

JALTOMATA LOJAE (SOLANACEAE): DESCRIPTION AND
FLORAL BIOLOGY OF A NEW ANDEAN SPECIES

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ABSTRACT. *Jaltomata lojae* (Solanaceae) of southern Ecuador and northern Peru is described. This species is distinguished by the following features: finger hairs borne by the leaves and stems; a white, broadly infundibular to rotate corolla; exserted stigma; a broad nectary disk; and orange fruits. Corollas change from pale green to white at anthesis. Flowers are self-compatible, herkogamous, and sometimes protogynous. Microscopic, densely staining, multicellular glands that may be osmophores are located on the perianth. Berries are eaten by humans.

Key Words: edible fruit, floral biology, herkogamy, *Jaltomata*, osmophore, Solanaceae

Jaltomata includes about 40 neotropical herbaceous and shrubby species distributed from Arizona, U.S.A., to Bolivia, as well as on the Galápagos Islands and the Greater Antilles (Mione et al. 1993). The fruits of most species are eaten uncooked (Davis and Bye 1982; Mione 1992). This description of a new species is a contribution to ongoing systematic studies of this genus (Mione 1999; Mione and Bye 1996; Mione and Leiva 1997).

MATERIALS AND METHODS

The description is based on the holotype and plants grown, from seed of the type collection, in the University of Connecticut (UConn) and Central Connecticut State University (CCSU) greenhouses. To look for structures that may release scent (osmophores), flowers were stained in 0.01% neutral red for several hours and then observed with bright field microscopy (Kearns and Inouye 1993). Observations on floral phenology were made in May of 1992 at UConn, and March to May of 1998 at CCSU. Chromosome counts were made with meiocytes of immature anthers stained with acetic carmine. Floral fragrance was evaluated by seven people who were blindfolded and asked to describe the fragrance of an empty jar and then a jar containing flowers. Jars were uncapped seconds before being placed in close proximity to

the nose. To examine seed set, flowers were manually pollinated during the pistillate and hermaphroditic phases. Undehisced anthers were removed at the time of pollination.

TAXONOMIC TREATMENT AND DISTRIBUTION

Jaltomata lojae Mione, *sp. nov.* TYPE: ECUADOR. Prov. Loja: by guard station on the E side of Celica, 1950 m, growing along roadside, 2 May 1991, *D. M. Spooner, R. Castillo, and L. López 5037* (HOLOTYPE: CONN). Figures 1 and 2.

A *J. cajamarca* Mione atque *J. sagasteguii* Mione foliis pilis dactyliformibus, corolla sub anthesi rotata et ovarii disco lato difert.

Perennial shrub; branches and leaves densely villous, bearing finger hairs, these sometimes gland-tipped, 0.15–6 mm long, becoming less villous with age. Leaves alternate, often geminate, ovate, to 15 cm long × 6 cm wide, the margin entire to sinuate-dentate, undulate, the petiole to 4.5 cm long. Inflorescence umbelliform, to 9-flowered. Peduncle 5–9 mm long (at flowering), pedicel 8–11 mm long (at flowering), both having a dense covering of erect finger hairs to 1.5 mm long, some hairs gland-tipped. Calyx (at flowering) light green, 9.5 mm in diameter, strongly reflexed, abaxially villous with gland-tipped finger hairs, forked hairs, and dendritic hairs all 1–2 mm long, and abaxially and adaxially with stalked multicellular glands 62–80 μm long (Figure 2), at fruit maturity calyx diameter to 12 mm. Corolla infundibular when partially open, rotate when fully open, white, with two green proximally positioned maculae straddling the radial vein to each corolla lobe (Figure 1), 5 prominent lobes alternating with 5 small lobules, 25–27 mm in diameter on plants we grew, 18 mm in diameter on the holotype, adaxially glabrous, abaxially with sparsely but evenly distributed stalked multicellular glands 62–80 μm long (Figure 2). Two classes of hairs extend out from the corolla margin: marginal hairs to 110 μm long, and submarginal (attached abaxially) hairs to 0.5 mm long. Stamens 5, 5 mm long; filaments on living plants angling away from style and slightly curved outward, villous on basal 1/4 of the length with unpigmented finger hairs to 1.2 mm long; anthers 2.1–2.5 mm long prior to dehiscing, 1.6–1.8 mm long after dehiscing, when corolla is fully open exerted out of corolla 2 mm,

