CLASSIFICATION OF MOCÓ CULTIVARS AND THE RACE MARIE-GALANTE AND THEIR POTENTIAL USE FOR UPLAND COTTON IMPROVEMENT

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Beltwide Cotton Conferences 2008
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- Introduction
- Materials and Methods
- Results for molecular marker
- Results for phenotypical observations
- Conclusion
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INTRODUCTION

- Mocó cvs and the wild race Marie-Galante are perennial cottons that are grown in many Central and northern South American areas.

- They present substantial genetic variability.
INTRODUCTION

- Mocó cvs (arbóreo type) was important to the economy of smallholders cropping cotton in the North-eastern region of Brazil.

- Today less than 10,000 ha are still cropped with Mocó cultivars.
INTRODUCTION

- In the past, some authors classified Mocó type in *Gossypium barbadense*, others in *G. hirsutum*, with the assumption of possible introgressions between both species (or from *G. mustelinum*).

- On their side, Brazilian scientists more precisely have classified the Mocó in the race Marie-Galante.
The objectives of this study were:
- to determine the position of some Mocó and Marie-Galante accessions within the tetraploid cotton classification using microsatellite marker variability and
- to evaluate their potential use for the improvement of cultivated Upland cotton.
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MATERIALS AND METHODS

- MOLECULAR MARKERS
  - 48 tetraploid genotypes: 5 *barbadense*, 2 *darwinii*, 2 *tomentosum* and 39 *hirsutum* (3 Mocó, 8 Marie-Galante, 3 *yucatanense*, 4 *richmondi*, 3 *punctatum*, 2 *palmeri*, 4 *morrilli*, 4 *latifolium* and 8 modern cvs)
  - 320 mapped simple sequence repeats (SSRs)
MATERIALS AND METHODS

- **DARWIN4:**
  - Statistical analysis based on genetic dissimilarities (distance method)
  - Unweighted Neighbor-Joining Tree (NJTree)
  - Factorial analysis: Principal Coordinate Analysis (PCoA) which is a variant of the Principal Component Analysis (PCA)
MATERIALS AND METHODS

PHENOTYPICAL OBSERVATIONS

20 Mocó cvs and 486 Marie-Galante accessions from a total of 2030 *hirsutum* accessions from the CIRAD collection were evaluated to determine their agronomical and technological characteristics during seed rejuvenation.
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PCoA TETRAPLOID

AFTD axis 1 and 2

Race yucatanense (25-28)
Race marie-galante (29-36)
Race punctatum (18-20)
G. tomentosum
G. hirsutum
Modern cvs (1-8)
Race morrilli (9-12)
Race palmeri (13-14)
Race richmondi (15-17, 21)
Race latifolium (21-24)
Mocó (37-39)

G. barbadense
G. darwinii
G. tomentosum
Race marie-galante (29-36)
Race *punctatum*

Race *yucatanense*

Race *marie-galante*

Race *morilli* (9-12)

Race *richmondi* (15-17, 21)

Race *palmeri*

Race *latifolium*

Modern cultivars

Mocó
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STRENGTH T1 g/tex

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ELONGATION E1 %
MATURITY PM%
REFLECTANCE Rd %
REFERENCES

- Mocó: high fibre quality and drought resistance
REFERENCES

Some Marie-Galante resistant to *Meloidogyne incognita* and *Rotylenchulus reniformis*

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CONCLUSION

- Mocó and Marie-Galante could be useful for the improvement of some technological characteristics and tolerance to biotic stress of Upland cv

- Crosses were made in Brazil by Embrapa for the improvement of semi-perennial cvs.
Thank you for your attention.