Actinocheita [1]

Fred A. Barkley and Merton J. Reed

The publication of the combination *Actinocheita potentillifolia* (Turcz.) Bullock[2] requires further comment.

While specimens of the Mociño and Sessé collection are available on loan from the Madrid Herbarium at Field Museum Herbarium for most of the plants illustrated in A. De Candolle's *Calque des Dessins de la Flora du Mexique, de Mociño et Sessé* and for the plants described in Sessé and Mociño's *Plantae Novae Hispaniae,* there are unfortunately no specimens available for the plants illustrated in *plate 189* of the former work, nor are there any called "Tetlazian," so that the interpretation of the description of *Rhus Filicina* DC. and *plate 189* in the *Calques* (on which the De Candolle description of this species is undoubtedly based), must rest on what is available in the description and illustration when compared to known specimens from the general region of their collection (southern Mexico). This of necessity means that there will always be room for a possible misinterpretation of them as of *all* illustrations and descriptions with which no specimens are definitely associated.

When the senior author made the statement[3] that there might be some uncertainty about the interpretation of the original De Candolle description and plate as *Actinocheita filicina* he did not imply that there was any possibility that they could be interpreted as applying to *Bursera bipinnata* (Sessé et Moc. ex DC.) Engl., for if one takes the illustration of this plant (Pl.1) and the original description:[4]

§. 1. *Foliis impari-pinnatis.*

3. R. Filicina (fl. mex. ic. ined.) foliis 7-9-jugis, petiolo nudo, foliolis sessilibus pinnatifidis pilosis oblongis, lobis obtusis pilo aristatis. ♄ in Mexici montibus. Ex fl. mex. mss. dicitur *Tetlazian* sed non est Tetlacian Hern. mex. 153. Fructus pilis violaceis hirtus.

[3. R. Filicina (Flora of Mexico Illustrations, unpublished) leaves with 15-19 leaflets, petiole non-alate, leaflets sessile, oblong, pilose, pinnately cleft, lobes obtuse, pilose-aristate. Tree in the Mexican Mountains. From the [unpublished] Flora of Mexico manuscript [of Sessé and Mociño fide Sprague in Kew Bull. Misc. Inf. 1926, pp. 417-425] called *Tetlazian* but is not Tetlacian of F. Hernandez', *Rerum medicarum Novae Hispaniae thesaurus. . . .*, p. 153. 1651. Fruit pilose with violet hairs.]

one cannot but wonder that anyone might seriously suggest either that the

1 This work, in part, made possible through a grant from the Penrose fund of the American Philosophical Society.

2 Bullock. Kew Bull. Misc. Inf. 1937, p. 441.

3 Barkley. Ann. Mo. Bot. Gard. 24:3, 1936, in footnote.

4 De Candolle, A. P. *Prodromus Systematis Naturalis Regni Vegetabilis,* 1825, p. 67.

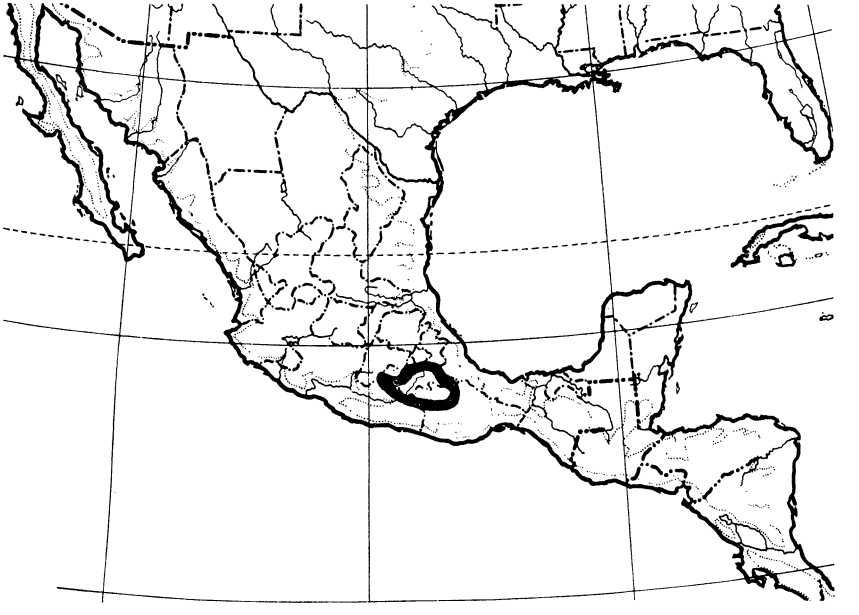

Fig. 1. Known area of distribution of *Actinocheita filicina* (DC.) Barkley. (Illustration furnished through the courtesy of the Missouri Botanical Garden.)

