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Endemism and taxonomy of *Chaptalia* (Asteraceae) in the Caribbean. II. Taxonomic treatment

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This is the second part of a revision of the genus *Chaptalia* (Asteraceae) in the Caribbean Islands, containing a taxonomic treatment. The number of recognized species in the genus is reduced from 31 to two endemics, *C. angustata* and *C. dentata*, and two non-endemics, *C. albicans* and *C. nutans*. A morphological analysis led to synonymization of numerous names under *C. dentata*. A key to the species of *Chaptalia* in the Caribbean is provided together with species descriptions, illustrations, and distribution maps.

The first part of this *Chaptalia* revision (Katinas & Zavaro 2014) contained the general background as well as the material and methods and discussed the morphological characters of the various species and the endemism in the Caribbean Islands. This second part concludes the study with a taxonomic revision of the species present in the study area. The species number is reduced from 31 (Katinas & Zavaro 2014: table 1) to four, two of them being endemic to the area.

Taxonomic treatment

We conclude in this study that many of the characters employed in previous works to separate the Caribbean species of *Chaptalia*, such as foliar and involucral features, capitulum size, and cypsela length are of quantitative nature and show no discontinuities, although there is some degree of association of characters that are taxonomically helpful (cf. Katinas & Zavaro 2014

and the Appendix therein). Other characters, such as fruit pubescence, are more conservative and allow recognition of taxa. These characters are summarized in the following key to the Caribbean species of *Chaptalia*.

1. Leaves entire, narrowly oblanceolate (2.2 × 0.5–2 cm), coriaceous, acute at apex, entire to retrorse-dentate, attenuate at base *C. angustata*
1. Leaves shape variable but not narrowly-oblanceolate and acute at apex 2
2. Scapes not widened below capitula. Leaves lyrate or pinnatisect, with upper lobe more developed than lateral lobes. Capitula nodding, 150–200-flowered; cypselae with short hairs, with a papillose appearance (short twin hairs) *C. nutans*
2. Scapes widened below capitula. Leaf shape variable. Capitula erect, 14–80-flowered; cypselae with short or long hairs 3
3. Cypselae 3–7.5 mm long, with a hispid appearance (long twin hairs); pappus 4–9 mm long; leaves entire, lobulate, pinnatifid to lyrate *C. dentata*
3. Cypselae 7–13 mm long, with very short hairs (glandular hairs), with a subglabrous or dotted appearance; pappus 8–11 mm long; leaves entire to lobulate *C. albicans*

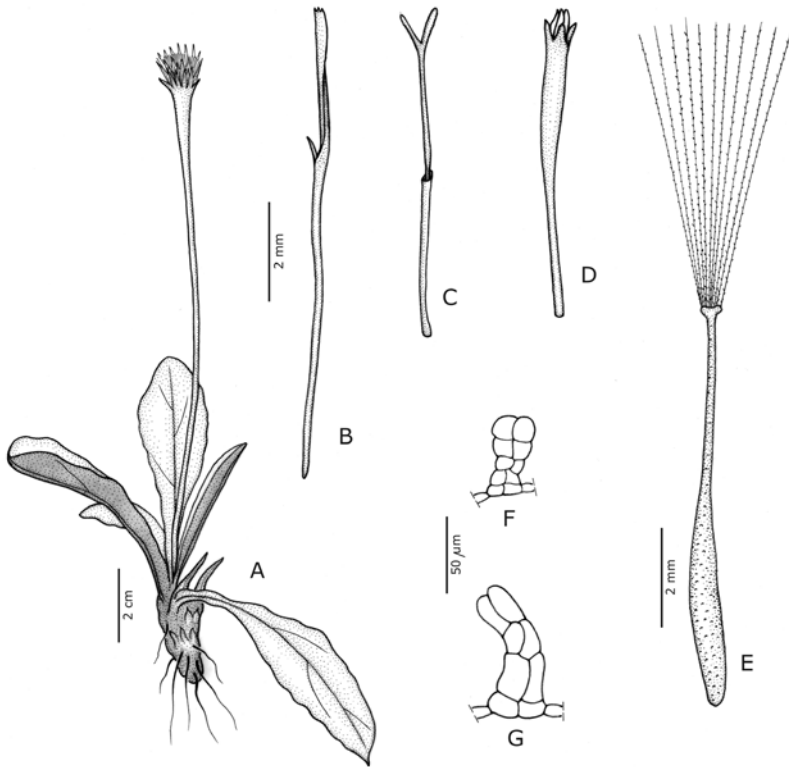


Fig. 1. *Chaptalia albicans* (A from Yuncker et al. 5784, MO; B–E from Correl & Popenoe 46942, MO; F and G from Wright s.n., MO 2095177). — A: Habit — B–D: Florets (B marginal floret, C intermediate floret, D central floret). — E: Cypsela and pappus. — F and G: Glandular biseriate cypsela hairs.

***Chaptalia albicans* (Sw.) Vent. ex B.D. Jacks. (Fig. 1)**

Index Kew. 1(1): 503. 1893. — *Leontodon tomentosum* L.f., Suppl. Pl.: 347. 1781 [1782], non *Chaptalia tomentosa* Vent. 1802. — TYPE: "Habitat in Jamaica" (lectotype LINN no. 953.16, microfiche 537!, designated by Nesom 1984). — *Thysanthera tomentosum* (L.f.) Kuntze, Revis. Gen. Pl. 1: 369. 1891, nom. illeg. — *Tussilago albicans* Sw., Prodr.: 133. 1788. — TYPE: the same as *Leontodon tomentosum*. — *Leria albicans* (Sw.) DC., Ann. Mus. Natl. Hist. Nat. 19: 68. 1812, nom. illeg. — *Gerbera albicans* (Sw.) Sch.Bip., Bot. Voy. Herald 7–8: 313. 1856.

Leria leiocarpa DC., Prodr. 7: 42. 1838. — TYPE: Cuba. 1825 Ramón de la Sagra s.n. (holotype G-DC, microfiche no. 1239, photograph F no. 33825, in F!, GH!, MO!; isotype F!). — *Gerbera leiocarpa* (DC.) Sch.Bip., Bot. Voy. Herald: 313. 1856, non *Gerbera leiocarpa* Schltr. 1899 (= *Perdicium leiocarpum* DC.). — *Chaptalia nutans* (L.) Pol. var. *leiocarpa* (DC.) Griseb., Catal. Pl. Cub.: 158. 1866. — *Leria nutans* DC. var. *leiocarpa* (DC.) Griseb., Cat. Pl. Cub.: 158. 1866. — *Chaptalia integrifolia* (Cass.) Baker var. *leiocarpa* (DC.) Baker, Fl. Bras. 6 (3): 378. 1884. — *Chaptalia leiocarpa* (DC.) Urb., Symb. Antill. (Urban) 8: 747. 1921.

Chaptalia crispula Greene, Leaf. Bot. Observ. Crit. 1: 194. 1906. — TYPE: Guatemala. Dept. Santa Rosa, Santa Rosa, VI.1892 Heyde & Lux 3433 (holotype US!; isotype F! annotated with 'A', GH!).

Chaptalia fallax Greene, Leaf. Bot. Observ. Crit. 1: 195. 1906. — TYPE: Cuba. Santiago province, vicinity of Baracoa, 24/29.I.1902 C. Pollard, E. Palmer & W. Palmer 86 (holotype US!).

Perennial herbs 10–37 cm high, rhizomes 1–1.5 cm long. Leaves 2.5–12.5 × 0.6–2 cm, oblanceolate to elliptical, entire to crenate or retrorse-dentate, planate, acute or obtuse at apex, attenuate at base, pseudopetiolate, membranaceous, glabrous to araneose-pubescent above, white- to yellowish- greenish pubescent beneath. Scapes 9–36 cm long, ebracteate, widened below capitula, tomentose. Capitula 10–25 × 5–25 mm, turbinate to hemispherical, erect. Involucral bracts green, occasionally purple at apex, densely pubescent, scarious at margins, occasionally totally scarious innermost; first series 3–6 × 0.5–1 mm, lanceolate; second series 6–9 × 0.8–1.2 mm, lanceolate; third series 8–12 × 0.8–2 mm, linear-oblong; fourth series 14–21 × 1–1.8 mm, linear-oblong. Florets trimorphic, 45–80, white, pink, papillose, pubescent (glandular 2-seriate); marginal florets as long as involucre, tube 5.5–8 mm long, ligule 4–5 mm long,

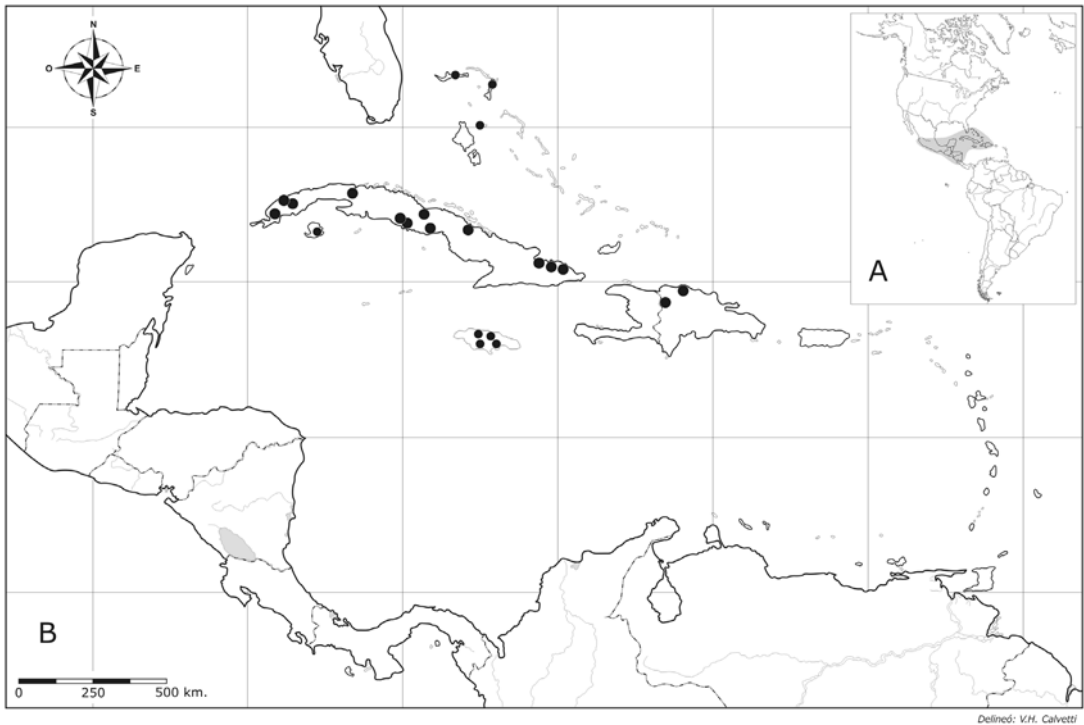


Fig. 2. Geographical distribution of *Chaptalia albicans*. — A: General distribution. — B: Distribution in the Caribbean.

