |



Ripe Fruit



Fruit - Third Hand

# Monthan

MONTHAN - ABB



## GENETIC (SSR)

| MARKER    | ALLELES |     |     |
|-----------|---------|-----|-----|
| mMaCIR01  | 252     | 290 | -   |
| mMaCIR03  | 100     | -   | -   |
| mMACIR07  | 136     | 139 | 145 |
| mMACIR08  | 241     | -   | -   |
| mMACIR13  | 246     | 251 | 265 |
| mMACIR24  | 222     | 228 | -   |
| mMACIR27  | 217     | -   | -   |
| mMACIR39  | 315     | 336 | -   |
| mMACIR40  | 162     | 181 | -   |
| mMACIR45  | 257     | 266 | -   |
| mMACIR150 | 239     | 241 | 243 |
| mMACIR152 | 163     | 176 | -   |
| mMACIR164 | 278     | 387 | -   |
| mMACIR196 | 159     | 162 | -   |
| mMACIR214 | 103     | 105 | -   |
| mMACIR231 | 224     | 230 | -   |
| mMACIR260 | 190     | 206 | -   |
| mMACIR264 | 224     | 243 | -   |
| mMACIR307 | 145     | 149 | -   |
| Ma 1-32   | 221     | 227 | -   |
| Ma 3-90   | 131     | 142 | 144 |

## PASSPORT

### TAXONOMY

|   |                               |
|---|-------------------------------|
| Genus:                                    | <i>Musa</i>                   |
| Species/Group:                            | ABB                           |
| Subspecies/Subgroup:                      | Monthan                       |
| <i>Musa</i> sect. <i>Musa</i> (Häkkinen): | <i>Musa</i> ( <i>Eumusa</i> ) |

### GENERAL

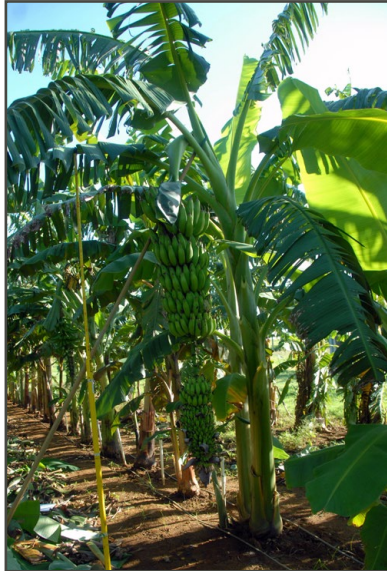
|           |                                  |
|-----------|----------------------------------|
| Synonyms: | -                                |
| Status:   | Traditional cultivar or landrace |
| Origin:   | -                                |
| ITC code: | ITC1483                          |
| Donor:    | CIRAD, FLHOR, 2005               |



## DESCRIPTORS



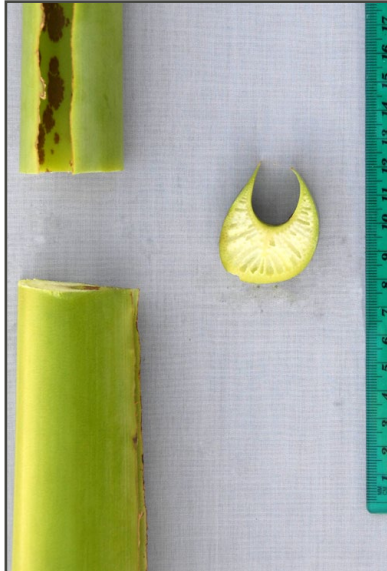
Pseudostem



Plant



Neck



Petiole



Petiole

## PLANT

|        |                         |                              |
|--------|-------------------------|------------------------------|
| 7.3    | Planting to shooting:   | 190 days                     |
| 7.15   | Leaves at flowering:    | 18                           |
| 7.5    | Plant crop cycle:       | 254 days                     |
| 7.16   | Leaves at harvest:      | 14.5                         |
| 6.3.22 | Cigar leaf color:       | Green                        |
| 7.6    | Pseudostem height:      | 3.10 m                       |
| 7.7    | Pseudostem diameter:    | 16.6 cm                      |
| 6.2.3  | Pseudostem color:       | Medium Green                 |
| 6.2.5  | Underlying color:       | Medium Green                 |
| 6.2.6  | Pigmentation:           | None                         |
| 6.2.7  | Sap color:              | Watery                       |
| 7.8    | Height of ratoon:       | 2.21 m                       |
| 6.2.10 | Development of suckers: | More than 3/4 of parent size |
| 6.2.11 | Position of suckers:    | Close (growing vertically)   |

## PETIOLE & LEAVES

|          |                               |                         |
|----------|-------------------------------|-------------------------|
| 6.1.1    | Leaf habit:                   | Intermediate            |
| 6.1.2    | Dwarfism:                     | Normal                  |
| 6.3.1    | Blotches at the petiole base: | Sparse blotching        |
| 6.3.2    | Blotches color:               | Brown                   |
| 6.3.3    | Petiole canal:                | Margins curved inward   |
| 6.3.4    | Petiole margins:              | Not winged and clasping |
| 6.3.5    | Wing type:                    | Not dry                 |
| 6.3.6    | Petiole margin color:         | Medium Green            |
| 6.3.11   | Petiole length:               | 51 to 70 cm             |
| 6.3.7    | Rim color:                    | None                    |
| 6.3.9    | Leaf blade length:            | 236.4 cm                |
| 6.3.10   | Leaf blade width:             | 72.1 cm                 |
| 6.3.10.1 | Leaf ratio:                   | 3.3                     |
| 6.3.12   | Leaf upper surface:           | Green                   |
| 6.3.13   | Upper appearance:             | Shiny                   |
| 6.3.14   | Leaf lower surface:           | Medium Green            |
| 6.3.15   | Lower appearance:             | Dull                    |
| 6.3.16   | Wax on leaves:                | Moderate                |
| 6.3.17   | Insertion point of blades:    | Symmetric               |
| 6.3.18   | Blade base:                   | Both sides rounded      |
| 6.3.19   | Corrugation:                  | Few stripes             |
| 6.3.20   | Midrib dorsal color:          | Light Green             |
| 6.3.21   | Midrib ventral color:         | Medium Green            |