description (even excluding the statement in reference to the fruit) or illustration as referring to *Bursera bipinnata* when compared to a series of specimens of that species. The carefully drawn portions of the original illustration which is now available from a photograph of it in the Field Museum of Natural History (Pl. 1) shows a very pilose apical portion to a staghorn-like branch, a once pinnate leaf with a nude rachis, crenate-serrate and bristly-aristate, sessile leaflets characteristic of the plant Turczaninow described as *Rhus potentillaefolia,* not a slender glabrous branch bearing bipinnate leaves with more or less alate rachi, with leaflets remote and very sparsely pilose as one finds in *B. bipinnata.*

When the statement was made that there might be some doubt[5] in the interpretation of this De Candolle plate it was with the idea in mind that there are several plants of similar appearance and the fact that descriptions and drawings are never in themselves sufficiently complete to be absolutely reliable without associated specimens, however it did not mean that there is any reasonable doubt concerning their identity in this case.

The interpretation of *Rhus Filicina* as being conspecific with *Rhus potentillaefolia* is based on the interpretation of *plate 189* of *Calque des Dessins* . . . primarily, the plate which Mr. Bullock states undoubtedly served as the basis for De Candolle's description of *R. Filicina.* The original drawing with the

5 Barkley, *ibid.*

carefully drawn portion (Pl. 1) makes the former suggestion proposed after study of the blue-print[6] almost a certainty and removes all possible doubt as to its misinterpretation as *B. bipinnata.*

Apparently *plate 217* of *Calque des Dessins* . . . is no longer in existence for the recent complete set of photographs of the original De Candolle drawings of the Mociño and Sessé plants now available at the Field Museum of Natural History does not contain a reproduction of this plate. From the description of *R. Tetlatziam* in *Plantae Novae Hispaniae* it undoubtedly referred to the same species, a supposition made more probable by De Candolle's reference to the name "Tetlatzian" with his description. The interpretation of the description and plate does not, however, rest on the reference to "dicitur Tetlazian sed non est Tetlacian Hern. Mex. 153" nor "Fructus pilis violaceis hirtus" as Mr. Bullock presumed, but they certainly do not detract from such an interpretation.

While the author had in mind the biological entity including *Rhus potentillaefolia* Turcz. in the creation of the genus *Actinocheita,* it is necessary to point out that the type of the genotype is *plate 189* of A. De Candolle's *Calque des Dessins....* (not specimens of *Rhus potentillaefolia* Turcz. as has been erroneously assumed) so that if *plate 189* of the *Calque....* were to be proven other than conspecific with *Rhus potentillaefolia* (and there has been no adequate evidence produced to so prove) then the type of the genus would have been removed so that it would seem a new name for the genus would have then been indicated[7] rather than a new combination under the old genus name.

The following brings data concerning the genus to date:

Actinocheita Barkley

Actinocheita Barkl., Ann. Mo. Bot. Gard. **24**:2. 1937; *ibid.* 310; Bullock, Kew Bull. Misc. Inf. **1937**, 441.

Rhus DC., Prodr. **2**:67. 1825, in part; Turcz., Bull. Soc. Nat. Moscou **31**:469. 1858, in part; A. DC., Calq. Dess. Fl. Mex. Moc. & Sessé, *t. 189.* 1874, in part; Hemsl., Biol. Cent.-Am. Bot. **1**:217, 218. 1880, in part; Engler in DC., Monogr. Phaner. **4**:383. 1883, in part; Sessé & Moc., Pl. Nov. Esp., p. 47. 1887, in part; ed. 2, p. 44. 1893, in part; Standl., Contr. U. S. Nat. Herb. [Trees & Shrubs Mex.] **23**:665. 1923, in part.

Toxicodendron Kuntze, Rev. Gen. Pl., pt. 1, p. 153. 1891, in part.

