GMR Genetics and Molecular Research
Online Journal
ISSN:1676-5680

Molecular diversity analysis of eggplant (*Solanum melongena*) genetic resources

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Genet. Mol. Res. 10 (2): 1141-1155 (2011)
Received January 19, 2011
Accepted February 14, 2011
Published June 14, 2011
DOI 10.4238/vol10-2gmr1279

This study was sponsored by the National Science Foundation of China (#30971798) and the Jiangsu Natural Science Foundation, China (#BK2010474).

ABSTRACT. Eggplant (*Solanum melongena*), a vegetable that is cultivated worldwide, is of considerable importance to agriculture in China. We analyzed the diversity of this plant using inter-simple sequence repeat (ISSR) and RAPD procedures to subdivide 143 Chinese-cultivated eggplants based on coefficient of parentage, genetic diversity index (GDI) and canonical discriminant analysis. ISSR markers were more effective than RAPD markers for detecting genetic diversity, which ranged from 0.10-0.51, slightly lower than what is known from other crops. Our ISSR/RAPD data provide molecular evidence that coincides with morphological-based classification into three varieties and further subdivision into eight groups, except for two groups. Intensive use of elite parents and extensive crossing within groups have resulted in increased coefficient of parentage and proportional contribution but decreased GDI during the past decades. The mean coefficient of parentage and proportional con-

tribution increased from 0.05 to 0.10% and from 3.22 to 6.46% during 1980-1991 and 1992-2003, respectively. The GDI of landraces was 0.21, higher than the 0.09 and 0.08 calculated for the hybrid cultivars released during the two periods. The recent introduction of alien genotypes into eggplant breeding programs may broaden the genetic base.

Key words: Inter-simple squence repeat (ISSR); RAPD; Coefficient of parentage; Genetic diversity index (GDI); Morphometric analysis; Canonical discriminant analysis

