Phytotaxa 222 (3): 185–198
www.mapress.com/phytotaxa/

Article

ISSN 1179-3155 (print edition)
PHYTOTAXA
ISSN 1179-3163 (online edition)

http://dx.doi.org/10.11646/phytotaxa.222.3.2

Some nomenclatural adjustments and typifications for almond species in the genus *Prunus* sensu lato (Rosaceae)

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Abstract

Prunus dulcis (common almond) is an important horticultural nut crop with an annual production value in the billions of U.S. dollars. The genus *Prunus* is taxonomically complex, and over the centuries treatments have ranged from splitting the genus into multiple genera, with *P. dulcis* and relatives being placed in the genus *Amgydalus*, to having a single, widely circumscribed *Prunus* s. l. Recent phylogenetic studies based on molecular data support the adoption of a broadly circumscribed *Prunus*, and the widespread acceptance and usage of *Prunus s.l.* warrants nomenclatural adjustments for *Amygdalus* species. Twenty-two new combinations, one nomen novum, and one new nothospecies are proposed. In addition, two lectotypes and three neotypes are here designated.

Keywords: *Amygdalus*, breeding, *comb. nov.*, *nom. nov.*, nut species

Introduction

The common almond [*Prunus dulcis* (Miller 1768: without page) Webb in Heywood (1967: 24)] is one of the most important nut crops in the world, in both production yield and overall value (FAOSTAT 2014). California (USA) produces the majority of the world's almond crop, with this portion alone having a production value of over 4 billion US dollars (USDA-NASS 2013). Other countries having a significant amount of almond production are Iran, Italy, Morocco, Syria, and Spain (FAOSTAT 2014). *Prunus dulcis* has a long history of cultivation (Candolle 1890, Kester *et al.* 1991, Zohary & Hopf 2000, Gradziel 2010). Through the domestication process, humans have had a significant impact on the development and distribution of this and related species (Lansari *et al*. 1994, Martínez-Gómez *et al*. 2007). In addition to the cultivation of *P. dulcis*, the use of interspecific hybridization between this species and its related ones is a potentially valuable way to gain new desirable traits such as later flowering time, cold tolerance, disease resistance, and rootstock development (Denisov 1988, Gradziel *et al*. 2001).

Prunus Linnaeus (1753: 473) is a large and complex genus, and over the centuries botanists have proposed many classifications. Tournefort (1700) recognized six genera: *Amygdalus* Linnaeus (1753: 472), *Armeniaca* Scopoli (1754: 15), *Cerasus* Miller (1754: without page), *Laurocerasus* Duhamel du Monceau (1755: 345), *Persica* Miller (1754: without page), and *Prunus*. Linneaus (1753, 1754) considered two separate genera, *Amygdalus*, into which he merged Tournefort's *Persica*, and *Prunus*, into which he merged Tournefort's *Armeniaca*, *Cerasus*, *Laurocerasus*, and *Padus* (Miller 1754: without page). Münchhausen (1770) and Batsch (1801) were two early authors who adopted *Prunus* s.l., recognizing distinct subgroups as the "untergeschlect" *Armeniaca* (Scop.) Münchhausen (1770: 237), *Cerasus* (Mill.) Münchhausen (1770: 237), *Padus* (Mill.) Münchhausen (1770: 239), and *Prunus* (L.) Münchhausen (1770: 234), and, "unterabtheilungen der gattung *Prunus*," *Acacia* Batsch (1801: 26) [=*Prunus* s.str.], *Amygdalus* (L.) Batsch (1801: 29), *Armeniaca*, *Cerasus*, and *Padus*, respectively. There has been question as to the rank denoted by the words "untergeschlect" and "unterabtheilung". Brizicky (1969) made a strong case for recognition of untergeschlect, untergattung, and unterabtheilung at the subgeneric rank, citing the specific usage of these words by Münchhausen (1770) and Du Roi (1771, 1772).

Miller (1754) and some later works, such as Candolle (1825), Kovalyov & Kostina (1935), Linczevski & Fedorov

Accepted by Fabrizio Bartolucci: 30 Jul. 2015; published: 19 Aug. 2015