Deciduous trees with few staghorn-like, ash-gray branches. Leaves alternate, imparipinnate, more or less persisent, clustered near the apex of the branches; leaflets many, densely pubescent, rugose; rachis not winged. Bracts of the inflorescence lanceolate, deciduous. Flowers polygamo-dioecious, in ascending panicles in the axils of the leaves, appearing with the leaves. Petals and sepals 5, spreading. Ovary 1-celled, raised upon a column formed by the

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6 Barkley, *ibid.*, pl. 1.

7 International Rules of Botanical Nomenclature, *Art. 18.*

disk and partly adherent to it; style 3-branched, terminal. Drupe almost symmetrical, clothed with long, soft, reddish hairs.

A single species is known:

ACTINOCHEITA FILICINA (DC.) Barkl., Ann. Mo. Bot. Gard. *24:* 2. 1937.

Rhus Filicina DC., Prodr. **2**:67. 1825; A. DC., Calq. Dess. Fl. Mex. Moc. & Sessé, *pl. 189.* 1874; Hemsl., Biol. Cent.-Am. Bot. **1**:217. 1880.

R. potentillaefolia Turcz., Bull. Soc. Nat. Moscou **31**:469. 1858; Hemsl., Biol. Cent.-Am. Bot. **1**:218. 1880; *ibid.* **4**:21. 1886, in note; Engler in DC., Monogr. Phaner. **4**:383. 1883; Standl., Contr. U. S. Nat. Herb. [Trees & Shrubs Mex.] **23**:669. 1923.

R. Tetlatziam Sessé & Moc., Pl. Nov. Esp., p. 47. 1887; ed. 2, p. 44. 1893.

Actinocheita potentillifolia Bullock, Kew Bull. Misc. Inf. 1937, 441.

Bursera bipinnata (Schlecht.) Engler in DC., Monogr. Phaner. **4**:49. 1883, in part, as to *Rhus filicina* in syn.; Hemsl., Biol. Cent.-Am. Bot. **4**:19. 1886, in part, as to *Rhus filicina* in syn.; Bullock, Kew Bull. Misc. Inf. 1936, 355, as to *Rhus filicina* in syn.

Toxicodendron potentillifolium O. Kuntze, Rev. Gen. Pl., pt. 1, p. 154. 1891.

Shrubs and small trees to 5 m. in height, with few staghorn-like branches covered with tuberculate leaf scars; branches ash-gray, glabrous below and densely pubescent at the apex, nude at base and clothed heavily near the summit with leaves; leaves alternate, rugose, imparipinnate, 9-33 cm. long, deciduous; leaflets 13-29, sessile, broadly linear, to 6 cm. long, sometimes as small as 0.5 cm., hoary-tomentose, lighter below, with revolute margins, lobes crenate, usually cristate-pointed, apex more or less acute, base truncate; rachis naked, densely pubescent; flowers polygamo-dioecious, disposed in ascending panicles half as long as the subtending leaves and appearing with them; bracts linear to subrotund, persistent, pilose-hirsute; sepals 5, deltoid-lanceolate, densely pubescent; stamens with thickened filaments longer than the ovoid anthers; pistil with 3 short styles, ovary on a torus formed by the disk, 1-celled, ovule anatropous; drupe almost symmetrical, villous, clothed with long, soft, violet-red hairs.

Type: In all probability the original material on which this species was founded no longer exists; but the species is based primarily on *plate 189* of *Calque des Dessins de la Flora du Mexique, de Mociño et Sessé,* 1874, and is typified by *Pringle 4572* which is represented in the larger herbaria of America and Europe.

MEXICO: coll. of 1791, *Thaddaeus Haenke 1503* (Field Mus.); *Jurgensen 283* (Kew Herb.8)

8 The authors are indebted to Sir Arthur Hill and the Royal Botanic Gardens at Kew, England for photographs of these specimens for their study.

PLATE 1: *Actinocheita filicina* (DC.) Barkley

Photograph of the original drawing from which the tracing for *plate 189* of A. De Candolle's *Calques des Dessins, Flora du Mexique, de Mociño et Sessé* was made (see pl. 3, fig. 2, insert). This plate is listed in the "Enumeration d'après l'order des numéros" as "*Rhus filicina* 2. p. 67." As it is probable that the original material on which the species was founded no longer exists, *Actinocheita filicina* must rest on this drawing.

