

RAPD analysis of three cultivars and a wild form in *Prunus laurocerasus* (Rosaceae)

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Abstract: The random amplified polymorphic DNA (RAPD) technique offers a useful tool to detect DNA polymorphism. It can be used to distinguish different clones and cultivars. Thus, RAPD markers can detect enough polymorphism to differentiate among the wild cherry laurel (*Prunus laurocerasus* L.) and three cultivars. Here, we used this technique to determine the genetic similarity of cherry laurel and three cultivars grown in Turkey by using fourteen decamer primers. A total of 295 amplification products were formed, 22 of that were polymorphic. The genetic similarity among individuals was estimated based on Jaccard similarity index and cluster analysis. Jaccard similarity coefficient values ranged from 0.643 to 0.842. Two major clusters were obtained, one corresponding to the wild form and the second to the cultivars. The lowest similarity (0.643) obtained was found between the wild form and the cultivars, the highest similarity (0.842) obtained was between *Prunus laurocerasus* cv. “Oxygemmis” and *P. laurocerasus* cv. “Globigemmis”. The similarity was 0.722 between the two cultivars and “Angustifolia”.

Key words: *Prunus laurocerasus*, genetic similarity, UPGMA.

Introduction

The Genus *Laurocerasus* DUHAMEL [*Prunus laurocerasus* L., synonym; *Laurocerasus officinalis* M. J. ROEMER, *Padus laurocerasus* (L.) MILLER, *Cerasus laurocerasus* (L.) LOISEL and *Laurocerasus vulgaris* (CARR.)] of the family Rosaceae, represented by only one species *Prunus laurocerasus*, is an Old World evergreen species (DAVIS, 1972). *Prunus laurocerasus* is a bush originating from Asia and the Balkans, which is nowadays cultivated in Southern, Western and Central Europe as a garden and hedge plant. The individuals are usually distributed in Bulgaria, Yugoslavia, Western Caucasia, Northern Iran and Turkey.

Prunus laurocerasus comprises both wild and numerous cultivated individuals. Of many cultivars reported from different countries (DIRR, 1990; POMAY, 1992), three cultivars “Oxygemmis”, “Globigemmis”, “Angustifolia” and the native wild form of cherry laurel, are commonly present in Turkey, especially in the Black Sea region and sparsely in Balikesir and Hatay (AYAZ et al., 1997). The species grows naturally from 20 to 2000 m of altitude and reaches up to 6 m height,

growing in forest, frequently associated with *Fagus* and *Rhododendron* (DAVIS, 1972). Recently various cultivars of cherry laurel have been grown for the production of an aromatic fruit juice (AYAZ et al., 1998).

Efficient methods to clarify the taxonomic status of both wild and cultivated material are much needed. Recently, various molecular marker systems have proved their value for characterization of plant genetic resources. Thus, the application of e.g. isoenzymes, RFLPs, RAPDs, AFLPs, and microsatellites have become an important tool in taxonomy and plant breeding. The feasibility of applying these markers to plant collections and breeding material has been reported for a wide variety of crops (WEISING et al., 1995).

Random Amplified Polymorphic DNA (RAPD) markers, developed by WILLIAMS et al. (1990) have been employed widely in cultivar identification and characterization. Cultivar identification has traditionally been based on morphological descriptions such as plant shape, leaf shape, young leaf type, and fruit shape and taste. Most morphological traits are influenced by environmental factors, plant age, and phenology. These

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