inner lip absent, style 7.5–8.5 mm long, branches linear, 1–1.2 mm long; intermediate florets with corollas 2–4 mm long, style 7–8 mm long, branches linear, 1–1.5 mm long; central florets tubulose or tubulose-bilabiate, tube 6–9.5 mm long, lobes 1–1.5 mm long, fertile ovaries, style 6–10 mm long, branches linear, 0.5–1 mm long, anthers 2–2.5 mm long, tails 1–1.2 mm long, papillose, filament papillose. Cypselae elliptical, seminal portion 4–7 mm long, rostrum 3–6 mm long, filiform, pubescent in whole surface (glandular 2-seriate), 5-ribbed. Pappus yellow-red-dish, persistent, bristles 8–11 mm long. Chromosome number: $2n = 48$ and ca. 58 (Torres & Liogier 1970, as *C. leiocarpa*).

DISTRIBUTION AND HABITAT: This species grows in southeastern United States, Mexico, Central America and the Caribbean (Bahamas, Cuba, Dominican Republic, and Jamaica) (Fig. 2). It thrives in open pine forests, grasslands, open and dry ground, and rocky hillsides, 0–2100 m a.s.l. Flowering from March to December.

NOTES. As explained by Nesom (1984: 398), Linnaeus f. did not cite a specimen when describ-

ing *Leontopodium tomentosum*, although there exists a specimen LINN no. 953.16 annotated presumably by Linnaeus f. as '*L. tomentosum*'. That specimen was designated as a lectotype by Nesom (1984).

When Swartz (1788) transferred *Leontodon tomentosum* to the genus *Tussilago*, he established *Tussilago albicans* as a *nomen novum* for this because of the blocking name *T. tomentosa* Ehr., 1788 (Nesom 1984).

The sheet of Heyde & Lux 3433 deposited in F has two specimens. One of them, annotated with 'A', is the type of *Chaptalia crispula*, and the other one, annotated with 'B', is a non-type specimen of *C. nutans*.

As noted by Nesom (1984), *C. albicans* resembles *C. dentata*. The main character to distinguish the species is the exclusively fruit glandular pubescence in *C. albicans* and the presence of long twin hairs in *C. dentata* distributed in the whole surface, and the glandular hairs usually restricted to the rostrum. Another distinguishing character is the pubescence of the leaves. The leaves of *C. albicans* are gla-

brous above, occasionally araneose-pubescent, and usually yellow-greenish tomentose beneath. The leaves of *C. dentata* are tomentose above, occasionally glabrous or araneose-pubescent, and silvery white beneath. There are however, many specimens of *C. dentata* with a leaf pubescence that resembles that of *C. albicans* and vice versa. This was probably the reason why Nesom (1984) included *C. obovata*, whose type specimens have the leaves with yellowish pubescence below, in the synonymy of *C. albicans*. *Chaptalia obovata*, however, has the cypselae ca. 5 mm long, bearing the hispid pubescence typical of *C. dentata* and is thus treated here as a taxonomic synonym of *C. dentata*.

Although there is some overlapping, the length of cypselae and pappus also helps to distinguish the two species, i.e., the cypselae are 3–7.5 mm long with a pappus 5–9 mm long in *C. dentata*, and the cypselae are 7–13 mm long with a pappus 8–11 mm long in *C. albicans*.

Some specimens of *Chaptalia albicans* can also resemble *C. nutans*, differing by the leaves being entire to crenate or dentate (*vs.* lyrate with the upper lobe prominent in *C. nutans*), and the peduncles widened below the capitula (*vs.* not widened in *C. nutans*).

SPECIMENS EXAMINED: — **Bahamas.** Andros Island: Conch Sound, 1890 *J. Northrop & A. Northrop 400* (F). Grand Bahama: Eight Mile Rock, 1905 *Britton & Millspaugh 2487* (F). Great Abaco: Marsh Harbor, 1904 *Brace 1731* (F). New Providence: Near Nassau, 1903 *Curtis 181* (F, GH, MO), *id.*, 1880 *Hitchcock s.n.* (MO 2095176); near entrance to Fort Charlotte grounds, Nassau, 1978 *Correll 50232* (F, MO, US); along Thompson Blvd. at Russell road, Nassau, 1976 *Correll & Popenoe 46942* (F, MO); Harold road, 1904 *Britton & Brace 422* (F, GH, MO). — **Cuba.** Prov. Camagüey: N of La Gloria, 1909 *Shafer 284* (F). Prov. Cienfuegos: district of Cienfuegos, Cienaguita, 1895 *Combs 192* (F, GH, MO, US); vicinity of Soledad, Dolores pasture, 1941 *Howard 5414* (GH); NW of Soledad, 1936 *Smith & Hodgdon 3131* (GH); Pico Potrerillo, Las Villas, 1957 *Alain 6359* (HAC). Prov. Guantánamo: El Diamante, Montecristo. S de la región de Baracoa, Oriente, 1924 *León 11842* (HAC). Prov. Habana: Santiago de los Vegas, 1904 *van Hermann 857* (F), *id.*, Rancho Boyeros, 1926 *Juzepczuk 1998* (MO); San Antonio, 1906 *Hitchcock s.n.* (US 1478411, F 232379); San Antonio de los Baños, 1906 *Burker 2948* (HAC). Prov. Holguín: Baracoa, W of Santa Fé, 1922 *Ekman 13646* (MO, SI); 15 km SW of Compañía de Moa mill., sierra de Moa, 1941 *Howard 5876* (GH); Moa, Paredones del río Moa, 1945 *Acuña 13388* (HAC); Pinares de Mayarí, 1965 *Yero 947* (HAC); Pinares de Mayarí, Loma de La Mensura, 2007, *Ventosa et al. s.n.* (HAC

42617); Mayarí, orillas del Río Levisa, Sierra Cristal, 1956 *Alain et al. 5742* (HAC). Prov. Isla de la Juventud: Near Nueva Gerona, 1900, *Palmer & Riley 1052* (MO), *id.*, at Loma Vista, 1920 *Ekman 12555* (F); Lomas de Siguanea, at Río Navarro, 1922 *Ekman 13938* (GH). Prov. Pinar del Río: Lavadero to La Güira, N of Sumidero, 1912 *Shafer 13833* (GH, MO, US); N of San Diego, 1900 *Palmer & Riley 523* (US); Cayajabos, 1947 *Roig et al. 22412* (HAC); Carretera de Rancho Mundito, 1946 *Acuña 22482* (HAC); Pico Tey, Rangel, Soroa, Sierra del Rosario, 1953 *Alain 2746* (HAC); Las Animas, Rangel, Sierra del Rosario, 1926 *León 12584* (HAC); Rangel, orillas de caminos, Zambumbia, 1955 *Alain 4225* (HAC). Prov. Sancti Spiritus: Trinidad montañas, San Blas- Buenos Aires, 1941 *Howard 5328* (F, GH). Prov. Villa Clara: 10 km S of Santa Clara, 1950 *Howard et al. 328* (GH); about 6 km W of Santa Clara, 1936 *Smith et al. 3161* (GH). Without locality: Cuba orientali, 1860 *Wright s.n.* (MO 2095177); 1860/1864 *Wright 2872* (GH, MO); *Oslo 288* (GH). — **Dominican Republic.** Prov. Dajabón: Cerro de Chacuey, 1969 *Liogier 16254* (US). Prov. Puerto Plata: Near La Fortaleza, Loma Isabel de Torres, 1969 *Liogier 14548* (GH). — **Jamaica.** State Manchester: Parish, 0.5 mi. NW of Christiana, 1958 *Proctor 18304* (GH). State Portland: Navy Island, 1897 *Fredholm 3160* (US). State Saint Andrew: Gordontown to Cinchona, near Gordontown, 1906 *Britton 2* (F). State Saint James: Fairfield, 1849 *Wulfschlägel 906* (M). State Saint Mary: Gray's In, 1927/1928 *Orcutt 4102* (MO). State Saint Thomas: Above Portland Gap, 1962 *Adams 10641* (M, MO). Without locality: 1880 *Hitchcock s.n.* (MO 2095181). Without country. India [West Indies], herb. *Schreder 24082* (M).

Chaptalia angustata Urb. (Fig. 3)

Symb. Antill. (Urban) 7: 432. 1912. — TYPE: Dominican Republic. Santo Domingo, prope Constanza, in pineto, 1250 m, II.1910 *H. von Türckheim 2908* [lectotype designated here US!; isolectotypes F!, GH!, M!, MO!, SI! (fragment); BR, K, NY, S, photographs in LP!]. — SYNTYPE: Dominican Republic. Santo Domingo, prope Maniel (sic) de Ocoa, 300 m. alt., in declivibus saxosis, XI.1910 *H. von Türckheim 3708* (BR, photograph LP!).