### BUNCH

|        |                    |  |
|--------|--------------------|--|
| 6.4.6  | Bunch position:    | Hanging vertically   |
| 6.4.7  | Bunch shape:       | Cylindrical  |
| 6.4.8  | Bunch appearance:  | Compact  |
| 6.4.10 | Fruit positioning: | Biseriate  |
| 6.4.11 | Rachis type:       | Present  |
| 6.4.12 | Rachis position:   | With a curve   |
| 6.4.13 | Rachis appearance: | Small bunch from neutral hermaphrodite flowers just above the male bud |
| 7.9    | Bunch weight:      | 24.30 kg   |
| 6.7.1  | Fruit position:    | Parallel to the stalk  |
| 7.10   | Number of hands:   | 13.5   |
| 7.11   | Number of fruits:  | 152.3  |



Bunch



Bunch & Rachis

### PEDUNCLE

|       |                  |              |
|-------|------------------|--------------|
| 6.4.1 | Peduncle length: | ≥61 cm       |
| 6.4.2 | Empty nodes:     | 2            |
| 6.4.3 | Peduncle width:  | ≤6 cm        |
| 6.4.4 | Peduncle color:  | Medium Green |
| 6.4.5 | Hairiness:       | Hairless     |



Peduncle



Male Bud

### MALE BUD

|        |                               |                                      |
|--------|-------------------------------|--------------------------------------|
| 6.6.1  | Flower behavior:              | Neutral                              |
| 6.4.14 | Bud type:                     | Normal                               |
| 6.4.15 | Bud shape:                    | Ovoid                                |
| 6.4.16 | Bud size:                     | 13.5 cm                              |
| 6.5.2  | Bract apex shape:             | Obtuse                               |
| 6.5.3  | Bract imbrication:            | Old bracts overlap at apex of bud    |
| 6.5.4  | Color of bract external face: | Purple Brown                         |
| 6.5.5  | Color of bract internal face: | Red                                  |
| 6.5.6  | Apex color:                   | Tinted with yellow                   |
| 6.5.7  | Color stripes:                | Without discolored lines             |
| 6.5.9  | Base fading:                  | Color discontinuing towards the base |
| 6.5.10 | Bract shape:                  | 0.40                                 |
| 6.5.11 | Lifting:                      | Two or more at a time                |
| 6.5.12 | Behavior:                     | Not revolute                         |
| 6.5.13 | Wax:                          | Very waxy                            |
| 6.5.14 | Grooves:                      | Moderate grooving                    |



Opened Bract



Bract Shape



DESCRIPTORS

FLOWER

|        |                             |                            |
|--------|-----------------------------|----------------------------|
| 6.6.2  | Compound tepal basic color: | Creams                     |
| 6.6.3  | Pigmentation:               | Red                        |
| 6.6.4  | Lobe color:                 | Bright Yellow              |
| 6.6.5  | Lobe development:           | Very developed             |
| 6.6.6  | Free tepal color:           | Tinted with pink           |
| 6.6.7  | Free tepal shape:           | Rounded                    |
| 6.6.8  | Appearance:                 | Several folding under apex |
| 6.6.9  | Apex development:           | Little/not visible         |
| 6.6.10 | Apex shape:                 | Triangular                 |
| 6.6.11 | Anther exsertion:           | Inserted                   |
| 6.6.12 | Filament color:             | White/Pink Purple          |
| 6.6.13 | Anther color:               | Yellow                     |
| 6.6.14 | Pollen sac color:           | Yellow                     |
| 6.6.16 | Style basic color:          | White                      |
| 6.6.18 | Style exsertion:            | Exserted                   |
| 6.6.19 | Style shape:                | Curved under the stigma    |
| 6.6.20 | Stigma color:               | Yellow                     |
| 6.6.21 | Ovary shape:                | Arched                     |
| 6.6.22 | Ovary basic color:          | White                      |
| 6.6.23 | Ovary pigmentation:         | Very few/not visible       |
| 6.6.24 | Flower dominant color:      | Pink Purple                |
| 6.6.25 | Irregular flowers:          | 3.0                        |



Flower Pistil/Stamen

HANDS & FRUITS

|        |                                 |                          |
|--------|---------------------------------|--------------------------|
| 7.12   | Exterior middle fruit length:   | 20.3 cm                  |
| 7.13   | Exterior middle fruit diameter: | 12.9 cm                  |
| 6.7.3  | Interior middle fruit length:   | 18.8 cm                  |
| 6.7.8  | Fruit pedicel length:           | ≥21 mm                   |
| 6.7.9  | Fruit pedicel width:            | >10 mm                   |
| 6.7.10 | Pedicel surface:                | Hairless                 |
| 6.7.11 | Fusion:                         | Very partial/not visible |
| 6.7.4  | Fruit shape:                    | Straight                 |
| 6.7.5  | Transverse section:             | Pronounced ridges        |
| 6.7.6  | Fruit apex:                     | Rounded                  |
| 6.7.7  | Flower relicts:                 | Persistent style         |
| 6.7.12 | Immature fruit peel color:      | Light Green              |
| 6.7.18 | Pulp color before maturity:     | Cream                    |
| 6.7.13 | Mature fruit peel color:        | Yellow                   |
| 6.7.14 | Fruit peel thickness:           | Three or more            |
| 6.7.15 | Fruit peel adherence:           | Fruit peels easily       |
| 6.7.16 | Cracks in fruit peel:           | Without cracks           |
| 6.7.17 | Pulp in fruit:                  | With pulp                |
| 6.7.19 | Pulp color at maturity:         | White                    |
| 6.7.20 | Fruits fall:                    | Persistent               |
| 6.7.21 | Flesh texture:                  | Firm                     |
| 6.7.22 | Fruit taste:                    | Astringent               |
| 6.7.23 | Prescense of seed:              | Not present              |
| 6.7.24 | Seed surface:                   | -                        |
| 6.7.25 | Seed shape:                     | -                        |



Ripe Fruit



Fruit - Third Hand

# Pelipita



## GENETIC (SSR)

| MARKER    | ALLELES |     |     |
|-----------|---------|-----|-----|
| mMaCIR01  | 279     | 290 | -   |
| mMaCIR03  | 99      | 106 | -   |
| mMACIR07  | 132     | 145 | 156 |
| mMACIR08  | 251     | -   | -   |
| mMACIR13  | 265     | 269 | -   |
| mMACIR24  | 228     | -   | -   |
| mMACIR27  | 225     | -   | -   |
| mMACIR39  | 334     | 336 | -   |
| mMACIR40  | 164     | -   | -   |
| mMACIR45  | 257     | -   | -   |
| mMACIR150 | 237     | 241 | -   |
| mMACIR152 | 141     | 163 | 176 |
| mMACIR164 | 294     | 296 | -   |
| mMACIR196 | 155     | 162 | -   |
| mMACIR214 | 105     | 107 | 108 |
| mMACIR231 | 226     | 234 | -   |
| mMACIR260 | 186     | 190 | 192 |
| mMACIR264 | 224     | -   | -   |
| mMACIR307 | 149     | -   | -   |
| Ma 1-32   | 221     | 227 | -   |
| Ma 3-90   | 144     | 147 | -   |

