Genetic Fingerprinting of CIMMYT Tropical Inbred Maize Lines Using SSR Markers. (C07-warburton142326-Poster)

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Abstract:

Tropical maize inbreds selected from CIMMYT germplasm are very diverse, and provide breeders with a wide genetic and phenotypic base from which to select favorable hybrid combinations for their specific environment. However, due to such large diversity and the relative newness of the CIMMYT hybrid breeding program, it has been difficult to assign lines to heterotic group, which is traditionally done via the use of field crosses to testers, although many very favorable crosses have been identified. Molecular markers have been suggested as an aid to assigning lines to heterotic group. In this study, 159 tropical inbred lines were characterized with 83 SSR markers and grouped via cluster analysis. The tropical maize lines demonstrated more allelic diversity with these markers than did similar studies of temperate maize. Furthermore, the yellow lines clustered into 8 groups, and the white lines into 7, suggesting that up to 15 heterotic groups may be necessary to define CIMMYT tropical maize lines. Markers could be used further to define 2 to 3 testers per group, and to more quickly diverge the heterotic groups from each other in future breeding work.

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