

TWO NEW SPECIES OF EUPHORBIA  
SUBGENUS AGALOMA FROM MEXICO

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THE SUBGENUS AGALOMA (Raf.) House of Euphorbia L. comprising perhaps one hundred and fifty species in the New World (and one in southern Africa), is taxonomically complex and poorly understood. When Boissier revised the genus in 1862, he distributed among ten sections the seventy-seven species of subg. AGALOMA known to him. As more and more species were described, the distinctions between many of the sections became less clear, and today subg. AGALOMA stands in need of thorough revision. In the course of preliminary numerical studies of the subgenus carried out by the junior author, many unidentified specimens, including several undescribed species, were found in the larger American herbaria.

We now describe two of these species from Mexico as new.

*Euphorbia arteagae* Buck & Huft, sp. nov.

FIGURE 1.

Frutex ad 1 m. altus ramosissimus. Ramificatio ternata et divaricata. Rami ramulique glabri, teretes; rami juniores virides, vetustiores cortice exarato, rubello; rami ultimi spiniformes. Folia non visa, ut videtur ternata, decidua; cicatrices foliorum 1.35–1.9 mm. latae, 0.7–1 mm. altae. Cyathia pedunculata, solitaria vel bina ternaque aggregata, infundibuliformia, villosa, orificio ca. 2.5 mm. diametro; pedunculus ca. 0.75 mm. longus, puberulus, prope basin aliquot rudimentis instructus; lobi 6, albi, laciniati, ca. 2 mm. longi; glandulae 6, ellipticae, 1.6–1.85 mm. longae, 0.75–1.1 mm. latae, virides, in sicco flavescentes; appendices petaloideae albae, 6, suborbiculatae, 2.5–3.2 mm. longae, 2.2–2.75 mm. latae, erosae, supra glabrae, infra sparsim villosae. Flores masculi ca. 60. Bracteolae inter flores masculos numerosae, albae, plumosae, 2.5–2.75 mm. longae. Flores feminei 1; styli 3, ca. 1 mm. longi, basi uniti, pro  $\frac{1}{3}$ – $\frac{1}{2}$  longitudine furcati; stigmata subcapitata. Capsula subglobosa, trisulcata, apice leviter depressa, glabra, brunnea, ca. 6 mm. diametro. Semina ovoidea, ca. 4 mm. diametro, rubiginosa, tuberculata, ecarunculata.

TYPE. Mexico, Michoacán: between Río Tepalcatepec and Arteaga, ca. 75 km. north of Arteaga, along the highway south from "Cuatro Caminos" (3 km. south of Nueva Italia and 30 km. east of Apatzingán) in rocky ravine, elevation 350 m., with *Pseudosmodium*, 24 February 1965, *Rogers McVaugh* 22525 (holotype, MICH; isotypes to be distributed).

*Euphorbia arteagae* clearly belongs to section ALECTOROCTONUM (Schlechtendal) Boissier, one of the sections recognized by Boissier that still appears to be distinct and well defined. With the other members of the section, it shares a shrubby habit, ternate branching, numerous plumose bracteoles between the male flowers, styles that are united at the base