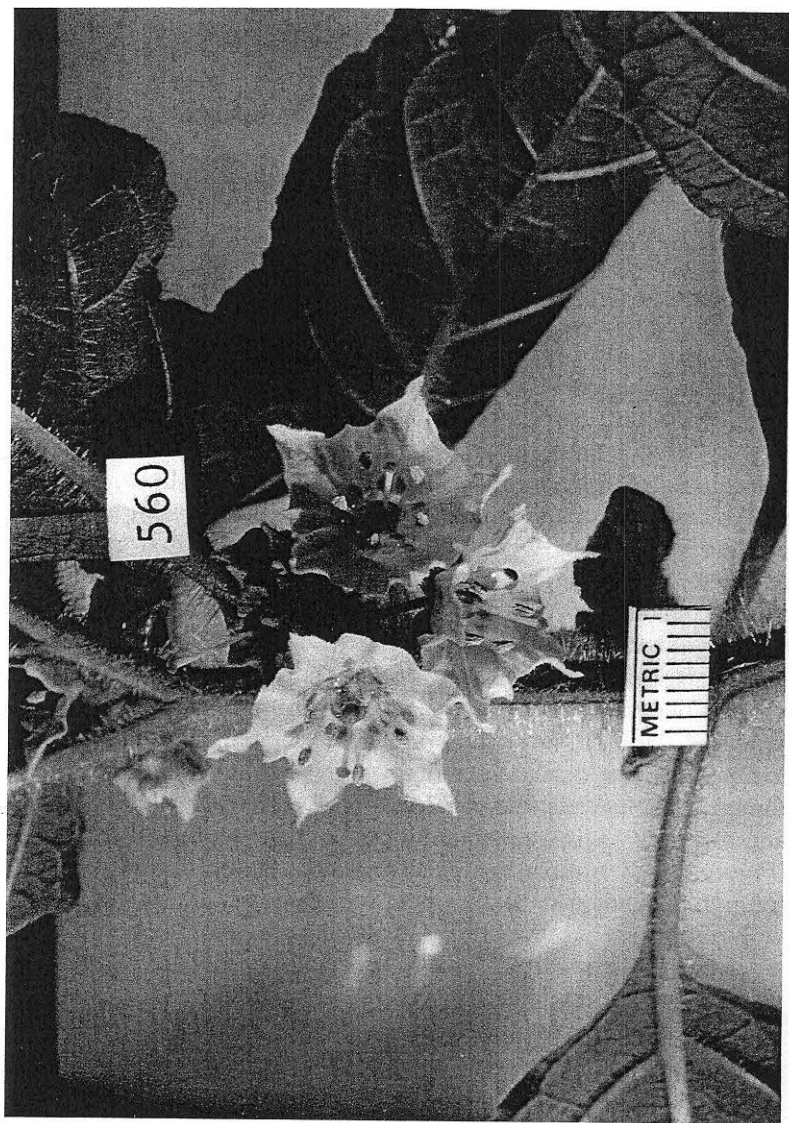


Figure 1. *Jaltomata lojæ*. Inflorescence on plant grown from seed of the type collection. Units are millimeters.

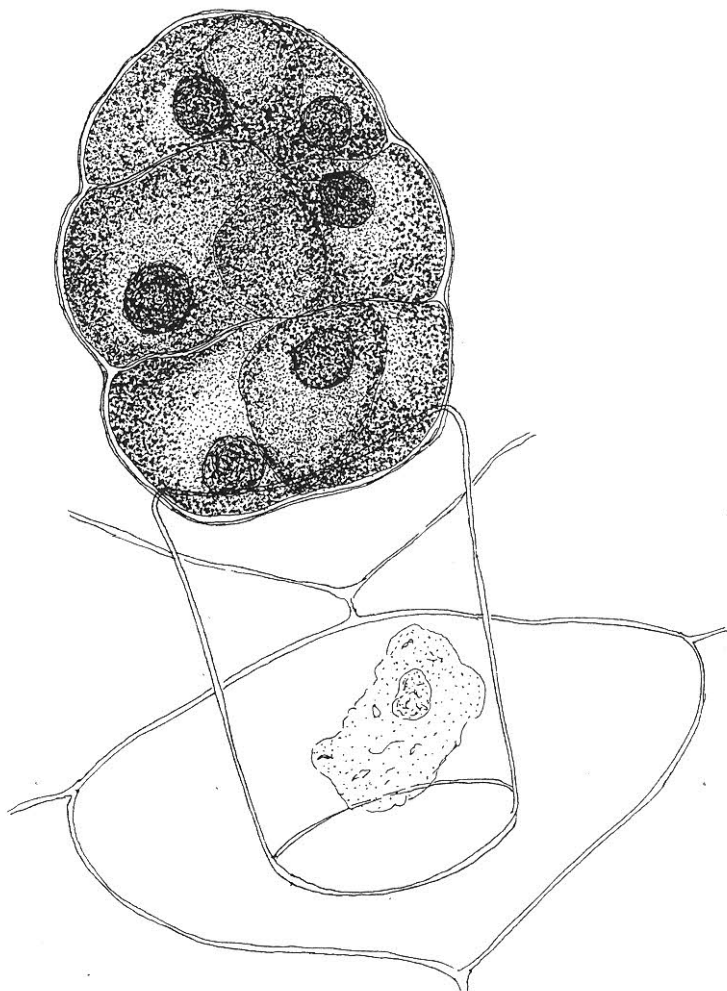


Figure 2. Perianth gland (75 μm long). Multicellular head stains deeply with neutral red, the stalk cell does not. Drawn by L. A. S. from plant grown from seed of the type collection.

otherwise included. Pollen grains 32.5 μm average diameter ($n = 22$ grains). Ovarian nectar disk orange (visible by eye on living flowers). Style 9–11 mm long, slender and straight (Figure 1), exerted 3–8 mm beyond the anthers; stigma shallowly bilobed, 0.4 to 0.75 mm wide on pressed specimens, broader than the style (Figure 1), the papillae 30–60 μm long. Mature fruits orange.