Liabum oblanceolatum Urb. & Ekman, Ark. Bot. 23A: 89. 1931. — TYPE: Dominican Republic. Prov. La Vega, in scopulosis umbrosis Valle Nuevo ad ribulum, Cordillera Central, 2400 m, 17.X.1929 *E. L. Ekman 13827* (holotype S, photograph LP!; isotypes GH!, S, photograph LP!).

Perennial herbs 17–35 cm high, rhizomes 1–3 cm long. Leaves 2.2–20 × 0.5–2 cm, narrowly oblanceolate, retrorse-dentate, revolute, acute at apex, attenuate at base, pseudopetiolate, coriaceous, glabrous (occasionally pubescent when young), sometimes bullate with a well demarcated nervature above, whitish, yellow- to red-greenish tomentose beneath. Scapes 11.5–33 cm long, ebracteate, not widened or slightly

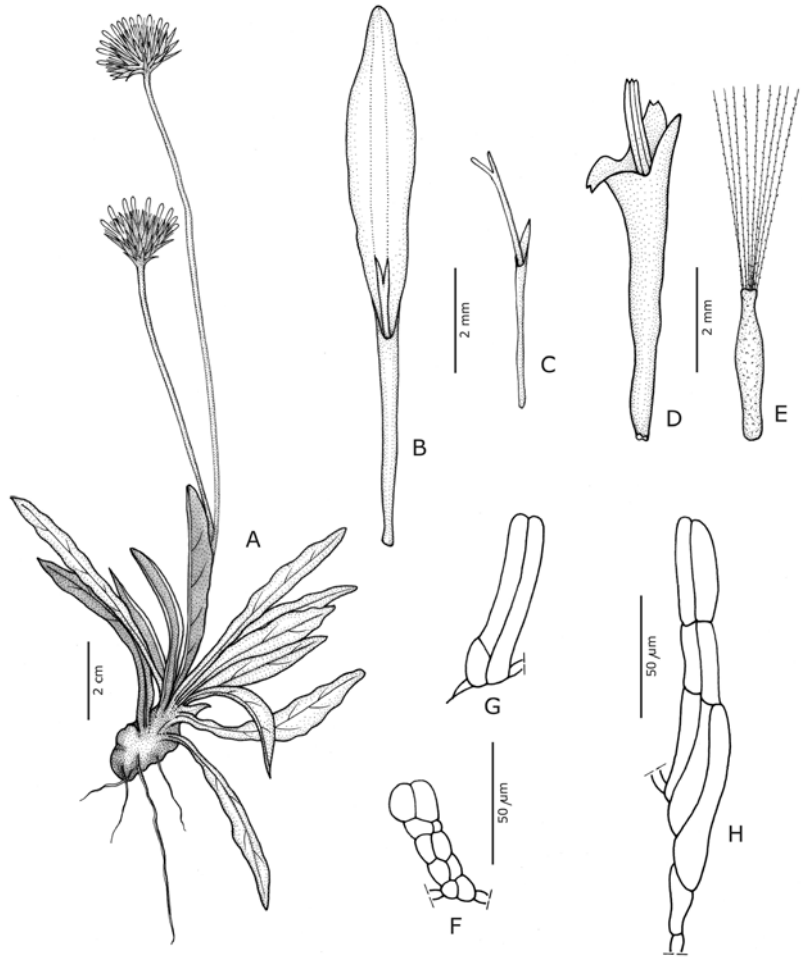


Fig. 3. *Chaptalia angustata* (from von Türckheim 2908, MO). — **A:** Habit. — **B–D:** Florets (**B** marginal floret, **C** intermediate floret, **D** central floret). — **E:** Cypselae and pappus. — **F–H:** Cypselae hairs (**F** biseriate glandular hair, **G** twin hair, **H** crenate twin hair).

widened below capitula, tomentose. Capitula 12–16 × 15–28 mm, turbinate to hemispherical, erect. Involucral bracts lanceolate, linear-oblong, green or purple and scarious at margins, occasionally curled at apex, glabrous or lanose at base; first series 2–6 × 0.3–0.5 mm; second series 4.5–8 × 0.7–1 mm; third series 8–11 × 1–1.2 mm; fourth series 10–13 × 1 mm. Florets trimorphic, 60–120, white, sometimes tinged with purple, papillose, pubescent; marginal florets longer than involucre, tube 2–4.5 mm long, ligule 6.5–10 mm long, lanceolate, inner lip absent, style 5.5–6 mm long, branches linear, 1–1.5 mm long; intermediate florets with corolla 2–4.5 mm long, style 5–6 mm long, branches linear, 0.8–1.5 mm long; central florets bilabiate, tube 3.5–5 mm long, lips 1.5–3 mm long, fertile ovaries, style 5–7 mm long, branches linear, 0.5–

0.8 mm long, anthers 2–2.5 mm long, tails 0.5–1 mm long, papillose, filament papillose. Cypselae elliptical, seminal portion 2.5–3.5 mm long, rostrum 0.5 mm long, thick, pubescent in whole surface (twin hairs, glandular hairs), 5-ribbed. Pappus white-yellowish, caducous, bristles 5–6 mm long.

DISTRIBUTION AND HABITAT: Endemic to southern Dominican Republic and probably Haiti (Fig. 4; see Notes, below). It grows in savannas, steep hillsides, and pine lands, 0–1600 m a.s.l. Flowering from February to July; one specimen (syntype) was flowering in November.

NOTES. This species is easily recognized by the leaves being entire, strongly coriaceous, linear-oblongate, having the adaxial surface sometimes bullate, and the margin usually retorse-dentate and revolute.

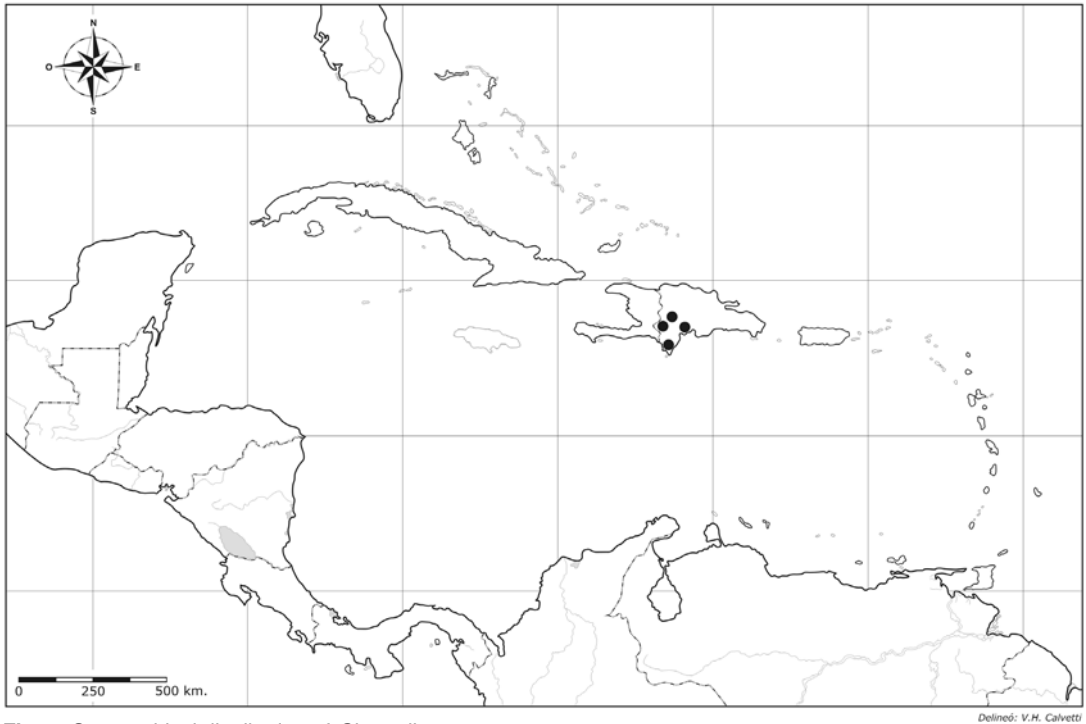


Fig. 4. Geographical distribution of *Chaptalia angustata*.

Delinead: V.H. Calvetti

The specimen *Ekman 7765* (GH) would be the only one from Haiti (Massif de la Selle) that we could find, but the lack of capitula makes an accurate determination difficult. This same specimen was also the only one cited by Liogier (1996) for Haiti and attributed to *C. angustata* in his *Flora of Hispaniola*. The characteristics of the leaves of this specimen are close to *C. angustata*, although the leaves are more pubescent above. Its location in southeastern Haiti is very close to the distribution of *C. angustata* in southwestern Dominican Republic, both areas with similar ecological and soil conditions.

The type material of *Liabum oblanceolatum* consists only of sterile young specimens. An analysis of the micromorphology revealed that they belong to *C. angustata* due to similarities in the type of vegetative hairs (Gutiérrez & Katinas 2006).

SPECIMENS EXAMINED: — **Dominican Republic.** Prov. Azua: Sierra de Ocoa, San José de Ocoa, at Río del Canal, 1929 *Ekman 11672* (GH). Prov. Baoruco: Rancho Viejo, S of Puerto Escondido, 1950 *Howard 12159* (GH). Prov. La Vega: Near La Pirámide, Valle Nuevo, 1969 *Liogier & Marcano 14729* (GH); Valle Nuevo, 1971 *Liogier 17976* (F, GH).

Prov. Pedernales: Sierra de Bahoruco, en las minas de bauxita de la Alcoa Exploration Company, en Aceitillar, aprox. 42 km al N del puerto de Cabo Rojo, por la carretera de la Alcoa, 18°08'N, 71°34'W, 1987 *Zanoni et al. 38961* (GH); Aceitillar-Cayo, sierra de Bahoruco, 1969 *Liogier 13674* (GH), id., 1969 *Liogier 13810* (GH).