## PASSPORT

### TAXONOMY

|   |                               |
|---|-------------------------------|
| Genus:                                    | <i>Musa</i>                   |
| Species/Group:                            | ABB                           |
| Subspecies/Subgroup:                      | Pelipita                      |
| <i>Musa</i> sect. <i>Musa</i> (Häkkinen): | <i>Musa</i> ( <i>Eumusa</i> ) |

### GENERAL

|           |                                  |
|-----------|----------------------------------|
| Synonyms: | Pisang Kuri                      |
| Status:   | Traditional cultivar or landrace |
| Origin:   | Philippines                      |
| ITC code: | ITC0472                          |
| Donor:    | FHIA, 1988                       |



## DESCRIPTORS



Pseudostem



Plant



Neck



Petiole



Petiole

## PLANT

|        |                         |                              |
|--------|-------------------------|------------------------------|
| 7.3    | Planting to shooting:   | 276 days                     |
| 7.15   | Leaves at flowering:    | 18                           |
| 7.5    | Plant crop cycle:       | 397 days                     |
| 7.16   | Leaves at harvest:      | 10.0                         |
| 6.3.22 | Cigar leaf color:       | Light Green                  |
| 7.6    | Pseudostem height:      | 3.84 m                       |
| 7.7    | Pseudostem diameter:    | 20.3 cm                      |
| 6.2.3  | Pseudostem color:       | Green Yellow                 |
| 6.2.5  | Underlying color:       | Medium Green                 |
| 6.2.6  | Pigmentation:           | Cream                        |
| 6.2.7  | Sap color:              | Watery                       |
| 7.8    | Height of ratoon:       | 3.48 m                       |
| 6.2.10 | Development of suckers: | More than 3/4 of parent size |
| 6.2.11 | Position of suckers:    | Close (growing vertically)   |

## PETIOLE &amp; LEAVES

|          |                               |                         |
|----------|-------------------------------|-------------------------|
| 6.1.1    | Leaf habit:                   | Intermediate            |
| 6.1.2    | Dwarfism:                     | Normal                  |
| 6.3.1    | Blotches at the petiole base: | Large                   |
| 6.3.2    | Blotches color:               | Brown-black             |
| 6.3.3    | Petiole canal:                | Margins curved inward   |
| 6.3.4    | Petiole margins:              | Not winged and clasping |
| 6.3.5    | Wing type:                    | -                       |
| 6.3.6    | Petiole margin color:         | Medium Green            |
| 6.3.11   | Petiole length:               | ≤50 cm                  |
| 6.3.7    | Rim color:                    | Green Yellow            |
| 6.3.9    | Leaf blade length:            | 234.0 cm                |
| 6.3.10   | Leaf blade width:             | 77.0 cm                 |
| 6.3.10.1 | Leaf ratio:                   | 3.0                     |
| 6.3.12   | Leaf upper surface:           | Green                   |
| 6.3.13   | Upper appearance:             | Shiny                   |
| 6.3.14   | Leaf lower surface:           | Medium Green            |
| 6.3.15   | Lower appearance:             | Dull                    |
| 6.3.16   | Wax on leaves:                | Very little/not visible |
| 6.3.17   | Insertion point of blades:    | Asymmetric              |
| 6.3.18   | Blade base:                   | Both sides rounded      |
| 6.3.19   | Corrugation:                  | Few stripes             |
| 6.3.20   | Midrib dorsal color:          | Green Yellow            |
| 6.3.21   | Midrib ventral color:         | Green Yellow            |



### BUNCH

|        |                    |  |
|--------|--------------------|--|
| 6.4.6  | Bunch position:    | Slightly angled  |
| 6.4.7  | Bunch shape:       | Short cylinder   |
| 6.4.8  | Bunch appearance:  | Compact  |
| 6.4.10 | Fruit positioning: | Biseriate  |
| 6.4.11 | Rachis type:       | Present  |
| 6.4.12 | Rachis position:   | Falling vertically   |
| 6.4.13 | Rachis appearance: | Neutral/male flowers, withered bracts, without persistent bracts |
| 7.9    | Bunch weight:      | 19.30 kg   |
| 6.7.1  | Fruit position:    | Curved upward  |
| 7.10   | Number of hands:   | 13.5   |
| 7.11   | Number of fruits:  | 100.8  |



Bunch



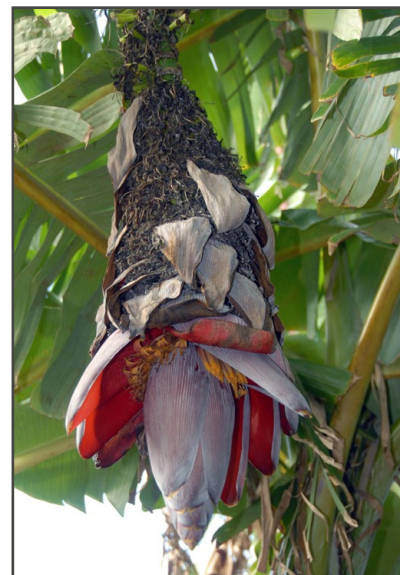
Bunch & Rachis

### PEDUNCLE

|       |                  |          |
|-------|------------------|----------|
| 6.4.1 | Peduncle length: | ≤30 cm   |
| 6.4.2 | Empty nodes:     | 1        |
| 6.4.3 | Peduncle width:  | ≤6 cm    |
| 6.4.4 | Peduncle color:  | Green    |
| 6.4.5 | Hairiness:       | Hairless |