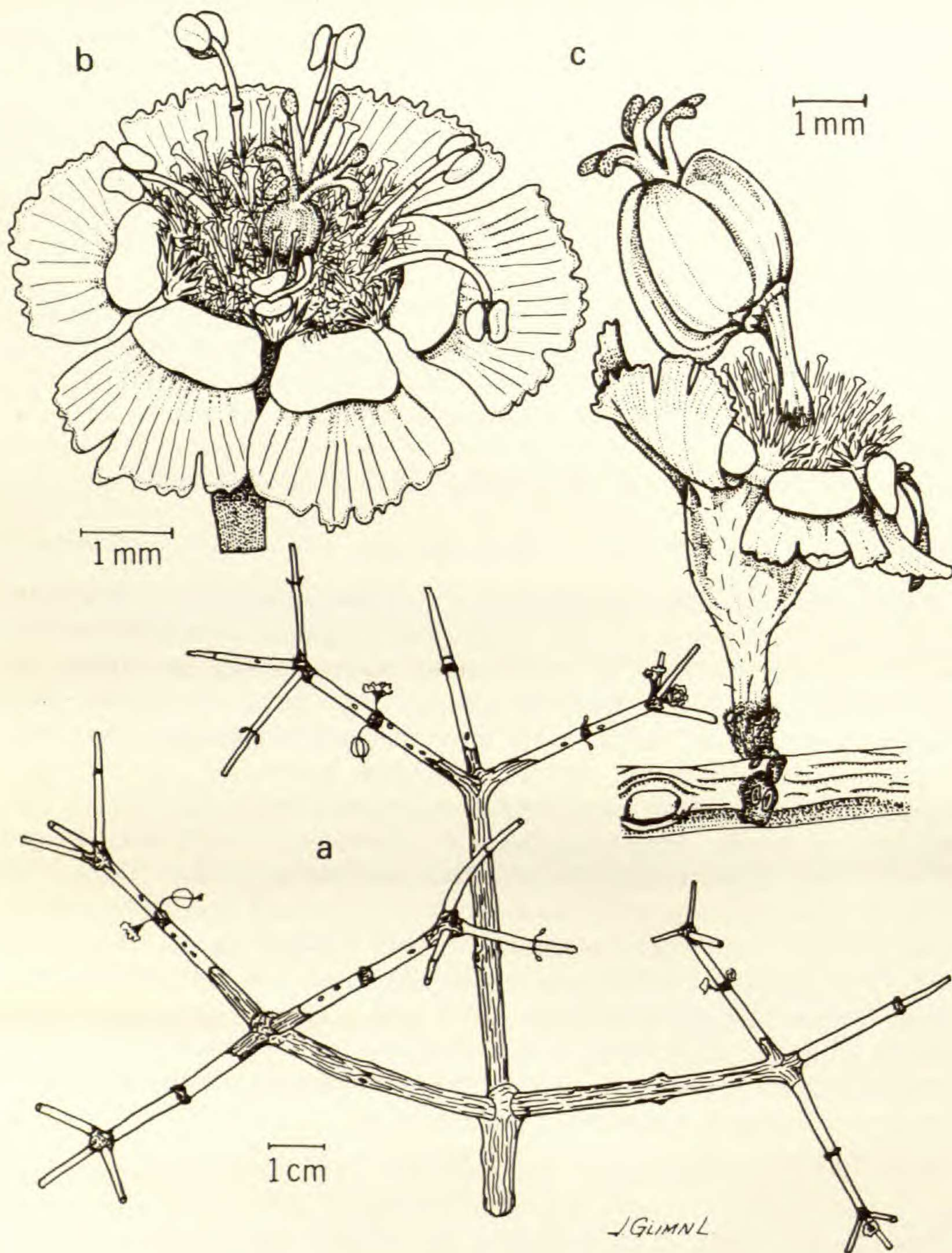


FIGURE 1. *Euphorbia artegae* (McVaugh 22525, MICH): a, flowering branch; b, cyathium with immature capsule, top view; c, cyathium with mature capsule, side view.

and bifid one-third to one-half their length, and irregularly tuberculate seeds. It may be distinguished from all other members of sect. *ALECTOROCTONUM*, indeed from all other members of subg. *AGALOMA*, by the presence of six glands on the cyathium, rather than five or fewer. The reduced inflorescence, the divaricate branching, and the thornlike ultimate branchlets of this species are also unique in sect. *ALECTOROCTONUM*. Although some members of the section *TRICHOSTERIGMA* (Klotsch & Garcke) Boissier (e.g., *E. misera* Benth and *E. californica* Benth) are shrubby and exhibit divaricate branching, nothing else seems to indicate a close relationship of *E. artegae* to that section. The presence of stubs below the cyathium (FIGURE 1c) suggests that the inflorescence is reduced and that *E. artegae* may be an advanced member of its section.

Several other species of sect. *ALECTOROCTONUM*, such as *E. ligustrina* Boissier and *E. nudiflora* Jacq., are occasionally collected without leaves at flowering time, but since other collections of these species are sometimes seen with leaves and flowers appearing simultaneously, we hesitate to state, on the basis of one collection, that the absence of leaves at flowering time is characteristic of *E. artegae*.

*Euphorbia guiengola* Buck & Huft, sp. nov.

FIGURE 2.