Chaptalia dentata (L.) Cass. 1823 (Fig. 5)

Dict. Sci. Nat. (ed. 2) 26: 104, *non* Vent. ex Steud. 1840, *nom. illeg.* — *Tussilago dentata* L., Sp. Pl. 2 (ed. 2): 1213. 1763. — TYPE: "Habitat in America" (lectotype designated by Nesom, 1984, the iconography in Plumier, Pl. Amer. 2: tab. 40, fig. 2. 1755). — *Leria dentata* (L.) Spreng., Syst. Veg. 3: 502. 1826. — *Gerbera dentata* (L.) Sch.Bip., Bot. Voy. Herald: 313. 1856. — *Thyrsanthema dentata* (L.) Kuntze, Revis. Gen. Pl. 1: 369. 1891, *nom. illeg.*

Tussilago pumila Sw., Prodr.: 113. 1788. — TYPE: Jamaica. A. Swartz (holotype S, photograph LP!; isotypes M!; BM, LS photographs LP!). — *Leria pumila* (Sw.) DC., Ann. Mus. Natl. Paris 19: 68. 1812. — *Leria nutans* (L.) DC. var. *pumila* (Sw.) Less., Linnaea 5: 365. 1830. — *Gerbera pumila* (Sw.) Sch.Bip., Bot. Voy. Herald: 313. 1856. — *Thyrsanthema pumila* (Sw.) Kuntze, Revis. Gen. Pl. 1: 369. 1891, *nom. illeg.* — *Chaptalia pumila* (Sw.) Urb., Symb. Antill. (Urban) 3: 420. 1903.

Tussilago sinuata Pers., Syn. Pl. 2: 456. 1807, *nom. illeg.*

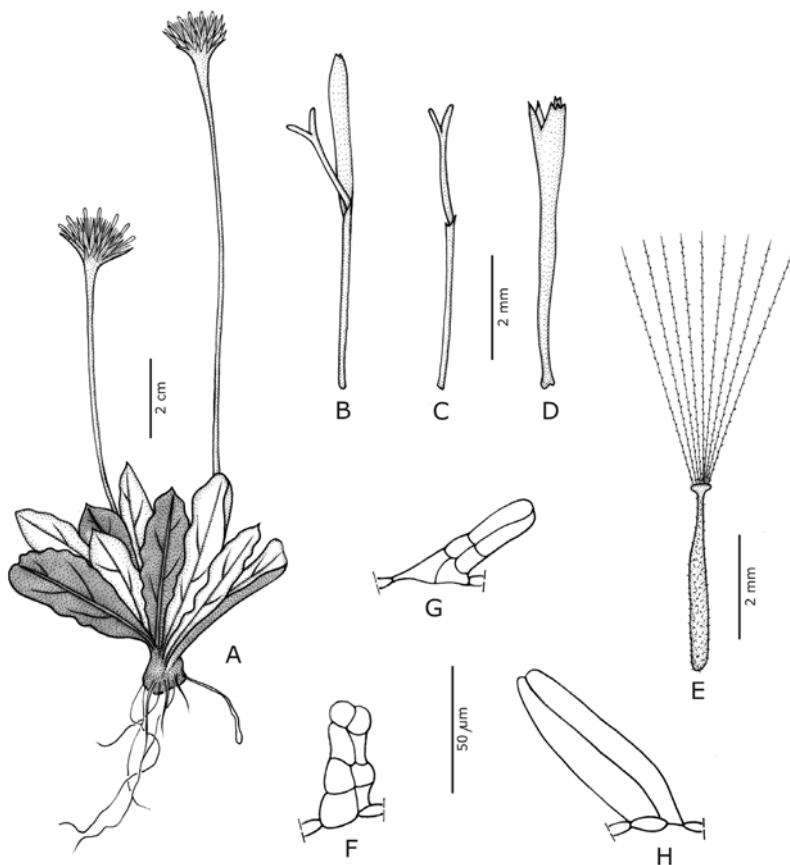


Fig. 5. *Chaptalia dentata* (A and F–H from *Fuertes 1409*, US; B–E from *Allard 14536*, US). — A: Habit. — B–D: Florets (B marginal floret, C intermediate floret, D central floret). — E: Cypselum and pappus. — F–H: Cypselum hairs (F and G biseriate glandular hairs, H twin hair).

Lieberkuhna nudipes Cass., Dict. Sci. Nat. 26: 288. 1825, *nom. illeg.*

Leria media Griseb., Mem. Amer. Acad. Arts. 8: 515. 1860; Pl. Wright.: 515. 1862. — TYPE: Cuba. In Cuba orientalis, 1856/1857 *C. Wright 332* (holotype GH, photograph LP!; isotypes HAC!, MO!; BR, G, GOET, NY, PH, photographs LP!). — *Chaptalia media* (Griseb.) Urb., Symb. Antill. (Urban) 3: 419. 1903.

Leria stenocephala Griseb., Catal. Pl. Cub.: 158. 1866. — TYPE: Cuba. 1860/1864 *C. Wright 2874* (holotype GH, photograph LP!; isotypes MO!; G, GOET, K, NY, P, YU photographs LP!). — *Chaptalia stenocephala* (Griseb.) Urb., Symb. Antill. (Urban) 3: 420. 1903.

Chaptalia obovata C. Wright, in Sauvalle Anales. Acad. Ci. Med. Habana 6: 212. 1869. — TYPE: Cuba. *C. Wright 3617* [holotype GH!; isotypes SI! (fragment), US!, NY photograph LP!].

Chaptalia eggersii Urb., Symb. Antill. (Urban) 3: 418. 1903. — TYPE: Dominican Republic. Sto. Domingo, in graminosis juxta rivulum in Valle Nuevo, 2270 m, *Eggers 2220* [holotype B, destroyed; isotype (fragment), SI!].

Chaptalia membranacea Urb., Symb. Antill. (Urban) 3: 418. 1903. — TYPE: Dominican Republic. Sto. Domingo, prope Puerto Plata, in saxis montis Loma Isabel de la Torre, 670 m, *Eggers 1582* [holotype B, destroyed; isotype (fragment), SI!].

Chaptalia primulacea Greene, Leaf. Bot. Observ. Crit. 1: 195. 1906. — TYPE: Santo Domingo. I/III.1871 *Wright, Parry and Brummel 261* (holotype GH!; isotypes F!, US, K photographs LP!).

Chaptalia comptonioides Britton & P. Wilson, Mem. Torrey Bot. Club 16: 117. 1920. — TYPE: Cuba. Prov. Oriente, Ensenada de Mora, 26/29.III.1912 *Britton, Cowell & Shaffer 12937* (holotype NY, photograph LP!).

Chaptalia rocana Britton & P. Wilson, Mem. Torrey Bot. Club 16: 118. 1920. — TYPE: Cuba. Santa Clara, sobre piedras del Río Caracusey, Lomas de Banao, 26.VII.1918 *León & Roca 7904* (isotype NY, photograph LP!).

Chaptalia shaferi Britton & P. Wilson, Mem. Torrey Bot. Club 16: 118. 1920. — TYPE: Cuba. Oriente, valley of Río Yamanigüey, sandy river bank, 27/28.II.1910 *J. A. Shafer 4203* (holotype NY, photograph LP!; isotypes F!, GH!).

Chaptalia montana Britton, Bull. Torrey Bot. Club 50: 51. 1923. — TYPE: Cuba. Sierra Maestra, VII.1922 *Léon 10802* (holotype HAC!; isotype NY, photograph LP!).

Chaptalia ekmanii Urb., Repert. Spec. Nov. Regni Veg. 21: 227. 1925. — TYPE: Cuba. Prov. Pinar del Río, Pinar de Cajalbana, towards the top of the mountain, 28.VIII.1923 *E. L. Ekman 17340* [holotype B, destroyed; isotypes SI! (fragment), S photograph LP!].

Chaptalia crassiuscula Urb., Repert. Spec. Nov. Regni

Veg. 21: 228. 1925. — TYPE: Cuba. Prov. Oriente, sierra de Nipe, in decliv. occid. sec. viam "Bio" dictam, 20.II.1918 *E. L. Ekman 9127* [holotype B, destroyed; isotype S, photograph LP!; isotype (fragment) SI!].

Chaptalia leptophylla Urb., Repert. Spec. Nov. Regni Veg. 21: 229. 1925. — TYPE: Cuba. Prov. Oriente, Sierra de Nipe, ad flum. Jimbambay, in rup. calcar. umbrosis, 26.IV.1919 *E. L. Ekman 9559* [holotype B, destroyed; isotype (fragment) SI!; S, photograph LP!].

Chaptalia nipensis Urb., Repert. Spec. Nov. Regni Veg. 21: 229. 1925. — TYPE: Cuba. Prov. Oriente, Sierra de Nipe, inter saxa in pinetis, ca. 750 m, 14.X.1914 *E. L. Ekman 3094* [holotype B, destroyed; isotypes SI! (fragment), S, photograph LP!].

Chaptalia azuensis Urb. & Ekman, Ark. Bot. 23A: 95. 1931. — TYPE: República Dominicana. Cordillera Central, Prov. de Azua, Loma Nalga de Maco, 16–1800 m, 9.VI.1926 *E. L. Ekman H 6305* (lectotype designated here S, photograph LP!; isolecotypes US!, K photograph LP!); Civ. Santo Domingo, Sierra de Ocoa, prov. de Azua, San José de Ocoa, Bejucal, in forest, steep slope, shaded place, ca. 1300 m, 10.III.1929 *E. L. Ekman H 11862* (syntype GH!); Civ. Santo Domingo, Cordillera Central, prov. de la Vega, Jarabacoa, at the falls of Río Jimenoa, steep cliffs, ca. 800 m, 18.XI.1929 *E. L. Ekman H 14181* (syntype US!).

Chaptalia vegaensis Urb. & Ekman, Ark. Bot. 23A: 96. 1931. — TYPE: Dominican Republic. Prov. La Vega, Santo Domingo, cordillera Central, Loma Peguera, in pineland, ca. 350 m, 8.II.1929 *E. L. Ekman 11480* (holotype S, photograph LP!).

