

# Adesoto 101, A Plum Rootstock for Peaches and Other Stone Fruit

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Adesoto 101 is a plum (*Prunus insititia* L. Bullace) rootstock developed at the Estación Experimental de Aula Dei, Zaragoza, Spain, for use as a rootstock for peach (*P. persica* L. Batsch), apricot (*P. armeniaca* L.), and almond [*P. dulcis* (Mill.) D.A. Webb] (Cambra, 1970, 1979; Moreno, 1989). Adesoto 101 was released because it adapts well to highly calcareous and compact soils, being resistant to root asphyxia and Fe chlorosis. All nursery and orchard trials were performed on alkaline soils (pH = 8 to 9), with a high total (30% to 35%) and active (10% to 11%) lime and clay, clay-loam, or silty-clay texture. Although no trees of Adesoto 101 died, 15% to 50% of several peach scions on Brompton and St. Julien A died of root asphyxia or associated diseases. In addition, symptoms of chlorosis were absent on scions grafted on Adesoto 101 but were visible when grown on peach seedling rootstocks.

Adesoto 101 advances fruit harvest maturity by 3 to 7 days, especially when compared to peach seedlings and peach x almond hybrids as rootstocks for peaches. Peach cultivars on Adesoto 101 were less vigorous than on peach seedlings or INRA Damas GF 1869 (Table 1). Cropping efficiency and fruit size were higher or similar to that on these rootstocks and other plum rootstocks (data not shown). Adesoto 101 may be suitable for peach cultivars to avoid excessive vigor or, in cases where control of tree size is needed, to increase planting density or to reduce production costs.

Hardwood cuttings rooted better when they were established early in autumn (Table 2) (Moreno, 1994). Adesoto 101 also can be propagated by in vitro techniques.

Adesoto 101 is resistant to *Meloidogyne arenaria* (Neal) Chitwood, *M. incognita* (Kofoid and White) Chitwood, and *M. javanica* (Treub) (Pinochet et al., 1991, 1992). Growth of Adesoto 101 is affected by *Pratylenchus vulnus* Allen and Jensen, although this rootstock needs a longer period to express damage compared to Citation, Montizo, and Saint Julien GF 655-2 rootstocks (Pinochet et al., 1993). Accordingly, Adesoto 101 may be a more tolerant rootstock.

## Origin

Adesoto 101 was selected from an open-pollinated population of Pollizo de Murcia (Cambra, 1970, 1979). Selection work was performed at the Estación Experimental de Aula Dei, Zaragoza. The clone initially was tested as Puebla de Soto AD 101. It was selected because of its superior nursery and orchard characteristics. It suckers less and roots more easily from hardwood cuttings than most of the Pollizo population.

## Compatibility

Adesoto 101 has shown good compatibility with 30 tested peach and nectarine cultivars. It also has shown good graft compatibility with almond, apricot, and European plum and prune cultivars (*P. domestica* L.), as well as Japanese plum cultivars (*P. salicina* Lindl.) (Cambra, 1970, 1979; M.A.M., unpublished data).

## Description

When Adesoto 101 is not grafted, the adult tree grows semi-upright, with branches spreading more than those of Brompton or St. Julien A. Adult and nongrafted trees of Adesoto 101 are less vigorous than those of Brompton and slightly more so than those of St. Julien A.

One-year-old shoots (Fig. 1a) are green in spring and summer and gray and purplish-red in winter. Leaves (Fig. 1a) are of European plum type, large, and deep green, with wavy serrated margins. Mean length : width ratio of the leaf blade is 1.57, slightly greater than that of Brompton (1.25) and St. Julien A (1.35).

Table 1. Trunk cross-sectional area (TCSA) of 'Vesuvio' peach on five rootstocks after 9 years in the orchard.

Rootstock	TCSA (cm <sup>2</sup> )
Adesoto 101	84 <sup>a</sup>
Brompton	91 ab
St. Julien A	103 ab
Peach seedling	108 bc
Damas GF 1869	134 c

<sup>a</sup>Each value is the mean of five replications; mean separation by Duncan's multiple range test at  $P \leq 0.05$ .

Table 2. Rooting percentage for hardwood cuttings of Adesoto 101, treated with 2 or 4 g-liter<sup>-1</sup> indolebutyric acid (IBA) at three dates of treatment application.

Application	IBA treatment (g-liter <sup>-1</sup> )	
	2	4
9 Oct.	60.0 <sup>a</sup> b <sup>y</sup>	42.5 b
24 Oct.	6.3 a	7.5 a
10 Nov.	5.0 a	7.5 a

<sup>a</sup>Each value is the mean of 15 replications of 10 hardwood cuttings per replication.

<sup>y</sup>Mean separation in columns by Duncan's multiple range test at  $P \leq 0.05$ .