Frutex ca. 1 m. altus, sparsim ramosus. Caules expansi vel ascendentes, virides, teretes, paene glabri autem pilis paucis albis multicellularibus. Folia alterna; stipulae glanduliformes; lamina ovata 1.7–5.7 cm. longa, 1.2–4.1 cm. lata, ca. 1.5-plo longior quam latior, integra, supra glabra, infra glauca et sparsim pubescens pilis multicellularibus uniseriatis 2–3 mm. longis, margine ciliis 0.5–1 mm. longis referta; petiolus 4–6 mm. longus, dense pubescens pilis multicellularibus uniseriatis 0.5–1 mm. longis. Inflorescentiae laterales atque terminales, ascendentes, ca. 5 cm. longae, 1–4-plo dichotomae, cyathiis 1–15, ramis viridibus teretibus 0.1–0.4 mm. diametro dense pubescentibus. Bracteae oppositae; lamina lanceolata (–ovata), acuta, 2.3–3 (–7) mm. longa, 1–1.2 mm. lata, 2.5–3-plo longior quam latior, integra, supra glabra, infra sparsim pubescens pilis 0.5–1 mm. longis, margine ciliis 0.5–1 mm. longis referta; petiolus dense pubescens, 0.5–1 mm. longus. Cyathia rubiginosa, obconica, 1 mm. alta, villosa pilis expansis incoloratis, orificio ca. 2 mm. diametro; pedunculus glanduloso-pilosulus, 0.6–1.2 cm. longus, ca. 0.6 mm. diametro; lobi 5, obovati, albi vel interdum versus apicem purpurei, erecti, ca. 1.5 mm. longi, ca. 1.25 mm. lati, laciniati vel erosi; glandulae 5, luteae vel interdum purpureae, ellipticae, ca. 0.9 mm. longae, 0.5 mm. latae, crenulatae, appendices petaloideae flabellatae, 2–2.7 mm. longae, apice 1.8–2.5 mm. latae, erosulatae vel integrae, glabrae, omnes albae vel e basi ad supra medium atropurpureae apice albae. Flores masculi ca. 25. Bracteolae inter flores masculos obsoletae. Flores feminei 1; styli 3, ca. 1 mm. longi, profunde furcati, basi liberi; stigmata subcapitata. Capsula 2–3 mm. diametro, subglobosa, trisulcata, apice leviter depressa, glabra, brunnea punctis parvis albis obsitis. Semina ovoidea, ecarunculata, 1–1.5 mm. longa, 0.6–0.8 mm. diametro, rubro-aurantiaca, obtusa triangula, foveolato-tuberculata.