Chaptalia crispata Urb. & Ekman, Ark. Bot. 23A: 97. 1931. — TYPE: Haiti. Massif de la Selle, Marigot, near Rivière Chotard, ca. 1900 m, in pinelands, open places, 12.IV.1927 *E. L. Ekman 8004a* (holotype S, photograph LP!). — Id., ca. 1900 m, limestone rocks, 12.IV.1927 *E. L. Ekman 8004b* (syntypes F!, GH!; S, photograph LP!).

Chaptalia mornicola Urb. & Ekman, Ark. Bot. 23A: 97. 1931. — TYPE: Haiti. Massif de la Selle, Nouvelle Touraine, Chapelle Faure, in earth slopes, 10.VIII.1924 *E. L. Ekman 1413* (holotype S, photograph LP!).

Chaptalia denticellata Urb. & Ekman, Ark. Bot. 23A: 98. 1931. — TYPE: Haiti. Massif de la Selle, Port au Prince, steep hillsides near Bassin-Laval, 250 m, 2.II.1926 *E. L. Ekman H 5493* (holotype S, photograph LP!; isotypes GH!, US!).

Chaptalia dolichopoda Urb. & Ekman, Ark. Bot. 23A: 99. 1931. — TYPE: Haiti. Massif de la Selle, Croix-des-Bouquets, Badaeu, ravine between Morne Mérillon and Morne Badaeu, step cliffs, ca. 2000 m, 7.III.1927 *E. L. Ekman 7796a* (lectotype designated here S, photograph LP!; isolecotypes GH!; G, K, photographs LP!). — Some locality, ad source Badaeu, ca. 1500 m, *E. L. Ekman 7796b* (syntype S, photograph LP!).

Chaptalia latipes Urb. & Ekman, Ark. Bot. 23A: 99. 1931. — TYPE: Haiti. Massif du Nord, Gros-Morne, Morne Belanse, open grassy and stony slopes, 1000 m, 26.IX.1925 *E. L. Ekman 4921* (holotype S, photograph LP!).

Chaptalia undulata Urb. & Ekman, Ark. Bot. 23A: 100. 1931. — TYPE: Haiti. Massif du Nord, prope St. Louis du Nord, slope of Morne Baron, ca. 900 m, *E. L. Ekman 4696* (holotype S, photograph LP!).

Chaptalia flavicans Urb. & Ekman, Ark. Bot. 23A: 101. 1931. — TYPE: Haiti. Massif de la Selle, Morne des Commissaires ad Grand Gosier, ca. 1450 m, 4.IX.1926 *E. L. Ekman H 6903* (holotype S, photograph LP!; isotype US!).

Chaptalia turquinensis Borhidi & O. Muñiz, Acta Bot. Acad. Sci. Hung. 17: 35, f. 16. 1971. — TYPE: Cuba. Prov. Oriente, Paso de los Angustios, 30.I.1966 *Samek Duek 27125* (holotype HAC!).

Perennial herbs 6.5–30 cm high, rhizomes 0.3–3.5 cm long. Leaves 1–15 × 0.3–2.2 cm, elliptical-oblongate, oblanceolate, obovate, oblong, elliptical, or lanceolate, entire, crenate, irregularly sinuate, retrorse-dentate, runcinate, pinnatifid to pinnatisect, lyrate, frequently with upper lobe prominent, planate or revolute, acute or obtuse at apex, pseudopetiolate by decurrence of blade, or petiolate, petiole 1–11 cm long, membranaceous to coriaceous, smooth or bulate above, glabrous to araneose above, white pubescent beneath, sometimes grey-greenish, white-yellowish or yellowish-reddish. Scapes 4–30 cm long, ebracteate, widened below capitula (not very evident in dwarf specimens), tomentose. Capitula 6–20 × 5–20 mm, cylindrical, turbinate to hemispherical, erect. Involucral bracts green or purple, glabrous or pubescent, usually scarious at margins; first series 1–5 × 0.1–0.8 mm, linear, lanceolate; second series 2–8 × 0.2–1.2 mm wide, linear, linear-lanceolate, lanceolate; third series 3.5–12 × 0.2–1.8 mm, linear, linear-lanceolate or oblong; fourth series 5–19 × 0.2–1.5 mm, linear, linear-lanceolate, linear-oblong. Florets trimorphic, 14–80, white (occasionally tinged with pink), papillose, pubescent (glandular biseriate); marginal florets as long as or longer than involucre, tube 2.5–5.5 mm long, ligule 2–6 mm long, inner lip absent, style 3.5–8 mm long, branches linear, 0.5–2 mm long; intermediate ray florets with corollas 1–6 mm long, style 4–9 mm long, branches linear, 0.5–2 mm long; central florets tubulose or tubulose-bilabiate, occasionally constricted in medial part, tube 3.5–7 mm long, lobes 0.2–2 mm long, fertile ovaries, style 4.5–9.5 mm long, branches lobulate or linear, 0.1–0.8 mm long, anthers 1–2.5 mm long, tails 0.5–2 mm long, glabrous or papillose, filament glabrous or papillose. Cypselae elliptical to cylindrical, seminal portion 1.5–4 mm long, rostrum 0.2–3.5 mm long, filiform or thick, pubescent in whole surface (rounded or

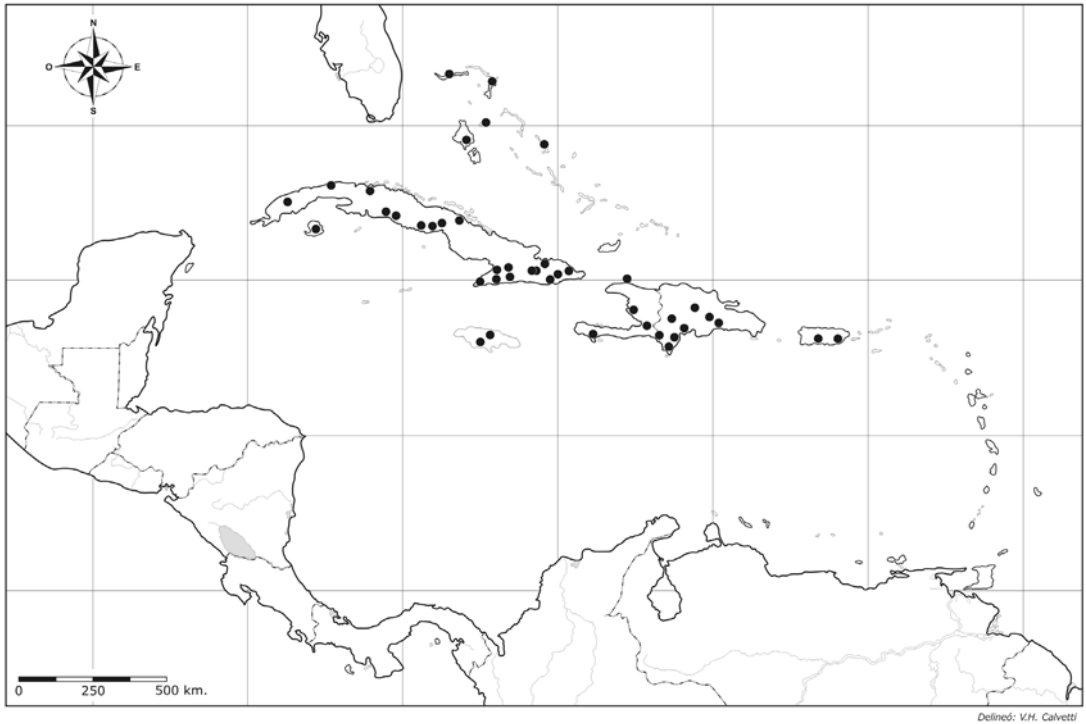


Fig. 6. Geographical distribution of *Chaptalia dentata*.

basic twin hairs, glandular 2-seriate in whole surface or exclusively in rostrum), 5-ribbed. Pappus white-yellowish, yellow-reddish, persistent or caducous, bristles 3–9 mm long.

DISTRIBUTION AND HABITAT: This species is endemic to the Caribbean, growing in the Bahamas and the Greater Antilles: Cuba, Dominican Republic, Haiti, Jamaica, and Puerto Rico (Fig. 6). It is found in grassy or rocky places, steep hillsides, clay banks, dry roadsides, and woods, 0–2800 m a.s.l. Flowering occurs throughout the year.

NOTES. The great and continuous variation in leaf characters led to the inclusion of numerous names in the synonymy of *C. dentata*.

In 1755 C. Plumier described and illustrated a *Tussilago* in the posthumous *Plantarum Americanum* without designation of a specific epithet. The earliest legitimate name for *T. dentata* was published by Linnaeus (1763), who named Plumier's plant and referred to his figure. This illustration in Linnaeus' own copy of *Plantarum Americanum* was annotated by him as "*T. dentata*", and designated as lectotype by Nesom (1984).

The MO sheet *Curtis 181* has two specimens, one corresponding to *C. dentata* (specimen marked with "A"), and the other corresponding to *C. albicans* (marked with "B"). In the sheet in F of *Northrop & Northrop 400* the specimen at the right is *C. albicans* and the other one is *C. dentata*.

The material annotated as type of *C. stenoccephala* deposited in San Isidro, Argentina (SI) bears neither a collector name nor a collection number, and there is a note in Burkart's handwriting that says "*de varios ejemplares ex Herb. Urb.*" [from several specimens *ex Herb. Urb.*]. For this reason its status as a type specimen of *C. stenoccephala* is dubious.

Burkart (1944: 598) considered *C. obovata* very similar to *C. dentata*, although he maintained the taxa as distinct species. On the other hand, Nesom (1984: 398) included *C. obovata* in the synonymy of *C. albicans*. *Chaptalia obovata*, among other features, has the scapes widened below the capitula and the typical fruit pubescence of *C. dentata*. For that reason, *C. obovata* is included here in the synonymy of *C. dentata*.

Provincia Oriente (Spanish for “east”) is cited in the protologue of several type species. This territory was split up in the past and nowadays it contains the provinces of Granma, Guantánamo, Holguín, Las Tunas, and Santiago de Cuba.

