

BIDENS COLIMANA (ASTERACEAE), A NEW WHITE RAYED PERENNIAL FROM JALISCO MÉXICO

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ABSTRACT

Two morphologically distinct, geographically isolated populations of *Bidens*, one from Volcán Colima and one from Volcán Tequila, are recognized as *Bidens colimana spec. nov.* The species is related to *B. aequisquama* (Fern.) Sherff but differs in having sprawling, subterete lower stems and 3-5 partite leaves or bipinnatisect leaves with narrower segments.

KEY WORDS: Asteraceae, Coreopsideae, *Bidens*, México, systematics

Examination of herbarium specimens from MICH revealed two white rayed, perennial *Bidens* specimens from Jalisco (one from Volcán Colima, 2740 m, *Denton 2065*, and one from the upper slopes of Volcán Tequila, 2400-2800 m, *McVaugh 23910*, that do not conform to previously described species of *Bidens*. Unlike other white (to rose) rayed, perennial species found in southwestern México, e.g., *B. aequisquama* (Fern.) Sherff, *B. mollifolia* Sherff, *B. pringlei* E. Greene (all of which have erect, sharply tetragonal, "mint like" stems that terminate in multiheaded, branched inflorescences), the two plants concerned have *sprawling, subterete to multiangled stems*; showy, eight rayed heads that are borne singly atop elongate peduncles (their large white rays with ca. twelve purple-brown veins each); and strongly ciliate outer involucre bracts with contrasting glabrous, somewhat rosaceous, inner involucre bracts. The two specimens differ markedly however, in leaf form. The Volcán Colima plant having rather small, once pinnate leaves with 3-5 lance linear segments (Figure 1), and the Cerro Tequila plant having deeply bipinnatisect leaves (Figure 2). While it is tempting to treat the two specimens as belonging to separate species, the fact that many Mexican species of *Bidens* are notoriously heterophyllous, cautions against over emphasizing the seemingly dramatic differences in their leaf morphology (*B. triplinervia* H.B.K. for example, commonly has simple, 3-5 partite, and deeply 2-3 pinnatisect leaf forms,

even within the same population, as does *B. odorata* Cav. [Ballard 1986]). Accordingly, both specimens are treated here as belonging to *B. colimana*, with the recognition that future studies may show them to belong to different taxa.

The Volcán Colima specimen was chosen as the holotype because it has several fully expanded flowering heads and the most distinctive leaves of the two (in comparison to other species of *Bidens* in the area). The description that follows was derived solely from the holotype, the distinguishing features of the Cerro Tequila plant being noted separately in the discussion. It is important to note that both specimens were collected at early anthesis, *i.e.*, neither having mature or nearly mature achenes, a feature which is often critically important in distinguishing among species of *Bidens* (both specimens however, do have stout, retrorsely barbed, yellow awns on their disc floret ovaries).

Bidens colimana T. Melchert, *spec. nov.* TYPE: MÉXICO. Jalisco: Pass between Nevado de Colima and Volcán de Colima, 23.8 mi NW of intersection of road to Nevado and road between Atenquique and Tonila, mostly ash and lava rocks, some pines and firs, 2740 m, locally abundant, 12 Aug 1972, *Melinda F. Denton 2065* (HOLOTYPE: MICH!).

Bidenti aequisquamae (Fern.) Sherff similis sed caulibus decumbentibus subteretibus infra medium vel infirme tetragonis supra medium, foliis 3-5 partitis segmentis anguste lanceolatis, et capitulis solitariis in pedunculis elongatis differt.

Sprawling or somewhat ascending, multistemmed, herbaceous perennial. Stems multiribbed and relatively slender; lower internodes terete or nearly so, densely short puberulent; upper internodes multiangled to subquadrangular, the pubescence reduced. Leaves evenly spaced in the lower one half of the plant, deeply once pinnatifid, mostly with 3 or 5, narrowly lance-linear divisions, 2.3-3.8 cm long, glabrous and seemingly rather stiff; terminal segment of tripartite leaves 2-3 cm long, 2.0-2.7 mm wide, entire; basal pair of leaf segments much shorter, narrowly oblanceolate, 7-14 mm long, 2.0-3.0 mm wide, entire or with a single, toothlike lobe on the leading edge. Heads single atop elongate peduncles, 8 rayed, mostly 3.5-4.0 cm across the expanded ligules. Peduncles mostly (9-)12-15 cm long, (including the often 1 or 2 bractlike leaves) the uppermost portion of the peduncle and the base of involucre subtomentose. Involucres strongly dimorphic, the 8-10 outer bracts linear, ca. 5 mm long, strongly long ciliate, but otherwise glabrous, the apices acute, somewhat indurate; inner involucral bracts slightly longer, the central portion with dark stripes, mostly somewhat rosaceous, the margins gray scarious and essentially glabrous, these grading into the chaff. Ligules 15-17 mm long, 6-7 mm wide, white with (9)12 purple-brown veins, linear-obovate with truncated, shallowly 3 notched apices. Disc mostly 8-9 mm high, to 15 mm across (when pressed); disc florets rather numerous, their corollas yellow; anthers black throughout;

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PLANTS OF MEXICO
Collected for the University of Washington

ESTADO DE JALISCO: Pass between Nevado de Colima and Volcán de Colima, 21.8 km NW of intersection of road to Nevado and road between Atenquique and Tonila; mostly ash and lava rocks, some pines and fir; elev. 2740 meters; locally abundant; disk flowers yellow, rays white but with brownish lines abaxially.

Meléndez & Denton 2865

16 August 1972

Figure 1. Holotype of *Bidens colimana*; Nevado de Colima, Jalisco.



Figure 2. *Bidens colimana* with bipinnatisect leaves from Nevado de Tequila, Jalisco.

style branches yellow, exserted. Achenes unknown, but apparently 2 awned (i.e., 2 yellow awns protruding among the outer disc florets at early anthesis, these ca. 4 mm long, retrorsely barbed).

ADDITIONAL SPECIMEN EXAMINED: MÉXICO. Jalisco: Upper slopes of Cerro Tequila, occasional on steep mountain sides in mature oak forest with many epiphytes, 2400-2800 m, 14 Sep 1967, *R. McVaugh 23910* (MICH!).

The Cerro Tequila plant listed above differs from the type as follows: stems totally sprawling, radiating from a seemingly vertical rhizome (root system not present on the Volcán Colima plant); leaves deeply bipinnatisect, most 3-5 cm long, 2-4 cm wide, the segments with scattered pubescence below, particularly on the midrib, terminal segments of midcauline leaves narrowly lanceolate, mostly 3-4 mm wide; outer involucre bracts 10-14, mostly 5-7 mm long, somewhat exceeding the inner involucre in the bud stage, outer surface with short hairs on the dark midnerve; inner involucre bracts rosaceous, their tips yellow-pubescent; pappus awns of outer disc florets 3.0-3.8 mm long at anthesis.

This specimen superficially resembles the very common weed, *Bidens odorata* (white rays and bipinnatisect leaves), but the latter is annual and has sharply tetragonal stems.

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