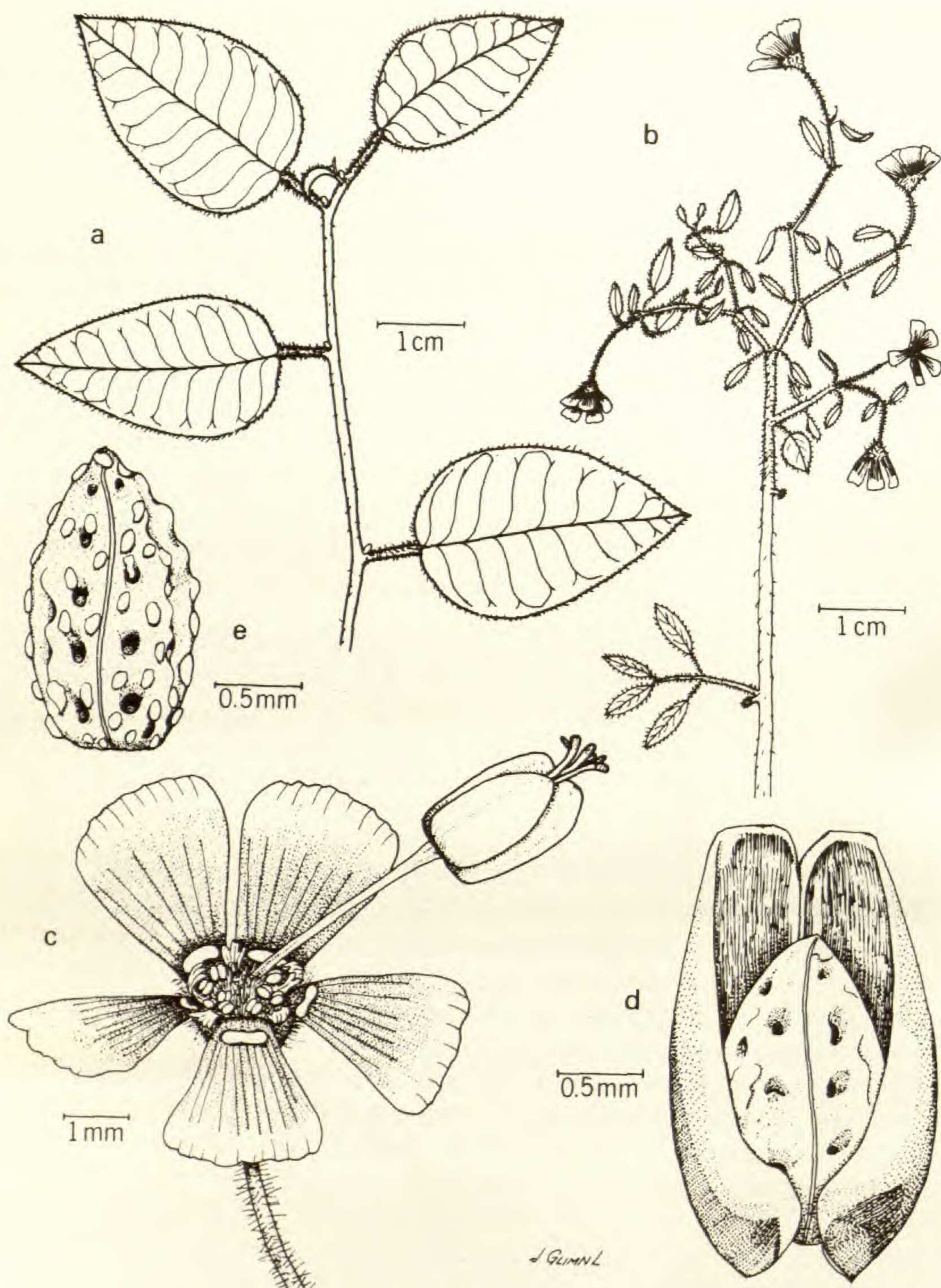


FIGURE 2. *Euphorbia guiengola*: a, vegetative branch (*MacDougall*, us 2536478); b, terminal inflorescence (*MacDougall*, us 2549630); c, cyathium with mature capsule (*MacDougall*, us 2549630); d, seed surrounded by a portion of the capsule (*MacDougall*, us 2586633A); e, seed (*MacDougall*, us 2586633A).

TYPE. Mexico, Oaxaca: Tehuantepec, lower slopes of Cerro Guiengola, elev. approx. 500 feet, 14 October 1965, *T. MacDougall s.n.* (holotype, US; isotype, MICH).

ADDITIONAL SPECIMENS. Mexico. CHIAPAS: Rizo de Oro, Cintalapa, 19 November 1966, *T. MacDougall s.n.* (MICH, US). OAXACA: Río Hondo, San Carlos Yautepec, 13 February 1962, *T. MacDougall s.n.* (US 2364780); Cerro Guiengola, 15 January 1896, *Caec. et Ed. Seler 1611* (GH); 27 August 1966, *T. MacDougall s.n.* (US); material cultivated at the University of California Botanical Garden, Berkeley, original material from Cerro Guiengola collected by T. MacDougall, prepared 17 July 1960, Botanical Garden accession no. 59.608 (US 2369899); prepared 24 May 1962, accession no. 58.856-1 (US 2384286 and 2549630); prepared 8 August 1968, accession no. 58.856 (US 2536478).

The position of *Euphorbia guiengola* within subg. AGALOMA is not as easy to determine as is that of *E. artegae*. It would appear to belong to sect. CYTTAROSPERMUM Boissier on the basis of its alternate leaves, opposite reduced bracts, absence of bracteoles between the staminate flowers, and styles that are free at the base and deeply bifurcate. The numerical studies mentioned above, however, indicate that this section, a large and diffuse group most abundant in Mexico and Central America, is probably not a natural group.

*Euphorbia guiengola* most closely resembles the Guatemalan species *E. ephedromorpha* Bartlett, with which it shares a shrubby habit, prostrate or ascending zig-zag stems, sparse branching, ovate leaves with silvery-white undersides, compact lateral and terminal inflorescences that are densely glandular-pilose, and obconical cyathia. The two species can be distinguished by means of the following key:

Stems winged; petaloid appendages oblong or spatulate. . . . *E. ephedromorpha*.  
Stems terete, not winged; petaloid appendages flabellate. . . . . *E. guiengola*.

Bartlett (1911) described the section EPHEDROMORPHA to accommodate *E. ephedromorpha* and stated that a second species of the section "represented in the Gray Herbarium by fragments too poor to serve as a type, was collected at Cerro Quiengola [*sic*], Oaxaca, Mexico, *Caec. & Ed. Seler 1611*." We have examined these specimens, and they appear to us to be identical with *E. guiengola*. Owing to the confusion in the classification of subg. AGALOMA, we hesitate to assign *E. guiengola* to a definite section until further studies of the subgenus can be carried out.

#### ACKNOWLEDGMENTS

This paper developed from a project completed by the senior author for a class in advanced systematics taught by Dr. Rogers McVaugh at the University of Michigan in the winter of 1974. We wish to express our gratitude to Dr. McVaugh for his assistance and advice, and for reading the manuscript. The material of *E. guiengola* was being studied by C. V. Morton of the United States National Museum at the time of his death in 1972. It was made available to us via Dr. McVaugh through the

courtesy of Dr. Velva E. Rudd of the National Museum. We are also indebted to Janice Glimn Lacy for making the drawings.

#### LITERATURE CITED

- BARTLETT, H. H. 1911. A supplemental description of *Euphorbia ephedromorpha*. Bull. Torrey Bot. Club 38: 343-346.
- BOISSIER, E. 1862. Subordo Euphorbieae. In: DC. Prodr. 15(2): 3-188.

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