Evaluation of quality traits: post harvest quality of edible banana (Musa sp.)

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Objectives and method

- Investigation of the diversity of edible musacea in relation to the traditional preferences & uses
- Investigation of the post-harvest quality
- Differentiation of consumption groups & genotypes on the basis of some « objective » quality traits
- Research needs on post-harvest quality & prospects
Edible musacea production and diversity

Dessert bananas

- AA – Sucrier, Samba,..
- AAA – Cavendish, Gros Michel,..
- AB – Ney Poovan, Kunnan
- AAB – Silk, Pome, Mysore, ..
- ABB – Pisang Awack
- AAAA – FHIA hybrids, ..
- AAAB – FHIA hybrids

Cooking bananas

- AAAea – Lujugira
- AAB – Plantains, Maia maoli,..
- ABB – Bluggoe, Pelipita, Saba,..
- AAT/AT – Féhis
- AAAB – FHIA hybrids,..

Bakry et al., 2009; Lescot, 2010
Consumption modes and genotypes

Dessert bananas
- AA
- AAA
- AB
- AAB
- ABB
- AAAA
- AAAB

Cooking bananas
- AAA
- AAB
- ABB
- AAT/AT

Fried products
- AAAB

Water cooking

Roasting

Texturized products

Beers & fermented products

Flours and starches

Raw consumption

Noupadja et al., 2001; Englberger, 2004; Ngoh et al., 2005; Quintero et al., 2008; Gibert et al., 2009
Quality construction from harvest to consumption

5 to 45 days

Objectives

Construction of quality

Prospects

Post-harvest diversity and uses

Harvest & packaging

Transport

Ripening & marketing

Processing & consumption
Banana quality defects

- Gibert et al., 2010; De Lapeyre et al., 2010; Lassois et al., 2010; Chillet et al., 2009
Some “objective” criteria for the characterization of the post-harvest quality

- Dry matter, ash, fibre & minerals
- Amylose & starch content
- Soluble sugars & titratable acidity
- Thermal, textural & functional properties

Gibert et al., JAFC 57, 2009, err. 58, 2010
Dufour et al., JAFC 57, 2009
Gibert et al., JFE, 2010
Prospects: post-harvest strategy according to the target

**Quality = physiological strategy \( \times \) storage**

- Reducing post-harvest losses due to improper post-harvest practices
- Better knowledge of local biodiversity for breeding
- Optimization of industrial production

**Quality = variety \( \times \) process \( \times \) maturity**

- Industrial healthy “traditional” ready-to-eat foods locally processed
- Valorisation of diversity for consumer acceptability
Other needs and prospects

- Screening & selection of the varieties with optimal “technological profiles” in a germplasm collection, for limitation of non-genetic contributions

- Integration of some “objective” quality traits in the strategy for the conservation and use of banana and plantain genetic resources

- Investigation of the stability of quality traits after breeding
Thank you for your attention

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