SPECIMENS EXAMINED: — **Bahamas.** Andros Island: Conch Sound, 1890 *J. Northrop & A. Northrop 400* (F, GH); Mastic Point and vicinity, 1907 *Brace 7027* (F). Cat Island: 1 mi. E of Orange Creek, 1968 *Byrne 574* (GH, WIS); about 0.5 mi. E of Lake Cunningham, Pine region, Nassau, 1905 *Wright 213* (F, GH); vicinity of Maiden-hair Coppice, 1909 *Wilson 8393* (F). Grand Bahama: Near hospital in Freeport, 1976 *Correll & Popenoe 46647* (F, GH, MO); in Rand Memorial Nature Center, Freeport, 1975 *Correll et al. 45430* (F). Great Abaco Island: Along main road, 2.9 mi. S of Wilson city road, 1979 *Wunderlin et al. 8535* (GH). New Providence: Ft. Charlotte, 1904 *Britton & Brace 775* (F, GH, MO, US); Fox Hills path, 1905 *Britton & Millspaugh 2094* (F, US); Nassau, 1905 *Britton & Millspaugh 2089* (F); near Nassau, 1903 *Curtis 181* (GH, M, MO). — **Cuba.** Prov. Camagüey: Loma del Jagüey, 1889 *Eggers 4986* (F, SI, US). Prov. Cienfuegos: Cumanayagua, Mandulo y Pico San Juan, 2004 *Regalado & Sanchez s.n.* (HAC 42427); Mina Carlota, SE of Cumanayagua, Sierra de San Juan, 1941 *Howard 5666* (GH). Prov. Granma: prope Cabo Cruz, 1917 *Ekman 8912* (F); El Pilón, La Mota, a lo largo del río Mota, *Inchamitskaje s.n.* (HAC 45100). Prov. Guantánamo: Upper valley of Río Navas, 1910 *Shaffer 4401* (F, GH, US); Pinales de Monte Verde to Falls of Río Palenque, 1911 *Shaffer 8876* (F, GH, US); prope villam Monte Verde, 1856/1860 *Wright 333* (F, GH, US); Loma Menquera, 1910 *Shaffer 3832* (US); vicinity of Baracoa, 1902 *Pollard et al. 214* (F, GH, MO); Baracoa region, Altos de Farola, 35 km (airline) S of Baracoa, 20°08'N, 74°29'W, 1951 *Webster 4018* (GH); Pinares del norte del Yunque de Baracoa, 1960 *Alain & Acuña 7616* (HAC); Abra del Yumurí, Baracoa, 1960 *Alain & Acuña 7684* (HAC), id., 1956 *Alain & Morton 5069* (HAC), 1960 *Alain et al. 22398* (HAC); orilla del río Jauco, 1924 *León 11714* (HAC); Arroyo Frio, Sierra de Imías, 1924 *León 12156* (HAC); Sierra de Imías, cabezadas del Río Jojo, 1975 *Bisse & Mayer HAJB 27701* (HAC); Bayate, NW Guantánamo, 1923 *Hioram 6946* (HAC). Prov. Habana: San Francisco de Paula, 1907 *León 229* (HAC). Prov. Holguín: Sierra de Nipe, 1978 *Fernández & Herrera s.n.* (HAC 35609); Sierra de Nipe, San José, 1941 *Howard 6211* (GH); Sierra Nipe, near Woodfred, Rocky Arroyos, 1909 *Shaffer 3236* (F, GH, US); Loma Mensura, N de Sierra de Nipe, 2007 *Ventosa et al. s.n.* (HAC 42617), id., 1960 *Alain et al. 7980, 7991* (HAC); cayo de Sabinas, La Mensura, Sierra de Nipe, 1960 *Alain & Acuña 7896* (HAC); Pinares de Mayarí, Sierra de Nipe, 1940 *León & Acuña 17977* (HAC); Sierra de Nipe, Mayarí, 1940, *Carabria 3759* (HAC); San José, Sierra de Nipe, 1941 *León & Clemente 20343* (HAC); Pinares junto al Batey de Corea, Sierra Cristal, Mayarí, 1956 *Alain & López Figueiras 5440* (HAC); a los lados del camino en la subida a Sierra Cristal, 1956 *Alain et al. 5671* (HAC); Río

Cristal, Sierra Cristal, Mayarí, 1965 *Alain et al. 5666* (HAC); Río Miguel, Sierra Cristal, Mayarí, 1956 *Alain et al. 5909* (HAC). Prov. Isla de la Juventud: Lomas de Siguanea, at Río Navarro, 1922 *Ekman 13897* (GH). Prov. Matanzas: Yamuri Arriba to Bermejál, 1911 *Shaffer 8437* (GH, US). Prov. Pinar del Río: Cajálbana La Palma, 1952 *Acuña 22514* (HAC); Cascada de Soroa, Candelaria, 1951 *Acuña 16744* (HAC). Prov. Sancti Spiritus: Sierra del Escambray, a lo largo del sender de Topes de Collantes hacia el Salto del Caburní, 79°50'W, 22°22'N, 1993 *Acevedo R. et al. 5452* (US, HAC); mountains of Trinidad San Blas-Buenos Aires, Loma La Ventana, 1941 *Howard 6498* (GH), id., 1941 *Howard 5210* (GH), id., Pico Potrerillo, 1922 *Ekman 14007* (F); Buenos Aires, 1829 *León 13982* (GH), id., Las Villas, 1956 *Morton 16372* (US); camino Caburní, Topes de Collantes, Las Villas, 1957 *Alain 6434* (HAC); Topes de Collantes, Villa Clara, 1939 *Acuña 11396* (HAC); Salto de Caburní, Trinidad, Topes de Collantes, 1959 *Alain 6732* (HAC). Prov. Santiago de Cuba: Vicinity of El Cobre, 1902 *Pollard & Palmer 396* (F, GH, MO, US); Cobre, 1922 *Ekman 15702* (F, GH, US); Sierra del Cobre, 1916 *Ekman 7800* (F); Sierra Maestra, Arroyo Bayajá, one of El Cristos tributaries, 1922 *Ekman 14757* (F, GH), id., Río Oro, about 30 km (airline) S of Bayamo, approximately 20°06'N, 76°37'W, 1951 *Webster 4126* (GH), id., Río Buey, 1941 *Morton & Acuña 3821* (US); km 20 al S de Sabanilla, Via Azul, 1956 *Alain & Morton 5165* (HAC); Florida Blanca, cerca del Salto, 1960 *López Figueiras 542* (HAC); Pico Turquino, Sierra Maestra, 1935 *Acuña 9730* (HAC); Río Yao, 1943 *Victorin 21410* (HAC); Camino de la Aguada, Loma del Gato, 1944 *Alain 228* (HAC); río Yara, arroyo de León, Sierra Maestra, sur de Oriente y Pico Turquino, 1922 *León 10820* (HAC). Without locality: *Wright s.n.* (MO 2095188); 1922 *Ekman s.n.* (SI); *s/leg.* (SI); 1860/1864 *Wright 2873* (F, GH, MO); 1849 *Rugel 180* (GH); 1865 *Wright s.n.* (GH); *Wright s.n.* (GH, SI). — **Dominican Republic.** Prov. Azua: Valle de San Juan, at Río Jinava, 1929 *Ekman 13391* (GH). Prov. Baraona: Prope Las Salinas, 1911 *Fuertes 1409* (GH, US). Distrito Nacional: *Sin loc.*, *Bertero s.n.* (MO 2095172); Santo Domingo, 1887 *Eggers 1656* (M), Crevice of Yard of Monastery Cerro, 1946 *Allard 14536* (US); El Rubio, 1946 *Jiménez 1100* (LP); Jaiquí Picado, about 20 mi. W of Santiago, 1969 *Liogier 15301* (GH, US), 15163 (GH), id., Limestone Hills, 1969 *Liogier 15370* (US); El Cercado, S of town, 1968 *Liogier 12466* (GH, US); Pinar de Caimito, about 5 mi. NW of San José de las Matas, 1969 *Liogier 16274* (GH, US); Juan Santiago, 1946 *R. Howard & E. Howard 9205* (GH); along Mao River, El Aguacate, La Leonor, Monción, 1968 *Liogier 16309* (US). Prov. La Vega: La Manaclita, about 8 mi. S of La Vega, 1969 *Liogier 15825* (GH); Cordillera Central, 31 km S de la calle principal de Constanza, en el camino a San José de Ocoa (o 6 km S de Valle Nuevo), 18°47'N, 70°40'W, 1982 *Zanoni 20641* (MO); vicinity of Lagunita (Lagüita), 1967 *Gastony et al. 293* (GH); en el monumento La Pirámide, 48.6 km N del Parque Central de San José de Ocoa, en el camino a Constanza, 18°43'N, 70°36'W, 1982 *Zanoni et al. 19176* (MO); prope Constanza, in Valle Nuevo, 1910 *von Türckheim 3452* (M). Prov. Monseñor Nouel: Loma Peguera, Bonao, 1972 *Liogier 18551* (F). Prov. Pedernales: Sierra de Bahoruco, en las minas de bauxita de la Alcoa Exploration Company, en Aceitillar, aprox.