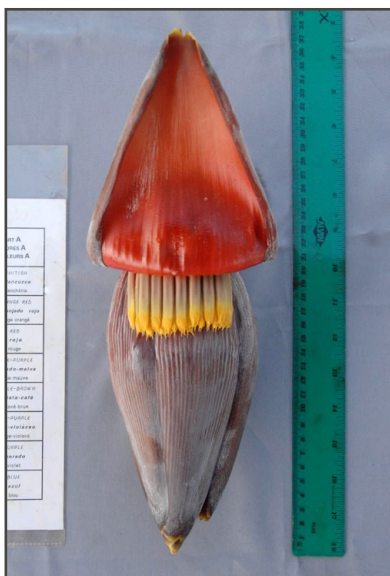
Peduncle



Male Bud

### MALE BUD

|        |                               |                               |
|--------|-------------------------------|-------------------------------|
| 6.6.1  | Flower behavior:              | Neutral                       |
| 6.4.14 | Bud type:                     | Normal                        |
| 6.4.15 | Bud shape:                    | Intermediate                  |
| 6.4.16 | Bud size:                     | 21.7 cm                       |
| 6.5.2  | Bract apex shape:             | Obtuse and split              |
| 6.5.3  | Bract imbrication:            | Young bracts slightly overlap |
| 6.5.4  | Color of bract external face: | Red Purple                    |
| 6.5.5  | Color of bract internal face: | Red                           |
| 6.5.6  | Apex color:                   | Tinted with yellow            |
| 6.5.7  | Color stripes:                | Without discolored lines      |
| 6.5.9  | Base fading:                  | Color homogeneous             |
| 6.5.10 | Bract shape:                  | 0.36                          |
| 6.5.11 | Lifting:                      | Two or more at a time         |
| 6.5.12 | Behavior:                     | Not revolute                  |
| 6.5.13 | Wax:                          | Very waxy                     |
| 6.5.14 | Grooves:                      | Moderate grooving             |



Opened Bract



Bract Shape



## DESCRIPTORS

## FLOWER

|        |                             |                           |
|--------|-----------------------------|---------------------------|
| 6.6.2  | Compound tepal basic color: | Pink Purple               |
| 6.6.3  | Pigmentation:               | None                      |
| 6.6.4  | Lobe color:                 | Bright Yellow             |
| 6.6.5  | Lobe development:           | Very developed            |
| 6.6.6  | Free tepal color:           | Tinted with pink          |
| 6.6.7  | Free tepal shape:           | Rounded                   |
| 6.6.8  | Appearance:                 | Simple folding under apex |
| 6.6.9  | Apex development:           | Very developed            |
| 6.6.10 | Apex shape:                 | Triangular                |
| 6.6.11 | Anther exertion:            | Inserted                  |
| 6.6.12 | Filament color:             | Pink Purple               |
| 6.6.13 | Anther color:               | Yellow                    |
| 6.6.14 | Pollen sac color:           | Yellow                    |
| 6.6.16 | Style basic color:          | White                     |
| 6.6.18 | Style exertion:             | Exserted                  |
| 6.6.19 | Style shape:                | Straight                  |
| 6.6.20 | Stigma color:               | Yellow                    |
| 6.6.21 | Ovary shape:                | Straight                  |
| 6.6.22 | Ovary basic color:          | White                     |
| 6.6.23 | Ovary pigmentation:         | Very few/not visible      |
| 6.6.24 | Flower dominant color:      | Pink Purple               |
| 6.6.25 | Irregular flowers:          | 0.5                       |



Flower

Pistil/Stamen

## HANDS &amp; FRUITS

|        |                                 |                            |
|--------|---------------------------------|----------------------------|
| 7.12   | Exterior middle fruit length:   | 14.2 cm                    |
| 7.13   | Exterior middle fruit diameter: | 35.3 cm                    |
| 6.7.3  | Interior middle fruit length:   | 13.6 cm                    |
| 6.7.8  | Fruit pedicel length:           | ≥21 mm                     |
| 6.7.9  | Fruit pedicel width:            | >10 mm                     |
| 6.7.10 | Pedicel surface:                | Hairless                   |
| 6.7.11 | Fusion:                         | Very partial/not visible   |
| 6.7.4  | Fruit shape:                    | Straight                   |
| 6.7.5  | Transverse section:             | Slightly ridged            |
| 6.7.6  | Fruit apex:                     | Bottle-necked              |
| 6.7.7  | Flower relicts:                 | Without any floral relicts |
| 6.7.12 | Immature fruit peel color:      | Green                      |
| 6.7.18 | Pulp color before maturity:     | Ivory                      |
| 6.7.13 | Mature fruit peel color:        | Bright Yellow              |
| 6.7.14 | Fruit peel thickness:           | Two or less                |
| 6.7.15 | Fruit peel adherence:           | Fruit peels easily         |
| 6.7.16 | Cracks in fruit peel:           | Without cracks             |
| 6.7.17 | Pulp in fruit:                  | With pulp                  |
| 6.7.19 | Pulp color at maturity:         | Cream                      |
| 6.7.20 | Fruits fall:                    | Persistent                 |
| 6.7.21 | Flesh texture:                  | Firm                       |
| 6.7.22 | Fruit taste:                    | Astringent                 |
| 6.7.23 | Prescense of seed:              | Not present                |
| 6.7.24 | Seed surface:                   | -                          |
| 6.7.25 | Seed shape:                     | -                          |



Ripe Fruit



Fruit - Third Hand

# Blue Java

BLUE JAVA - ABB



## GENETIC (SSR)

| MARKER    | ALLELES |     |     |
|-----------|---------|-----|-----|
| mMaCIR01  | 252     | 273 | -   |
| mMaCIR03  | 100     | 106 | -   |
| mMACIR07  | 136     | 139 | 145 |
| mMACIR08  | 241     | -   | -   |
| mMACIR13  | 251     | 265 | 269 |
| mMACIR24  | 220     | 228 | -   |
| mMACIR27  | 217     | -   | -   |
| mMACIR39  | 315     | 336 | -   |
| mMACIR40  | 162     | 181 | -   |
| mMACIR45  | 257     | 266 | -   |
| mMACIR150 | 239     | 241 | 243 |
| mMACIR152 | 160     | 163 | -   |
| mMACIR164 | 278     | 296 | 387 |
| mMACIR196 | 159     | 162 | 163 |
| mMACIR214 | 103     | 105 | -   |
| mMACIR231 | 224     | 230 | -   |
| mMACIR260 | 190     | -   | -   |
| mMACIR264 | 224     | 243 | -   |
| mMACIR307 | 145     | 149 | -   |
| Ma 1-32   | 221     | 227 | -   |
| Ma 3-90   | 131     | 142 | 149 |

## PASSPORT

### TAXONOMY

|   |                               |
|---|-------------------------------|
| Genus:                                    | <i>Musa</i>                   |
| Species/Group:                            | ABB                           |
| Subspecies/Subgroup:                      | Ney Mannan                    |
| <i>Musa</i> sect. <i>Musa</i> (Häkkinen): | <i>Musa</i> ( <i>Eumusa</i> ) |

### GENERAL

|           |                                  |
|-----------|----------------------------------|
| Synonyms: | Bata                             |
| Status:   | Traditional cultivar or landrace |
| Origin:   | -                                |
| ITC code: | ITC0361                          |
| Donors:   | SOPACOM Industries, 1988         |