Leaf petioles are distinctly channeled and are deep purple. There are usually two glands at the base of the leaf blade. At the beginning of growth, leaves have long stipules. Leaf fall is at the same time as St. Julien A and Brompton.

Flowers (Fig. 1b) are white, similar in size to those of Reine Claude GF 1380 and slightly larger than those of St. Julien A. The stigma position is at the same level as the anthers or slightly above. Fruit (Fig. 1c) are rounded, somewhat oblong, and slightly asymmetric; they are larger than those of Brompton and St. Julien A and similar in size to those of Reine Claude GF 1380. Fruit mean weight was 21 to 23 g, and length and width were 32 mm. The skin has a blue-violet ground color, almost black when fully ripe, with abundant skin bloom. The flesh is yellowish-green or golden, juicy, sweet, and pleasant to eat. The stone (Fig. 1d) is semi-adherent, light brown, round-elliptical and asymmetric in profile view (length : breadth ratio = 1.41 ± 0.11), similar in size to that of St. Julien A and smaller than that of Reine Claude GF 1380.

## Availability

Registration of Adesoto 101 is in progress. Small quantities of rooted cuttings or budwood can be obtained from the Estación Experimental de Aula Dei. Adesoto 101 is free of all known viruses (Cambra et al., 1980; Marénaud and Bautista, 1981). Phytosanitary check of stock plants is performed regularly, and the absence of isometric labile ring spot, apple chlorotic leaf spot virus, and Sharka viruses has been recently confirmed (R. Gella, personal communication).

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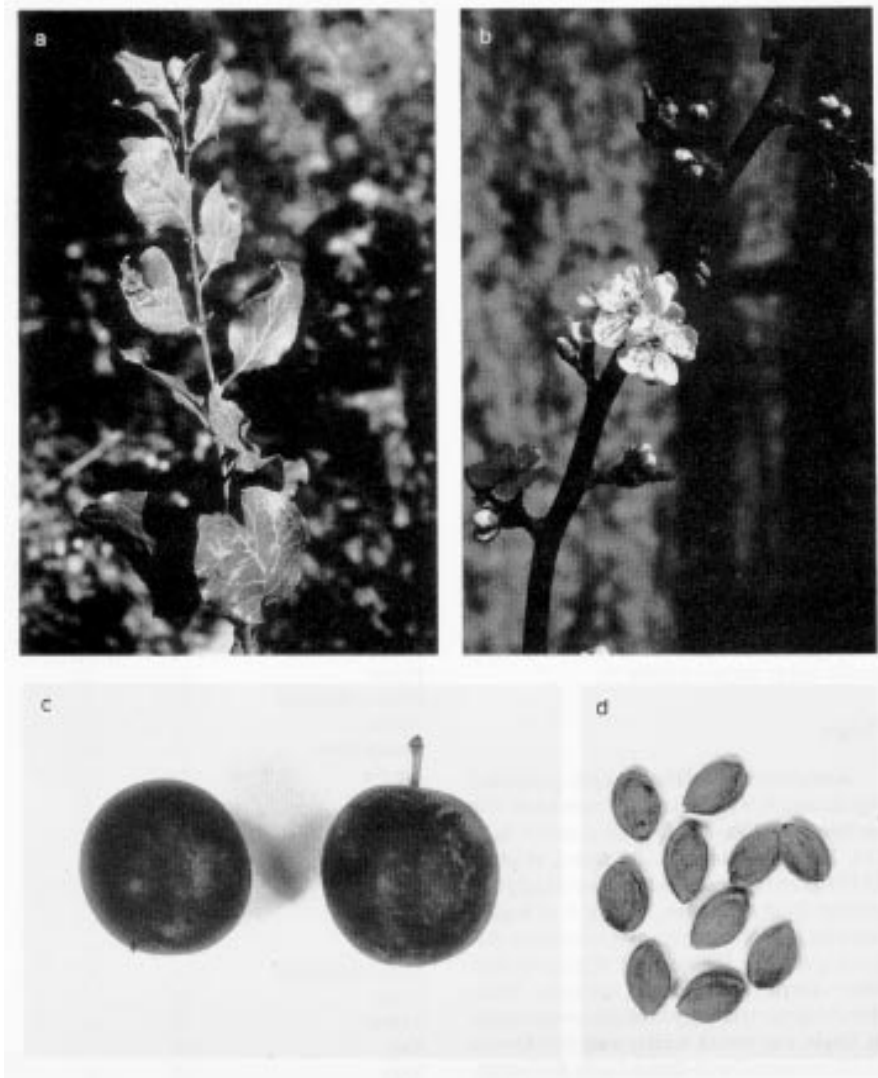


Fig. 1. (a) Shoot and leaves, (b) flowers, (c) fruit, and (d) stones of Adesoto 101.

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