In no place in the carefully drawn portion of the specimen are the leaves shown

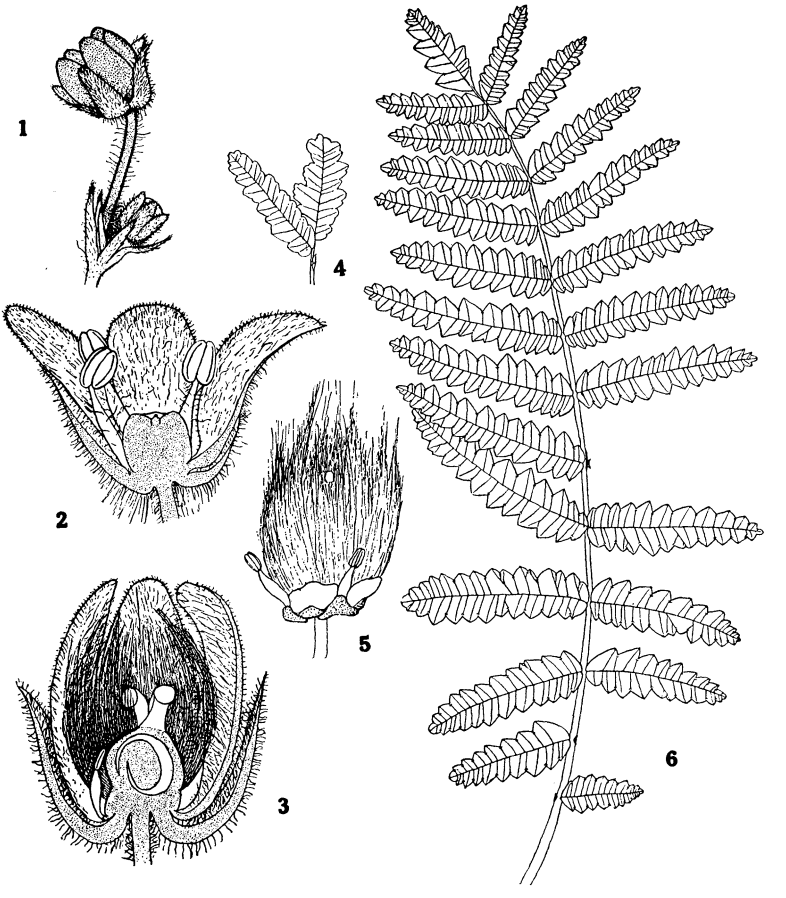

PLATE 2: Fig. 1, Flower, x 6, from *Pringle 9164;* Fig. 2, Longitudinal section through a staminate flower, x 14, from *Purpus 1236*; Fig. 3, Longitudinal section through pistillate flower, x14, from *Pringle 4752;* Fig. 4, Terminal portion of a leaf, x.7, from *Pringle 4752;* Fig. 5. Pistillate flower with petals and sepals removed, x14, from *Pringle 4752;* Fig. 6, Leaf, x.7, from *Pringle 9164.*

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as bipinnate, and in *only* one place in the hurriedly drawn portion is it so shown. When one considers the rush in which these drawings were executed one can understand such inaccuracies in drawing, so that the authors feel that what at first glance appear to be leaflets of a bipinnately compound leaf are attempts of a hurried and not too skilled artist to show the veins which occur at the lobes and sinuses of the leaflets of the species under consideration, which at the stage of development of the leaves here shown certainly often look in pressed specimens bipinnate until observed carefully. (See Pls. 3 Fig. 2, 2 figs. 4 & 6, 4, & 5). Certainly the dsecription De Candolle drew from this plate does not describe bipinnate leaves, and he had seen the specimen!

(Photograph furnished through the courtesy of the Field Museum of Natural History.)