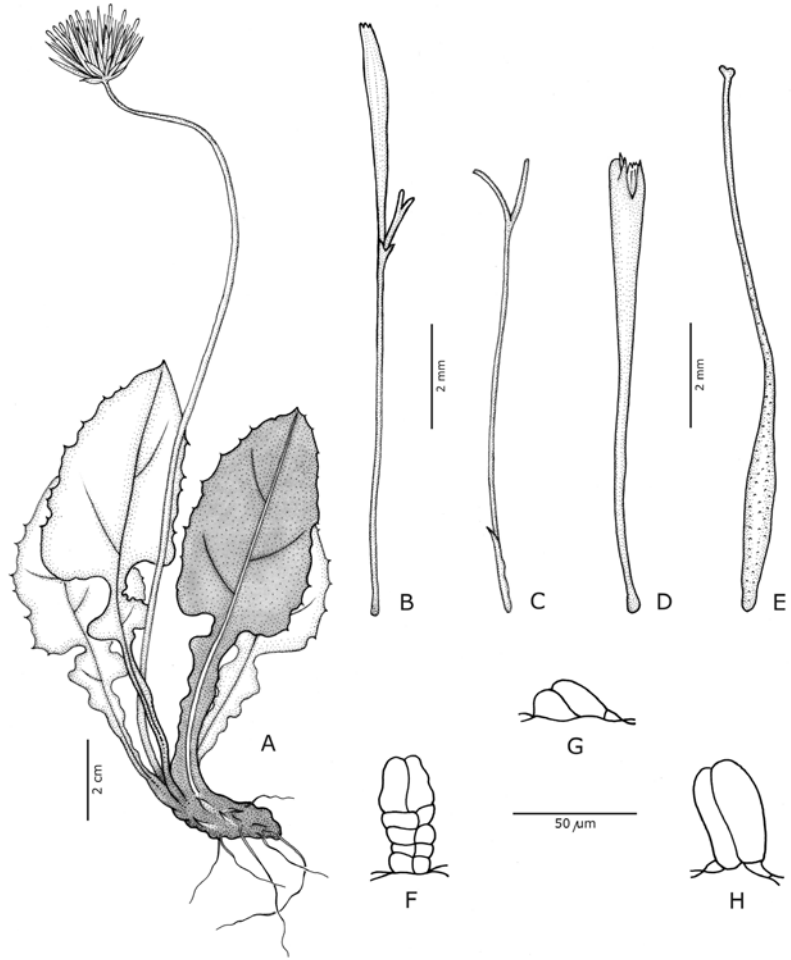


Fig. 7. *Chaptalia nutans* (A from Cabrera & Schwabe 167, LP; B–E from Montes 12614, LP; F–H from Wasum 2072, LP). — A: Habit. — B–D: Florets (B marginal floret, C intermediate floret, D central floret). — E: Cypsela (pappus not shown). — F–H: Cypsela hairs (F biseriate glandular hair, G and H short twin hairs).

42km al N del puerto de cabo Rojo, por la carretera de Alcoa, 18°08'N, 71°34'W, 1987 Zaroni *et al.* 38971 (GH). Prov. San Juan: Sabana Nueva, Cordillera Central, N of Río Arriba del Norte, 1946 R. Howard & E. Howard 9132 (GH). — **Haiti.** Artibonite Dept.: Vicinity of St. Marc, 1920 Leonard 2897, 2983 (US). Nord-Ouest Dept.: Tortue Island: W side of La Vallée, 1928/1929 E. Leonard & G. Leonard 11532 (GH, MO), 11374 (GH). Ouest Dept.: Port-au-Prince, plaine du Cul de Sac, 1918 Buch 1505 (GH); vicinity of Pétienville, Fort Yacques, 1920 Leonard 5012 (GH); Fond Verretes, 1920 E. Leonard 3929 (GH); Massif de la Selle, Ganthier, summit of La Selle, 1925 Ekman H 3174 (US); id., group Morne des Commissaires, Grand-Gosier, at Ravine-Franchau, 1926 Ekman 6874 (GH, US). Sud Dept.: Massif de la Hotte, group Morne Rochalouis, Charlier, 1927 Ekman 9038 (F, GH). Dept. unknown: At Brinquette, 1925 Ekman 4291 (F, GH); near Mare Levi, 1942 Holdridge 1258 (MO). — **Jamaica.** State St. Andrew: Along track between Bellevue and Mt. Rosanna, Port Royal Mts., 1963 Proctor 23569 (GH); between Gordontown and Newcastle, 1916 Killip 363 (US); St. Heleris Gap, Cinchona, 1911 Harris 10935 (US); Farm Hill, 1927 Orcutt 3315, 3377 (US); Morcis Gap, 1903 Nichols 47

(F, MO, US), 49 (GH); Arntully, Orcutt 5712 (US). State Manchester: Along the Green River, between Pleasant Hill and Green Valley, below Cinchona, 1920 Maxon & Killip 1037 (F, GH). State not localized: Iron Face, Chestre Vale, 1907 Harris 10033 (F, US). — **Puerto Rico.** Municipality Ponce: Peñuelas, 1886, Urban 4728 (GH, M, US); Ponce to Peñuelas, 1913 Britton *et al.* 1754 (F, GH, MO, US). Municipality Coamo: Las Piedras Chiquitas, 1986 Liogier & Proctor 36199 (US).

Chaptalia nutans (L.) Pol. (Fig. 7)

Linnaea 41: 582. 1877. — *Tussilago nutans* L., Syst. Nat. (ed. 10): 1214. 1759. — TYPE: America (lectotype LINN no. 995.5, designated by Simpson 1975 [1976]). — *Leria nutans* (L.) DC., Ann. Mus. Natl. Hist. Paris 19: 68. 1812. — *Gerbera nutans* (L.) Sch.Bip., Bot. Voy. Herald. (7–8): 313. 1856. — *Chaptalia nutans* (L.) Hemsl., Biol. Centr.-Amer., Bot. 2: 255. 1882, *nom. illeg.* — *Thyrsanthema nutans* (L.) Kuntze, Revis. Gen. Pl. 1: 369. 1891, *nom. illeg.*

Tussilago lyrata Pers., Syn. Pl. 2: 455. 1807, *nom. illeg.*, *non* Willd. 1803 (= *Chaptalia lyrata*), *nec* *Leria lyrata* (Pers.) Cass. 1823, *nom. illeg.* (based in another type specimen). — TYPE: the same as *Tussilago nutans*.

Tussilago vaccina Vell., Fl. Flumin. Icon. 8: tab. 143. 1827 (1831); Arch. Mus. Nac. Rio de Janeiro 5: 344. 1881. — TYPE: Lectotype designated by Simpson (1975 [1976]), the iconography cited.

Chaptalia diversifolia Greene, Leaf. Bot. Observ. Crit. 1: 194. 1906. — TYPE: Guatemala. Vicinity of Mazatenango, altitude about 350 m, roadside, 20.II.1905 W. R. Maxon & R. Hay 3504 (holotype US!).

Chaptalia subcordata Greene, Leaf. Bot. Observ. Crit. 1: 195. 1906. — TYPE: West Indies. St. Croix, big fountain garden, 24.VI.1896 Ricksecker 447 (holotype US!; isotype MO!).

Chaptalia erosa Greene, Leaf. Bot. Observ. Crit. 1: 196. 1906. — TYPE: Costa Rica. San José, bords des chemins & fossés, 1135 m, VI.1892 A. Conduz 447 (holotype US!).

Chaptalia majuscula Greene, Leaf. Bot. Observ. Crit. 1: 196. 1906. — TYPE: Bolivia. Yungas, Bang 237 [lectotype Z, designated by Burkart (1944); isotypes M!, MO!, US!]. — Bolivia, Mapiiri, 5000 ft, V.1886 H. H. Rusby 1677 (syntype US!).

Perennial herbs 6–82 cm high, rhizomes 0.5–3.5 cm long. Leaves 4.5–38 × 1.7–10 cm, elliptical, oblong, ovate or lanceolate, lyrate, with upper lobe prominent, crenate- to undulate-mucronate, rarely entire with margin sinuate-crenate, planate, mucronulate, acute or obtuse at apex, pseudopetiolate, glabrous to araneose pubescent above, gray-to yellow-greenish tomentose beneath. Scapes 2–79 cm long, ebracteate, not widened below capitula, tomentose. Capitula 15–40 × 20–30 mm, turbinate or hemispherical, nodding. Involucral bracts purple at margins, apex and midrib, tomentose; first series 4–5 × 0.3–0.5 mm, linear-lanceolate; second series 6–9.5 × 0.5–0.8 mm, linear-lanceolate; third series 8–12 × 1 mm, oblong; fourth and fifth series 15–17 × 1 mm, oblong. Florets trimorphic, ca. 165, white, pink, purple, papillose; marginal florets scarcely longer than involucre, tube 3–4.5 mm long, ligule 5–7.5 mm long, linear, inner lip absent, style 6.5–10 mm long, branches linear, 1–1.3 mm long; intermediate florets numerous, corollas 2–6 mm long, style 8–10 mm long, branches linear, 0.5–1 mm long; central florets tubulose or tubulose-bilabiate, tube 5–7.3 mm long, lobes 1–1.7 mm long, fertile ovaries, style 7–10 mm long, branches linear, 0.5–1.2 mm long; anthers 1.5–3 mm long, tails 0.5–1 mm long, glabrous, filament glabrous.

Cypselae elliptical, seminal portion 4–5 mm long, rostrum 4–12 mm long, filiform, pubescent (rounded twin hairs). Pappus white-yellowish, caducous, bristles 8–13 mm long. Chromosome number: 2n = 48 (Baldwin & Speese 1947, Cave 1965, Fedorov 1969, Torres & Liogier 1970, Sundberg *et al.* 1986) and 2n = 50 (Teppner & Tropper 1984); n = 24 (Hunziker *et al.* 1989) and n = 25 (Teppner & Tropper 1984).

DISTRIBUTION AND HABITAT: This is the most widely distributed species of the genus, growing from southern United States to central Argentina, including the Caribbean (Fig. 8). It is found in moist places like ditches in roadside forests, in disturbed soils, woods, grasslands and on rocks, at an elevation 0–2745 m a.s.l. Flowering occurs throughout the year.

NOTES. *Chaptalia nutans* may resemble *C. dentata* with lyrate leaves. The two species, however, can be easily distinguished by the type of pubescence of the cypselae, and *C. nutans* does not have widened scapes below the capitula.