## DESCRIPTORS



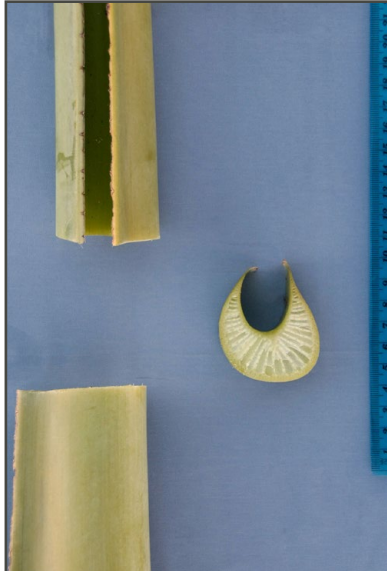
Pseudostem



Plant



Neck



Petiole



Petiole

## PLANT

|        |                         |                              |
|--------|-------------------------|------------------------------|
| 7.3    | Planting to shooting:   | 200 days                     |
| 7.15   | Leaves at flowering:    | 20                           |
| 7.5    | Plant crop cycle:       | 315 days                     |
| 7.16   | Leaves at harvest:      | 9.3                          |
| 6.3.22 | Cigar leaf color:       | Medium Green                 |
| 7.6    | Pseudostem height:      | 3.21 m                       |
| 7.7    | Pseudostem diameter:    | 17.4 cm                      |
| 6.2.3  | Pseudostem color:       | Medium Green                 |
| 6.2.5  | Underlying color:       | Medium Green                 |
| 6.2.6  | Pigmentation:           | None                         |
| 6.2.7  | Sap color:              | Milky                        |
| 7.8    | Height of ratoon:       | 3.35 m                       |
| 6.2.10 | Development of suckers: | More than 3/4 of parent size |
| 6.2.11 | Position of suckers:    | Close (growing vertically)   |

## PETIOLE &amp; LEAVES

|          |                               |                         |
|----------|-------------------------------|-------------------------|
| 6.1.1    | Leaf habit:                   | Intermediate            |
| 6.1.2    | Dwarfism:                     | Normal                  |
| 6.3.1    | Blotches at the petiole base: | Sparse blotching        |
| 6.3.2    | Blotches color:               | Brown-black             |
| 6.3.3    | Petiole canal:                | Straight Erect          |
| 6.3.4    | Petiole margins:              | Not winged and clasping |
| 6.3.5    | Wing type:                    | -                       |
| 6.3.6    | Petiole margin color:         | Medium Green            |
| 6.3.11   | Petiole length:               | 51 to 70 cm             |
| 6.3.7    | Rim color:                    | Light Green             |
| 6.3.9    | Leaf blade length:            | 234.3 cm                |
| 6.3.10   | Leaf blade width:             | 78.5 cm                 |
| 6.3.10.1 | Leaf ratio:                   | 3.0                     |
| 6.3.12   | Leaf upper surface:           | Dark Green              |
| 6.3.13   | Upper appearance:             | Shiny                   |
| 6.3.14   | Leaf lower surface:           | Green                   |
| 6.3.15   | Lower appearance:             | Dull                    |
| 6.3.16   | Wax on leaves:                | Very waxy               |
| 6.3.17   | Insertion point of blades:    | Asymmetric              |
| 6.3.18   | Blade base:                   | Both sides rounded      |
| 6.3.19   | Corrugation:                  | Few stripes             |
| 6.3.20   | Midrib dorsal color:          | Light Green             |
| 6.3.21   | Midrib ventral color:         | Medium Green            |

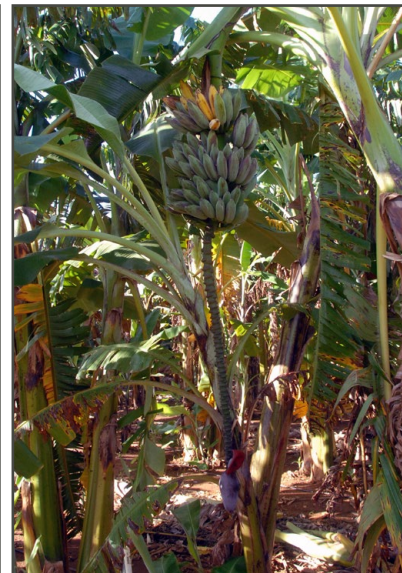


### BUNCH

|        |                    |   |
|--------|--------------------|---|
| 6.4.6  | Bunch position:    | Hanging vertically                      |
| 6.4.7  | Bunch shape:       | Cylindrical                             |
| 6.4.8  | Bunch appearance:  | Lax                                     |
| 6.4.10 | Fruit positioning: | Biseriate                               |
| 6.4.11 | Rachis type:       | Present                                 |
| 6.4.12 | Rachis position:   | Falling vertically                      |
| 6.4.13 | Rachis appearance: | Bare                                    |
| 7.9    | Bunch weight:      | 18.28 kg                                |
| 6.7.1  | Fruit position:    | Parallel to the stark,<br>curved upward |
| 7.10   | Number of hands:   | 9.3                                     |
| 7.11   | Number of fruits:  | 131.0                                   |



Bunch



Bunch & Rachis

### PEDUNCLE

|       |                  |              |
|-------|------------------|--------------|
| 6.4.1 | Peduncle length: | ≥61 cm       |
| 6.4.2 | Empty nodes:     | 2            |
| 6.4.3 | Peduncle width:  | 7-12 cm      |
| 6.4.4 | Peduncle color:  | Medium Green |
| 6.4.5 | Hairiness:       | Hairless     |



Peduncle



Male Bud

### MALE BUD

|        |                                  |                                  |
|--------|----------------------------------|----------------------------------|
| 6.6.1  | Flower behavior:                 | Falling before bract             |
| 6.4.14 | Bud type:                        | Normal                           |
| 6.4.15 | Bud shape:                       | Intermediate                     |
| 6.4.16 | Bud size:                        | 19.5 cm                          |
| 6.5.2  | Bract apex shape:                | Obtuse and split                 |
| 6.5.3  | Bract imbrication:               | Young bracts slightly<br>overlap |
| 6.5.4  | Color of bract<br>external face: | Purple                           |
| 6.5.5  | Color of bract<br>internal face: | Red                              |
| 6.5.6  | Apex color:                      | Tinted with yellow               |
| 6.5.7  | Color stripes:                   | Without discolored<br>lines      |
| 6.5.9  | Base fading:                     | Color homogeneous                |
| 6.5.10 | Bract shape:                     | 0.37                             |
| 6.5.11 | Lifting:                         | One at time                      |
| 6.5.12 | Behavior:                        | Revolute                         |
| 6.5.13 | Wax:                             | Very waxy                        |
| 6.5.14 | Grooves:                         | Strongly grooved                 |