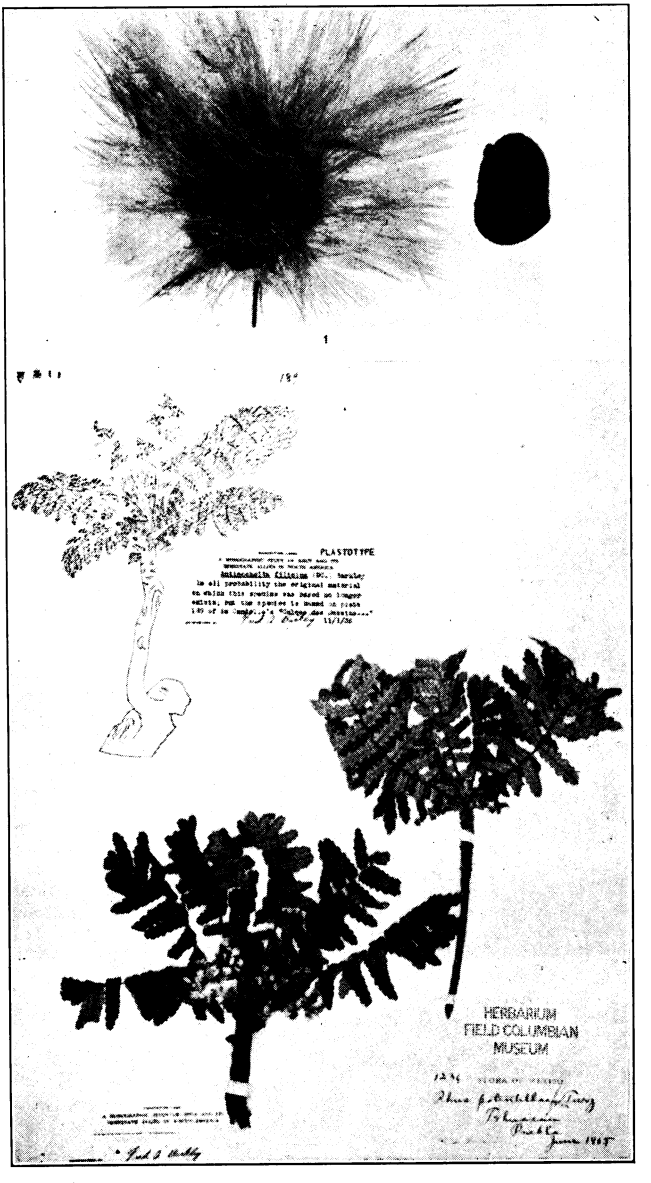

PLATE 3: *Actinocheita filicina* (DC.) Barkley; Fig. 1, Fruit and seed, x 4.1, from *Seler 1419*. Note the long pilosity of the fruit-coat and the rugosity of the seed; Fig. 2, From specimen, *Purpus 1236*, in Field Museum Herbarium. The insert at the upper left is a reproduction of *plate 189* from de Candolle's *Calque des Dessins*....

PLATE 4: *Actinocheita filicina* (DC.) Barkley; from specimen collected by C. G. *Pringle 4752*, on limestone ledges, in Tomellin Canyon, Oaxaca, Mexico, altitude 2,500 ft., July 31, 1894; this specimen is typical of the species. (Illustration furnished through the courtesy of the Missouri Botanical Garden.)

