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Keynote lecture

Session I

MOLECULAR VARIABILITY OF MAIZE LANDRACES ESTIMATED BY SSR MARKERS

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In order to provide continuous progress in maize breeding, it is necessary to expand the genetic base of breeding working collections by introgression of new germplasm into existing heterotic groups. Landraces can be valuable donors of desirable traits despite a large performance gap compared to current commercial varieties. Information on the heterotic pattern of landraces necessary for decision on their incorporation into pre-breeding and breeding programmes, have been made. Molecular characterisation of landraces can provide important information on their diversity before evaluation of their combining ability through crosses to divergent testers. In this study, molecular characterisation of 31 landraces and five divergent testers was performed using 29 polymorphic Simple Sequence Repeat (SSR) markers, in order to examine their genetic divergence. According to cluster analysis, landraces were grouped into four clearly defined groups and one separate branch. The MB1509 landrace differed significantly from all other landraces and testers used. The testers were grouped according to known information on their pedigree. The correspondence analysis pointed out the complexity of mutual relations of landraces and testers. Based on the results obtained by molecular markers, it can be, with high reliability, concluded with which testers the landraces will not give heterosis, making field research more effective (by reducing the number of crosses). The results indicated that the variability of landraces is significant, and that belonging to a certain heterotic group enables the correct selection of the initial material for pre-breeding and their use in breeding programmes.

Keywords: *genetic divergence, SSR markers, landraces,heterotic groups, Zea mays* L.

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