Comparison of Genetic Diversity within Improved Germplasm of Cottons with RFLP, SSR, and RAPD Markers. (C01-ulloa184713-Poster)

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Abstract:

Future improvements in yield potential, environmental resistance, agronomic characteristics, and quality of cotton depend on diversity within the genetic resources used in the breeding process. Modern Acala, Upland, and Pima cottons are regarded as relatively low in genetic variation. Ten Gossypium hirsutum and ten G. barbadense improved germplasm have been assayed with 202 RFLP, 217 SSR, and 330 RAPD molecular markers. Preliminary data from the SSR markers showed that the diversity within the Acala cottons was approximately 18%, and within two Pima cultivars, PS 4 vs. PS 6, was approximately 16%. We will further discuss and present information confirming at the molecular level the narrow genetic base of improved germplasm within the two species, as well as p-distance difference among molecular markers. Results from the investigation confirm the need to broaden the germplasm base of improved cotton to ensure genetic diversity and increase the potential for genetic improvement.

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Presentation Information:

Presentation Date: Monday, November 11, 2002
Presentation Time: 4:00-6:00 pm
Poster Board Number: 1009

Keywords:

Cotton, Diversity, Pedigree, Markers