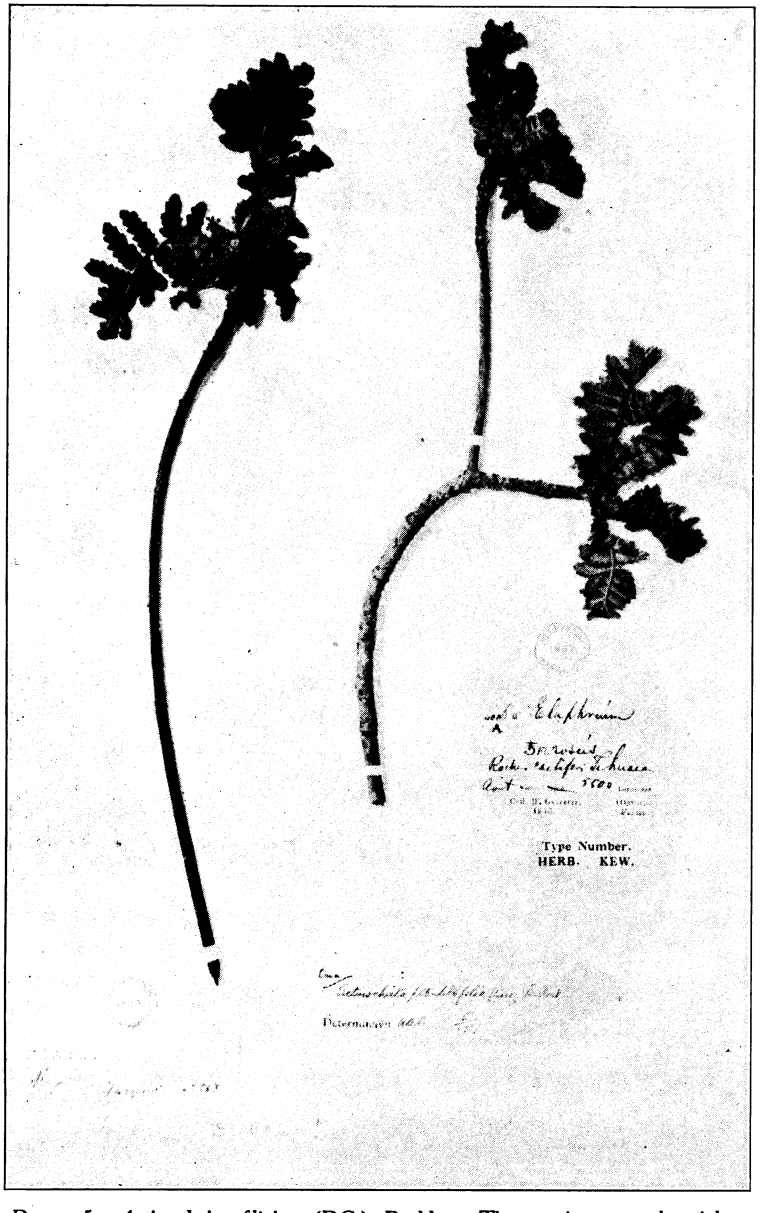

PLATE 5: *Actinocheita filicina* (DC.) Barkley; The specimen on the right was collected by *Galeotti 4006A*, from Cordillera, Oaxaca, August 1840, and represents the type collection of *Rhus potentillaefolia* Turcz. (Photograph furnished through the courtesy of Sir Arthur Hill and the Royal Botanic Gardens, Kew, England.)

GUERRERO: Acuitlapan, 1900 m., Oct. 1935, *Mrs. Gordon Abbott 11* (Gray Herb.); shrub 10 to 15 feet, mountains above Iguala, Oct. 4, 1900, *C. G. Pringle 9164* (Mo. Bot. Gard., Field Mus., U. S. Nat. Herb., Gray Herb.).

OAXACA: Cañon del Tomellin, Estacion de Almoloyas, Sept. 29, 1907, *C. Conzatti 2019* (Field Mus., N. Y. Bot. Gard.); District of Nochixtlan, Cuesta de Henaudilla, *C. Conzatti 4247* (U. S. Nat. Herb.); Cordillera, Aug. 1840, *Galeotti 4006A* (cotype of *Rhus potentillaefolia*, Kew. Herb.8); Cuesta de Nochixtlan, 2000 m., May, 1899, *V. Gonzalez & C. Conzatti 937* (Gray Herb.); six miles above Dominguillo, Oct. 3, 1893, *E. W. Nelson 1593* (U. S. Nat. Herb.); six miles above Dominguillo, Oct. 20, 1894, *E. W. Nelson 1825* (N. Y. Bot. Gard., U. S. Nat. Herb., Gray Herb.); limestone ledges, Tomellin Cañon, July 31, 1894, *C. G. Pringle 4752* (Mo. Bot. Gard., Field Mus., N. Y. Bot. Gard., Brooklyn Bot. Gard., Phila. Acad. Nat. Sci., U. S. Nat. Herb. Univ. Cal., Gray Herb.); Nov. 27. 1895, *Caec. & Ed. Seler 1419* (N. Y. Bot. Gard., Gray Herb.); Rio Seco, Necaltepec, alt. 3100 ft., "Poison to the touch," Sept. 21, 1895, *Rev. Lucius C. Smith 777* (Gray Herb.).

PUEBLA: Tehuacan, June, 1905, *C. A. Purpus 1236* (Mo. Bot. Gard., Field Mus., N. Y. Bot. Gard., Univ. Cal., Gray Herb.); Tlacuiloltepec, May, 1909, *C. A. Purpus 4065 (in part)* (Mo. Bot. Gard., N. Y. Bot. Gard., Field Mus., Gray Herb.); Tehuacan, Sept., 1911, *C. A. Purpus 5702* (Mo. Bot. Gard., Univ. Cal.); Tehuacan, Aug., 1905, *J. N. Rose, Walter Hough & J. H. Painter 9967* (N. Y. Bot. Gard., U. S. Nat. Herb., Gray Herb.).

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