



Analysis of genetic diversity of salt-tolerant alfalfa germplasms

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ABSTRACT. Random amplified polymorphic DNA technology was used to analyze the genetic diversity of 25 salt-tolerant alfalfa varieties using 30 different primers. Results showed that the percentage of polymorphic loci between single-plant DNA was 81.52%, and that between mixed DNA of various varieties was 61.65%. Compared to the mixed DNA samples, single-plant DNA samples can better reveal the level of genetic variation among and between alfalfa varieties. The gene differentiation coefficients of 18 Chinese salt-tolerant alfalfa varieties and 7 American salt-tolerant alfalfa varieties were 0.271 and 0.152, respectively, showing that the exchange of genes between Chinese salt-tolerant alfalfa germplasms was more frequent than that of American germplasms. As a topical cross-pollinated plant, the genetic structure of biological populations of alfalfa was directly linked to its breeding system. According to the analysis of genetic distance (GD), 25 varieties can be divided into 9 groups, among which, the GD of Tumu No. 1 and Tumu No. 2 was the shortest (0.148), and the GD of Jieda No. 1 and Tumu was the longest (0.786). The analysis of genetic diversity

of salt-tolerant alfalfa germplasms provided a theoretical basis for the creation of an alfalfa salt-tolerant core germplasm repository and for the selection and breeding of new salt-tolerant varieties.

Key words: Alfalfa; Salt-tolerant germplasms; Genetic diversity; Random amplified polymorphic DNA