A new strategy for complete identification of sea buckthorn cultivars by using random amplified polymorphic DNA markers

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ABSTRACT. DNA fingerprinting is both a popular and important technique with several advantages in plant cultivar identification. However, this technique has not been used widely and efficiently in practical plant identification because the analysis and recording of data generated from fingerprinting and genotyping are tedious and difficult. We developed a novel approach known as a cultivar identification diagram (CID) strategy that uses DNA markers to separate plant individuals in a more efficient, practical, and referable manner. A CID was manually constructed and a polymorphic marker was generated from each polymerase chain reaction for sample separation. In this study, 67 important sea buckthorn cultivars cultivated in China were successfully separated with random amplified polymorphic DNA markers using the CID analysis strategy, with only seven 11-nucleotide primers employed. The utilization of the CID of these 67 sea buckthorn cultivars was verified by identifying 2 randomly chosen groups of cultivars among the 67 cultivars. The main advantages of this

identification strategy include fewer primers used and separation of all cultivars using the corresponding primers. This sea buckthorn CID was able to separate any sea buckthorn cultivars among the 67 studied, which is useful for sea buckthorn cultivar identification, cultivar-right-protection, and for the sea buckthorn nursery industry in China.

Key words: Cultivar identification; New strategy; Sea buckthorn