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Phenotypic Diversity of Fruits and Kernels of *Prunus divaricata* Ledeb. in Northern Iran — Implications for Domestication and Utilisation

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Abstract

Domestication of *Prunus divaricata*, a shrub or fruit tree up to 10 m tall, offers considerable scope for enhancing the nutritional and economic security of farmers in the north of Iran. The fruits with 20 to 35 mm in diameter are eaten fresh or used to prepare marmalade as well as a local tart. Moreover, this species is used as rootstock for plum and peach cultivars. Wild and semi-cultivated populations of this species are occurring in the southern part of Caspian Sea showing considerable variability in their fruits and kernels characteristics making them good candidates for domestication. In spite of the fact that, *P. divaricata* is a valuable fruit tree, only little research efforts have yet been dedicated to explore its potential for further domestication. Consequently, this study tries to determine the extent of phenotypic variation in fruits and kernels of this species implying in domestication and germplasm conservation programs. Eight fruit and kernel traits were assessed on forty ripe fruits from one hundred eighty trees in six wild and semi-cultivated populations. There were important differences between wild and semi-cultivated trees. Significant and continues tree-to-tree variation was found in fruit mass (2.1 to 6.7 g), flesh mass (1.76 to 6.3 g), nut mass (0.25 to 0.40 g), shell mass (0.16 to 0.24 g), kernel mass (0.9 to 0.16 g), fruit length (16 to 34 mm), fruit width (10 to 19 mm) and flesh depth (4 to 10 mm). Mean fruit length, fruit width, fruit mass, shell mass and kernel mass differed significantly between wild and semi-cultivated populations. Strong relationships were found between fruit weight and other fruit traits. These results represent the first quantitative assessment of tree-to-tree variation in fruit and kernel traits and is discussed with regard to the domestication and utilisation potential of this species in the northern Iran.

Keywords: Domestication, Iran, phenotypic variation, wild fruit trees