



ISHS/ProMusa symposium

*Bananas and plantains:  
Toward sustainable global production  
and improved uses*

Bahia Othon Palace Hotel, Salvador, Bahia, Brazil  
10-14 October 2011

**Abstracts**



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## Session 3 - Post-harvest issues, alternative uses, marketing and commercialization

### Oral presentations

#### Keynote: Banana Fruit and Cooking Banana Physicochemical and Functional Differentiation during Ripening: A Key Study for Understanding Consumer Preferences

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**Keywords:** *Musa* sp., diversity, acceptability, quality, objective criteria

The commercial success of a given dessert or cooking banana variety is based on the acceptability by the stakeholders: consumers and/or processors of the food chain. Unsuccessful commercial attempts for varietal adoption or the use of new processes can be due to the low consideration given to the consumer preferences (socio-economics of food) during varietal development or processing. Banana may be consumed raw at full ripeness for the dessert types or after being cooked at various stages of ripeness for the cooking types, and can also be fermented at full ripeness for brewing or bioethanol production. The study presents the collaborative investigations carried out at CIRAD and CIAT aiming at differentiating varieties, genetic groups (haploidy) or consumption groups (dessert and cooking). The statistical tests carried out help to validate the most suitable consumption mode for an unknown variety at various stages of ripeness according to the following criteria: i) Morphology: bunch shape and weight, finger size, diameter and weight, and pulp-to-peel ratio; ii) Physicochemical composition of the pulp: dry matter content, texture, pH, titratable acidity, ash, mineral content, soluble solids, starch, sugar, organic

acid content and flavor; and iii) Functional properties of starch and flour by rapid viscosity analysis (RVA) and differential scanning calorimetry (DSC): pasting temperature, cooking ability, peak viscosity, onset temperature, gelatinization enthalpy and amylose content. Based on socio-economic surveys, the methods used for Musa screening helped to differentiate and/or select suitable varieties based on the prediction of their respective adoption by the stakeholders and users. The methods applied will contribute to the improvement of the breeding strategies while favouring the selection of optimally coupled variety and process for agro-industrial uses.

#### Keynote: Alternative Uses of Banana and Plantains: Challenges and Opportunities

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**Keywords:** *Musa* spp., innovation, ornamental plants

Almost every part of banana and plantain plants has some economic or medicinal use. Besides use as a dessert or cooking fruit, the banana plant can be used for many other purposes. The fibres obtained from the pseudostem can be utilized in the paper and pulp industry as biodegradable binding ropes and in the textile industry. The fruit peel is used in dyeing, and as a base material for alcohol production, biogas production and pectin extraction. The flowers and the central portion of the buds are usually cooked as vegetables. Banana roots, flowers, stem and leaves can be used in the pharmaceutical industry. Another alternative use is as ornamental plants. The banana germplasm has been primarily used in breeding programs for generating new cultivars as food. In order to diversify and expand the use of the variability in germplasm bank of Embrapa Cassava and Fruits, accessions with ornamental potential have been selected to obtain new hybrids for the following uses: as landscape plants, as potted plants, and for cut-flowers or ornamental mini-fruits. This paper summarises the main banana and plantain uses, paying special attention to ornamental purposes. The main challenges and opportunities for innovations, creating new products and reaching new market niches are also addressed.

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