



Analysis of the genetic diversity of beach plums by simple sequence repeat markers

X.M. Wang¹, W.L. Wu¹, C.H. Zhang¹, Y.P. Zhang², W.L. Li¹ and T. Huang¹

¹Institute of Botany, Jiangsu Province and Chinese Academy of Sciences, Nanjing, Jiangsu, China

²College of Horticulture, Anhui Agricultural University, Hefei, Anhui, China

Corresponding author: W.L. Li

E-mail: lwcnbg@mail.cnbg.net

Genet. Mol. Res. 14 (3): 9693-9702 (2015)

Received January 7, 2015

Accepted June 25, 2015

Published August 19, 2015

DOI <http://dx.doi.org/10.4238/2015.August.19.2>

ABSTRACT. The purpose of this study was to measure the genetic diversity of wild beach plum and cultivated species, and to determine the species relationships using SSRs markers. An analysis of genetic diversity from ten beach plum germplasms was carried out using 11 simple sequence repeat (SSR) primers selected from 35 primers to generate distinct PCR products. From this plant material, 44 allele variations were detected, with 3-5 alleles identified from each primer. The analysis showed that the genetic similarity coefficient varied from 0.721 ± 0.155 to 0.848 ± 0.136 within each of the ten beach plum germplasms and changed within the range of 0.551 ± 0.084 to 0.695 ± 0.073 between any two pairs of germplasms. According to the genetic dissimilarity coefficient matrix, a cluster analysis of SSRs using the unweighted pair group mean average method in the NTSYSpc 2.10 software revealed that the ten germplasms could be divided into two groups at the dissimilarity coefficient of 0.606. Class I included 77.8, 12.5, 30, and 33.3% of MM, MI, NY, and CM, respectively. Class II contains the remaining 9 beach plum germplasms. The markers generated by 11 SSR primers proved very effective in distinguishing the beach plum germplasm resources. It was clear that the geographical distribution did not correspond

with the genetic relationships among the different beach plum strains. This result will be of value to beach plum breeding programs.

Key words: Beach plum; *Prunus maritima* Marshall; SSR markers; Genetic diversity