SPECIMENS EXAMINED: — **Cuba**. Prov. Santiago de Cuba: N spur of Sierra Maestra, W of Río Yao, finca Bucaro, 1941, Morton & Acuña 3867 (US); La Perla, Wright 331 (GH). Prov. Granma: Alrededores de la Estación Biológica El Cojo, Parque Nacional Turquino, 2008 Ventosa *et al. s.n.* (LP); Loma de Gato, alrededores, Sierra Maestra, 1921, León *et al.* 9805 (HAC). — **Dominican Republic**. Prov. La Vega: Vicinity of Piedra Blanca, 1946 Allard 14497 (US), *id.*, clearing along trail 1 mi. above Maimon River bridge, 1945 Allard 13817 (US), *id.*, 1945 Allard 13972 (US), *id.*, clearing along trail 1 mi. above the Duarte highway, near Los Alcarzos, 1947 Allard 16637 (US), *id.*, trail to Goodrich Rubber Grove, 1946 Allard 10807 (US), *id.*, along Piedra Blanca road, near La Cumbre Pass, 1945 Allard 14179, 14198 (US); prope Constanza, 1910 von Türckheim 3028 (M). Prov. Monte Cristi: Loma de Cebrera, 1943 Jiménez 446 (US); Monción, 1950 Mera 2068 (US). Prov. Peravia: Arroyo Parra, La Vareda, 18°32'N, 70°28'W, road to Los Anones, 1985 Gentry & Zanoni 50549 (MO). Prov. Samaná: Vicinity of Samaná, Represa Dam, 1947 Allard 17189 (US); Sánchez, 1913 Rose *et al.* 4347 (US). Prov. Santiago: El Rubio, 1946 Jiménez 1101 (LP, US); Rincón de Piedra, 1957 Jiménez 3600 (US); Los Montones, 1948 Jiménez 1640 (US), *id.*, San José de las Matas, 1979 Jiménez 8622 (US); vicinity of Santiago, 1946 Allard 14612 (US); Loma de Oro, S of Mata Grande, 1968 Liogier 12961 (US). — **Haiti**. Artibonite Dept.: Vicinity of Mission, Fonds Varettes [Verrettes], 1920 Abbott 3893a (US); vicinity of Marmelade, 1925 Leonard 8153 (US). Du Nord Dept.: Vicinity of Plaisance, 1926 Leonard 9315, 9378 (US); vicinity of Cap Haitien, 1920 Leonard 5312 (US); Massif du Nord, St. Michael [Michel], downwards Platans, 1927 Ekman 8390 (US); vicinity of St. Michael

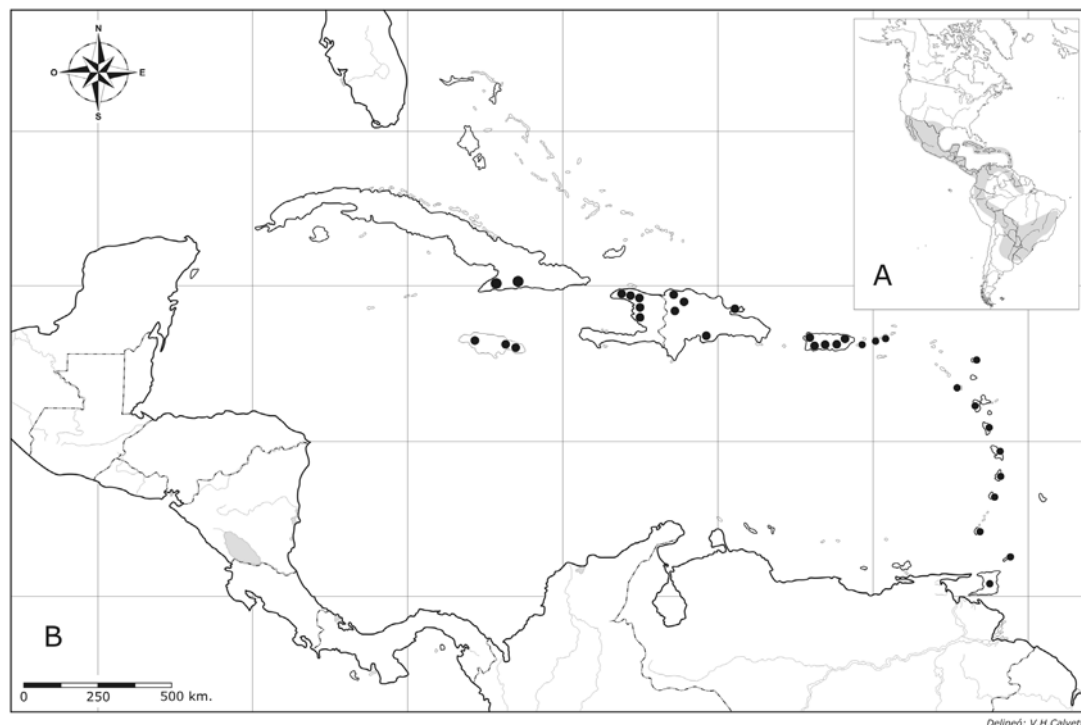


Fig. 8. Geographical distribution of *Chaptalia nutans*. — A: General distribution. — B: Distribution in the Caribbean.

de l'Atalaye, on S side of Mt. La Cidre, 1925 *Leonard* 7544 (US). Nord-est Dept.: Vicinity of Dondon, 1926 *Leonard* 8630 (US). Nord-ouest Dept.: Vicinity of Port de Paix, Coup Road, S of city, 1929 *E. Leonard & G. Leonard* 12194, 12247 (US); vicinity of Jean Rabel, S of town, 1929 *E. Leonard & G. Leonard* 13660 (MO, US). Ouest Dept.: Vicinity of Furcy, 1920 *Leonard* 4270 (US). — **Jamaica**. State Portland: Near Castleton, on the road to Annotto Bay, 1993 *Maxon* 770 (US); Port Antonio, 1890 *Hitchcock s.n.* (MO 2095180); John Crow mountains, E of Seamen's valley, 1920 *Maxon & Killip* 240 (US). State St. Andrew: Arntully, 1927 *Orcutt* 2625 (US). State St. Ann: Farm Hill, 1927 *Orcutt* 3276 (US). State Trelawny: Vicinity of Windsor, 1920 *Maxon & Killip* 97 (US). State not localized: Poms., 1892 *Lloyd* 1084 (MO). — **Lesser Antilles**. Antigua: Bellevde, 1937 *Box* 937 (US); in collibus, 1849 *Wullschlägel* 320 (M). Dominica: Windward Is., road from Baiac, near Middlehamtrack, 1984 *Whitefoord* 4607 (US); beside road to Laudat, ca. 5 mi. W Roseau, 1969 *Burch* 1354 (MO); along road from Lisdara Estate, near Belle View to Grand Bay, 1937 *Hodge* 732 (US); Parish of St. John, W solpes of Morne aux Diables, NE of Mal-en-Gamme, 1964 *Wilbur et al.* 8049 (US); road to Grand Bay, between Fond Baron Estate and Pichelin, 1964 *Ernst* 1613 (US); without locality, 1882 *Martius s.n.* (US 1415330). Grenada: St. Georges, 1904 *Broadway s.n.* (US 429558); Tufton Hall estate, Parish, St. Mark, 1957 *Proctor* 17227 (US). Guadeloupe: Dolí, 1944 *Questel* 4988 (US); M. Aruba, Gourbeyre-Basse-Terre, 1892 *Duss* 2490 (US); Bailif, 1935 *Stehlé* 1849 (US). Martinique: Parnasse, St. Pierre,

1880 *Duss* 1439 (US). Montserrat: Chancra mountain, 1907 *Shafer* 236 (US). St. Lucia: Barre de l'Isle trail to Mt. La Comb, 1985 *Howard et al.* 19861 (US). St. Vincent: Mount Brisbane, 1947 *Morton* 6023 (US); vicinity of Kingstown, 1947 *Morton* 4862 (US). Tobago: Parlatavie, 1912 *Broadway* 4277 (MO, US); St. John Parish, Roxborough to Bloody Bay, at Bloody Bay overlook, 1989 *Worthing & Jack* 18151 (MO). Trinidad: St. Ann's, Cascade on banks, 1923 *Broadway* 5056 (MO, *s.n.* (WIS)); road to Asa Wright, 1991 *Boche* 124 (WIS); N Post to Maqueripe, 1920 *Britton et al.* 898 (US); without locality, 1911, *Druce s.n.* (OXF). — **Puerto Rico**. Municipality Adjuntas: On the Adjuntas road, 1902 *Heller s.n.* (US 426671); Alto de la Bandera, near Adjuntas, 1913 *Britton & Shafer* 2054 (US). Municipality Caguas: Las Cruces de Caguas, 1899 *Goll et al.* 443 (US). Municipality Ciales: Ciales, 1913 *Johnston* 945 (US), id., 1943 *Sargent* 3071 (US). Municipality Luquillo: Luquillo mountains, 1902 *Wilson* 40 (US). Municipality Maricao: Maricao, 1884 *Urban* 385 (GH, M, US). Municipality Mayagüez: Along road Las Mesas, near Mayagüez, 1915 *Johnston* 217 (MO); vicinity of Mayagüez, 1906 *Britton & Marble* 571 (US). Municipality San Juan: Río Piedras, 1913 *Stevenson* 114 (US). Municipality San Sebastián: San Sebastián, 1981 *Alain et al.* 31881 (MO, US). Municipality Utuado: Vicinity of Utuado, 1915 *Britton* 5125 (US). Municipality not localized: Puente Huco, Alta road, 1899 *Goll et al.* 883 (US). — **Virgin Islands**. St. John: Road to Bordeaux Mountain, 1989 *Rodríguez* 2859 (US), id., 1990 *Rodríguez* 3181 (US); Bethania to Rosenberg, 1913 *Britton & Shafer* 240 (US). St. Thomas:

N of Charlotte Amalia, 1913 *Britton & Marble* 389 (US); Signal hill, 1880 *Eggers* 166 (M); without locality, 1898 *Eggers s.n.* (M 24098). Tortola: Road Irvin to High Bush, 1913 *Britton & Shafer* 781 (US). Without country. Antillas, *Husnot* 30 (LP); 1884 *leg?* 385 (MO 4675963).

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