
Jaltomata sagastegui and *Jaltomata cajamarca* (Solanaceae), Two New Shrubs from Northern Peru

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ABSTRACT. *Jaltomata sagastegui* and *J. cajamarca*, both of Peru, Dept. Cajamarca, Prov. Contumazá, are described and shown in photographs. *Jaltomata sagastegui* is self-compatible and has a chromosome number of $n = 12$; the type was collected at 2500 m elevation. *Jaltomata cajamarca* grows between 1700 m and 2600 m elevation. Berries of both species are eaten by humans.

RESUMEN. *Jaltomata sagastegui* y *J. cajamarca*, las dos de Perú, dpto. Cajamarca, prov. Contumazá, se describen y muestran en fotografías. *Jaltomata sagastegui* es auto-compatible y tiene un número de cromosomas de $n = 12$; el tipo fue colectado a 2500 m s.n.m. *Jaltomata cajamarca* crece entre 1700 m y 2600 m s.n.m. Las bayas de las dos especies son comestibles.

Jaltomata Schlechtendal (including *Hebecladus* Miers) is a diverse genus of about 30 species of herbs and small shrubs that are widely distributed, from Arizona, U.S.A., to southern Bolivia, the Galápagos Islands, and the Greater Antilles. This paper is part of an ongoing series of studies of the systematics of this genus (D'Arcy et al., 1992; Davis, 1986; Davis & Bye, 1982; Knapp et al., 1991; Mione, 1992; Mione & Coe, 1992; Mione et al., 1993; Mione et al., 1994; Mione & Bye, 1996).

After careful study of taxonomic literature, herbarium specimens, and living plants of some 20 *Jaltomata* species, we recognize *J. sagastegui* and *J. cajamarca* as new species. In a study of phylogeny based on chloroplast DNA characters, these two species formed a monophyletic group within an otherwise unresolved lineage of *Jaltomata* species of South America and the Greater Antilles (Mione et al., 1994).

METHODS

Part of our approach has been to grow plants of as many accessions of *Jaltomata* as possible. For this study seeds were collected in the field when plants were pressed, and were kindly sent to T.M. by A. Sagástegui A. and M. O. Dillon (F). Plants

were raised and studied in the greenhouse at the University of Connecticut, Storrs, and herbarium specimens of these plants were deposited at CONN. For each seed accession, we compared the morphology of field-collected herbarium specimens with greenhouse-grown living and herbarium specimens. This provided some understanding of the range of phenotypes possible from one accession, and allowed us to compare the three-dimensional corolla shape of living plants with the corolla as it appears when pressed at various angles. Specimens raised from seed always appeared conspecific with the field-collected specimen from which seeds were collected. Living plants of *J. sagastegui* were also used to assess stigma compatibility, and to obtain chromosome counts from meiocytes of immature anthers stained with acetic carmine.

Hair morphology was studied, and hairs were measured with wet mounts (including leaf cross sections) and toluidine blue stain. The indicated number of flowers per inflorescence includes open flowers and flower buds. Calyces of *Jaltomata* are accrescent, and the calyx was therefore measured separately at anthesis and at fruiting. Calyx lobe radius and calyx sinus radius were measured from the point of attachment of the pedicel. Corolla diameter was measured as the distance between the tip of a randomly chosen corolla lobe and another on the opposite side of the corolla, without flattening the corolla of living plants. Stamen length includes the anther. Pollen grain diameter was measured with a compound microscope after staining pollen 30 minutes in "cotton blue" stain. Stigma diameter was measured both on living material, by orienting the style vertically (stigma up) under a dissecting microscope, and on specimens pressed from greenhouse-grown plants. Style length includes the stigma. Calyx lobe radius and calyx sinus radius at fruiting were measured either from the point of attachment of the mature fruit or the center of the pedicel. Fruits, nearly spherical berries, were measured on isotypes for both species, and on living specimens for *J. sagastegui*. The descriptions are based primarily on greenhouse-grown