Opened Bract



Bract Shape



## DESCRIPTORS

## FLOWER

|        |                             |                           |
|--------|-----------------------------|---------------------------|
| 6.6.2  | Compound tepal basic color: | Cream                     |
| 6.6.3  | Pigmentation:               | Red                       |
| 6.6.4  | Lobe color:                 | Bright Yellow             |
| 6.6.5  | Lobe development:           | Developed                 |
| 6.6.6  | Free tepal color:           | Tinted with pink          |
| 6.6.7  | Free tepal shape:           | Oval                      |
| 6.6.8  | Appearance:                 | Simple folding under apex |
| 6.6.9  | Apex development:           | Developed                 |
| 6.6.10 | Apex shape:                 | Triangular                |
| 6.6.11 | Anther exertion:            | Same level                |
| 6.6.12 | Filament color:             | Ivory/Pink Purple         |
| 6.6.13 | Anther color:               | Yellow                    |
| 6.6.14 | Pollen sac color:           | Yellow                    |
| 6.6.16 | Style basic color:          | White                     |
| 6.6.18 | Style exertion:             | Exserted                  |
| 6.6.19 | Style shape:                | Curved under stigma       |
| 6.6.20 | Stigma color:               | Yellow                    |
| 6.6.21 | Ovary shape:                | Straight, Arched          |
| 6.6.22 | Ovary basic color:          | White                     |
| 6.6.23 | Ovary pigmentation:         | With Red-purple           |
| 6.6.24 | Flower dominant color:      | Pink Purple               |
| 6.6.25 | Irregular flowers:          | 5.0                       |



Flower

Pistil/Stamen

## HANDS &amp; FRUITS

|        |                                 |                            |
|--------|---------------------------------|----------------------------|
| 7.12   | Exterior middle fruit length:   | 15.6 cm                    |
| 7.13   | Exterior middle fruit diameter: | 29.8 cm                    |
| 6.7.3  | Interior middle fruit length:   | 15.0 cm                    |
| 6.7.8  | Fruit pedicel length:           | ≥21 mm                     |
| 6.7.9  | Fruit pedicel width:            | >10 mm                     |
| 6.7.10 | Pedicel surface:                | Hairless                   |
| 6.7.11 | Fusion:                         | Very partial/not visible   |
| 6.7.4  | Fruit shape:                    | Straight                   |
| 6.7.5  | Transverse section:             | Pronounced ridges          |
| 6.7.6  | Fruit apex:                     | Blunt-tipped               |
| 6.7.7  | Flower relicts:                 | Without any floral relicts |
| 6.7.12 | Immature fruit peel color:      | Silvery                    |
| 6.7.18 | Pulp color before maturity:     | White                      |
| 6.7.13 | Mature fruit peel color:        | Yellow                     |
| 6.7.14 | Fruit peel thickness:           | Three or more              |
| 6.7.15 | Fruit peel adherence:           | Fruit peels easily         |
| 6.7.16 | Cracks in fruit peel:           | Without cracks             |
| 6.7.17 | Pulp in fruit:                  | With pulp                  |
| 6.7.19 | Pulp color at maturity:         | White                      |
| 6.7.20 | Fruits fall:                    | Deciduous                  |
| 6.7.21 | Flesh texture:                  | Firm                       |
| 6.7.22 | Fruit taste:                    | Other                      |
| 6.7.23 | Presence of seed:               | Not present                |
| 6.7.24 | Seed surface:                   | Wrinkled                   |
| 6.7.25 | Seed shape:                     | Rounded                    |



Ripe Fruit



Fruit - Third Hand

# Simili Radjah

SIMILI RADJAH - ABB



## GENETIC (SSR)

| MARKER    | ALLELES |     |     |
|-----------|---------|-----|-----|
| mMaCIR01  | 252     | 271 | 290 |
| mMaCIR03  | 101     | 106 | -   |
| mMACIR07  | 136     | 150 | 153 |
| mMACIR08  | 241     | -   | -   |
| mMACIR13  | 246     | 265 | 269 |
| mMACIR24  | 220     | 222 | 228 |
| mMACIR27  | 217     | -   | -   |
| mMACIR39  | 315     | 352 | -   |
| mMACIR40  | 162     | -   | -   |
| mMACIR45  | 254     | 257 | 266 |
| mMACIR150 | 241     | 243 | -   |
| mMACIR152 | 163     | 173 | 176 |
| mMACIR164 | 278     | 387 | -   |
| mMACIR196 | 159     | 162 | 163 |
| mMACIR214 | 103     | 105 | -   |
| mMACIR231 | 224     | 230 | -   |
| mMACIR260 | 186     | 190 | -   |
| mMACIR264 | 224     | 243 | -   |
| mMACIR307 | 145     | 149 | -   |
| Ma 1-32   | 221     | 227 | -   |
| Ma 3-90   | 131     | 142 | -   |

## PASSPORT

### TAXONOMY

|   |                      |
|---|----------------------|
| Genus:                                    | <i>Musa</i>          |
| Species/Group:                            | ABB                  |
| Subspecies/Subgroup:                      | Peyan                |
| <i>Musa</i> sect. <i>Musa</i> (Häkkinen): | <i>Musa</i> (Eumusa) |

### GENERAL

|           |                                  |
|-----------|----------------------------------|
| Synonyms: | -                                |
| Status:   | Traditional cultivar or landrace |
| Origin:   | -                                |
| ITC code: | ITC0123                          |
| Donor:    | IITA, 1986                       |



## DESCRIPTORS



Pseudostem



Plant



Neck



Petiole



Petiole

## PLANT

|        |                         |                               |
|--------|-------------------------|-------------------------------|
| 7.3    | Planting to shooting:   | 316 days                      |
| 7.15   | Leaves at flowering:    | 1                             |
| 7.5    | Plant crop cycle:       | 433 days                      |
| 7.16   | Leaves at harvest:      | 7.3                           |
| 6.3.22 | Cigar leaf color:       | Light Green                   |
| 7.6    | Pseudostem height:      | 4.14 m                        |
| 7.7    | Pseudostem diameter:    | 22.4 cm                       |
| 6.2.3  | Pseudostem color:       | Medium Green                  |
| 6.2.5  | Underlying color:       | Medium Green                  |
| 6.2.6  | Pigmentation:           | None                          |
| 6.2.7  | Sap color:              | Watery                        |
| 7.8    | Height of ratoon:       | 3.29 m                        |
| 6.2.10 | Development of suckers: | Between 1/4 and 3/4 of parent |
| 6.2.11 | Position of suckers:    | Close (growing vertically)    |

## PETIOLE & LEAVES

|          |                               |                         |
|----------|-------------------------------|-------------------------|
| 6.1.1    | Leaf habit:                   | Intermediate            |
| 6.1.2    | Dwarfism:                     | Normal                  |
| 6.3.1    | Blotches at the petiole base: | Sparse blotching        |
| 6.3.2    | Blotches color:               | Brown-black             |
| 6.3.3    | Petiole canal:                | Wide with erect margins |
| 6.3.4    | Petiole margins:              | Not winged and clasping |
| 6.3.5    | Wing type:                    | -                       |
| 6.3.6    | Petiole margin color:         | Green                   |
| 6.3.11   | Petiole length:               | ≤50 cm                  |
| 6.3.7    | Rim color:                    | Light Green             |
| 6.3.9    | Leaf blade length:            | 250.0 cm                |
| 6.3.10   | Leaf blade width:             | 82.0 cm                 |
| 6.3.10.1 | Leaf ratio:                   | 3.0                     |
| 6.3.12   | Leaf upper surface:           | Green                   |
| 6.3.13   | Upper appearance:             | Shiny                   |
| 6.3.14   | Leaf lower surface:           | Medium Green            |
| 6.3.15   | Lower appearance:             | Dull                    |
| 6.3.16   | Wax on leaves:                | Very waxy               |
| 6.3.17   | Insertion point of blades:    | Asymmetric              |
| 6.3.18   | Blade base:                   | Both sides rounded      |
| 6.3.19   | Corrugation:                  | Few stripes             |
| 6.3.20   | Midrib dorsal color:          | Light Green             |
| 6.3.21   | Midrib ventral color:         | Medium Green            |



### BUNCH

|        |                    |                    |
|--------|--------------------|--------------------|
| 6.4.6  | Bunch position:    | Hanging vertically |
| 6.4.7  | Bunch shape:       | Cylindrical        |
| 6.4.8  | Bunch appearance:  | Lax                |
| 6.4.10 | Fruit positioning: | Biseriate          |
| 6.4.11 | Rachis type:       | Present            |
| 6.4.12 | Rachis position:   | Falling vertically |
| 6.4.13 | Rachis appearance: | Bare               |
| 7.9    | Bunch weight:      | 29.83 kg           |
| 6.7.1  | Fruit position:    | Curve upward       |
| 7.10   | Number of hands:   | 9.7                |
| 7.11   | Number of fruits:  | 145.0              |



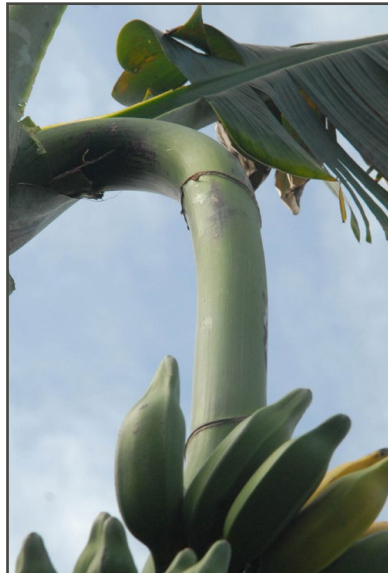
Bunch



Bunch & Rachis

### PEDUNCLE

|       |                  |              |
|-------|------------------|--------------|
| 6.4.1 | Peduncle length: | ≥61 cm       |
| 6.4.2 | Empty nodes:     | 2            |
| 6.4.3 | Peduncle width:  | ≤6 cm        |
| 6.4.4 | Peduncle color:  | Medium color |
| 6.4.5 | Hairiness:       | Hairless     |



Peduncle



Male Bud

### MALE BUD

|        |                               |                               |
|--------|-------------------------------|-------------------------------|
| 6.6.1  | Flower behavior:              | Neutral                       |
| 6.4.14 | Bud type:                     | Normal                        |
| 6.4.15 | Bud shape:                    | Intermediate                  |
| 6.4.16 | Bud size:                     | 18.8 cm                       |
| 6.5.2  | Bract apex shape:             | Intermediate                  |
| 6.5.3  | Bract imbrication:            | Young bracts slightly overlap |
| 6.5.4  | Color of bract external face: | Purple Brown                  |
| 6.5.5  | Color of bract internal face: | Red                           |
| 6.5.6  | Apex color:                   | Tinted with yellow            |
| 6.5.7  | Color stripes:                | Without discolored lines      |
| 6.5.9  | Base fading:                  | Color homogeneous             |
| 6.5.10 | Bract shape:                  | 0.33                          |
| 6.5.11 | Lifting:                      | One at a time                 |
| 6.5.12 | Behavior:                     | Revolute                      |
| 6.5.13 | Wax:                          | Very waxy                     |
| 6.5.14 | Grooves:                      | Moderate grooving             |



Opened Bract



Bract Shape



## DESCRIPTORS

### FLOWER

|        |                             |                           |
|--------|-----------------------------|---------------------------|
| 6.6.2  | Compound tepal basic color: | Cream                     |
| 6.6.3  | Pigmentation:               | Pink Purple               |
| 6.6.4  | Lobe color:                 | Yellow                    |
| 6.6.5  | Lobe development:           | Developed                 |
| 6.6.6  | Free tepal color:           | Tinted with pink          |
| 6.6.7  | Free tepal shape:           | Oval                      |
| 6.6.8  | Appearance:                 | Simple folding under apex |
| 6.6.9  | Apex development:           | Developed                 |
| 6.6.10 | Apex shape:                 | Triangular                |
| 6.6.11 | Anther exsertion:           | Same level                |
| 6.6.12 | Filament color:             | Pink Purple               |
| 6.6.13 | Anther color:               | Yellow                    |
| 6.6.14 | Pollen sac color:           | Yellow                    |
| 6.6.16 | Style basic color:          | Cream                     |
| 6.6.18 | Style exsertion:            | Exserted                  |
| 6.6.19 | Style shape:                | Curved at the base        |
| 6.6.20 | Stigma color:               | Yellow                    |
| 6.6.21 | Ovary shape:                | Straight                  |
| 6.6.22 | Ovary basic color:          | White                     |
| 6.6.23 | Ovary pigmentation:         | With Red Purple           |
| 6.6.24 | Flower dominant color:      | Pink Purple               |
| 6.6.25 | Irregular flowers:          | 4.5                       |



Flower



Pistil/Stamen

### HANDS & FRUITS

|        |                                 |                    |
|--------|---------------------------------|--------------------|
| 7.12   | Exterior middle fruit length:   | 16.7 cm            |
| 7.13   | Exterior middle fruit diameter: | 42.2 cm            |
| 6.7.3  | Interior middle fruit length:   | 15.3 cm            |
| 6.7.8  | Fruit pedicel length:           | ≥21 mm             |
| 6.7.9  | Fruit pedicel width:            | >10 mm             |
| 6.7.10 | Pedicel surface:                | Hairless           |
| 6.7.11 | Fusion:                         | Partially fused    |
| 6.7.4  | Fruit shape:                    | Straight           |
| 6.7.5  | Transverse section:             | Slightly ridged    |
| 6.7.6  | Fruit apex:                     | Lengthily pointed  |
| 6.7.7  | Flower relicts:                 | Persistent Style   |
| 6.7.12 | Immature fruit peel color:      | Light Green        |
| 6.7.18 | Pulp color before maturity:     | Cream              |
| 6.7.13 | Mature fruit peel color:        | Bright Yellow      |
| 6.7.14 | Fruit peel thickness:           | Three or more      |
| 6.7.15 | Fruit peel adherence:           | Fruit peels easily |
| 6.7.16 | Cracks in fruit peel:           | Without cracks     |
| 6.7.17 | Pulp in fruit:                  | With pulp          |
| 6.7.19 | Pulp color at maturity:         | Cream              |
| 6.7.20 | Fruits fall:                    | Persistent         |
| 6.7.21 | Flesh texture:                  | Soft               |
| 6.7.22 | Fruit taste:                    | Astringent         |
| 6.7.23 | Prescense of seed:              | Not present        |
| 6.7.24 | Seed surface:                   | -                  |
| 6.7.25 | Seed shape:                     | -                  |



Ripe Fruit



Fruit - Third Hand

# Abbreviations

ARS – Agricultural Research Service  
CATIE – Centro Agronómico Tropical de Investigación y Enseñanza (Costa Rica)  
CIRAD – Centre de Coopération Internationale en Recherche Agronomique pour le Développement (France)  
DNA – Deoxyribonucleic acid  
FHIA – Fundación Hondureña de Investigación Agrícola (Honduras)  
FLHOR – Departement des productions fruitiers et horticoles (CIRAD)  
GRIN-Global – Genetic Resources Information Network  
IITA – International Institute of Tropical Agriculture (Nigeria)  
IRFA – Institut de Recherches sur les Fruits et Agrumes (France)  
IRAZ – Institut de Recherche Agronomique et Zootechnique (Burundi)  
ITC – International Musa Germplasm Transit Centre  
MHRS – Maroochy Horticultural Research Station (Australia)  
MGC – Musa Genotyping Centre  
NPGS – National Plant Germplasm System  
PDF – Portable document format  
QDPI – Queensland Department of Primary Industries (Australia)  
SLR – Single Lens Reflex  
SMTA – Standard Material Transfer Agreement  
SSR – Simple Sequence Repeat  
TAG – Taxonomic Advisory Group  
TARS – Tropical Agriculture Research Station  
TRC – Taxonomic Reference Collection  
USDA – United States Department of Agriculture



# Glossary

(All terms are defined in the context of plant sciences and as they relate to *Musa* spp. genetic resources)

**Accession:** a collection of plant material from a particular location which is part of a basic unit of conservation in genebanks.

**Allele:** one of two or more alternative forms of a gene that arise by mutation and are found at the same place on a chromosome.

**Black leaf streak:** common name for the disease caused by the plant pathogenic fungus *Mycosphaerella fijiensis* (also known as black Sigatoka).

**Bunch:** fruit attached to the rachis and protruding or harvested from banana plant pseudostem.

**Clone:** a cell, cell product, or organism that is genetically identical to the unit or individual from which it was derived.

**Cooking banana:** banana that is starchy when ripe and requires cooking of some sort to be eaten.

**Crop cycle:** the time it takes from planting of a sucker or plantlet to harvesting of a mature bunch.

**Cultivar:** a plant variety that has been produced in cultivation by selective breeding.

**Curator:** a keeper or custodian of a plant germplasm collection.

**Descriptor:** trait or specific attribute that differs in degree of expression (e.g., presence/absence) and which is used to characterize a plant germplasm.

**Electrophoresis:** the movement of charged particles in a fluid or gel under the influence of an electric field.

**Ex situ:** literally, "off-site" and is the process of protecting an endangered species of plant or animal outside of its natural habitat.

**False-Horn (plantain):** plantain bunch type with a semi-persistent male flower bud.

**Fingerprint:** characteristic DNA banding pattern, following electrophoresis, that identifies unique germplasm accessions.

**French (plantain):** plantain bunch type with a persistent male flower bud.

**Functional leaves:** leaves with greater than 50% leaf area which is photosynthetically active.

**Genomics:** the branch of molecular biology concerned with the structure, function, evolution, and mapping of genomes.

**Genotype:** the genetic constitution of an individual organism.

**Germplasm:** are the living genetic resources such as seeds or tissue that are maintained for the purpose of animal and plant breeding, preservation, and other research uses.

**Horn (plantain):** plantain bunch type without a male flower bud.

**In vitro:** literally, "in glass" and is performed or taking place in a test tube, culture dish, or elsewhere outside a living organism.

**Marker (genetic):** a gene or short sequence of DNA used to identify a chromosome or to locate other genes on a genetic map.

**Microsatellite (marker):** is a tract of repetitive DNA in which certain DNA sequences (ranging in length from 2–5 base pairs) are repeated, typically 5-50 times.

**Mother (cycle):** first crop cycle after initial planting.

**Musa:** Genus for all banana plants.

**Mutation:** the changing of the structure of a gene, resulting in a variant form that may be transmitted to subsequent generations, caused by the alteration of single base units in DNA, or the deletion, insertion, or rearrangement of larger sections of genes or chromosomes.

**Off-type:** not true to type or markedly deviating from the normal or standard.

**Phenotype:** the set of observable characteristics of an individual resulting from the interaction of its genotype with the environment.

**Primer:** is a strand of short nucleic acid sequences (generally about 10 base pairs or longer) that serves as a starting point for DNA synthesis.

**Pseudostem:** a false stem made of the rolled bases of leaves.

**Ratoon (cycle):** second or subsequent crop cycle(s) after initial planting.

**Somatic:** any cell of a living organism other than the reproductive cells.

**Suckers:** a shoot (adventitious meristem) growing from the base or root of a tree or shrub and giving rise to a new plant, a clone of the plant from which it comes.

**Taxonomy:** the branch of science concerned with classification, especially of organisms; systematics.

**Trait (genetic):** an inherited characteristic and which is a specific characteristic of an organism.

**True-to-type:** being or behaving as expected (like the original).

**Voucher:** digital image that documents unique phenotypic traits.







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