A DISJUNCT NEW SPECIES OF *CLEOBULIA* (LEGUMINOSAE) FROM MEXICO

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Years ago while attempting to delimit generic boundaries between *Dioclea* H.B.K. and closely related genera, I came across Hinton and Langlasse collections from Mexico that were determined mostly *Dioclea*. Although I have never determined any *Cleobulia* Mart. ex Benth. farther west than Pará, Brazil, I believe these collections should be placed in this genus.

I have determined *Dioclea guianensis* Benth., *D. virgata* (L.C. Rich.) Amshoff, *D. wilsonii* Standley, and *D. megacarpa* Rolfe in Mexico; but I maintain that *Dioclea* and *Cleobulia*, though closely related, are separate genera (Maxwell, 1977).

Hinton 14996 (LAM) includes a fairly mature fruit. The fruit is not directly attached to the rest of the specimen, but I don't feel the collection is a mixture. An analysis of the fruit characters, heretofore lacking, enables me to propose the new species and present my generic placement for scrutiny.

Cleobulia crassistyla R. H. Maxwell, sp. nov. (Fig. 1 & 2).

Frutex ca 3 m altus; folia trifoliata, stipulae non prodientes, lanceolatae; foliola ovata vel ovalia, 6.0-10.5 cm longa, 6.0-10.0 cm lata, stipellae setaceae; inflorescentiae erectae; tubercula sessilia, globosa, aggregata distale; flores rosei, vexillum patens; calyx lobis ca 1.5-2.0 mm longis; stamina 10, antherae uniformes, perfectae; pistillum geniculatum, ovarium 6-8-ovulatum, stigma terminale, obliquum; legumen oblongum, planum; semina ca 8, plana, oblonga vel reniformia, hilum lineare, ½ circumdans.

TYPE: MEXICO: Guerrero: Galeana District, Plato, 1000 m alt., in a pine forest, 12 December, 1939, *Geo. B. Hinton 14996* (LAM holotype, NY, US isotypes). Flowering in November and December.

Woody shrub, 1-3 m tall; stems terete with short, canescent pubescence when young, becoming glabrescent. Leaves pinnately trifoliolate, the rachis and petiole deeply canaliculate, with sparse, appressed to ascending pubescence, the petiole 6.5-9.5 cm long, somewhat winged at the lateral petiolule insertions, the rachis 1.0-2.5 cm long; stipules non-produced, lanceolate, ca 4 mm long, glabrous, persistent. Leaflets papyraceous, ovate to oval, the lamina somewhat inequilateral, both surfaces reticulate, the upper surface, except the veins, glabrescent, the lower surface with stiff, appressed or slightly ascending canescent pubescence, the apices acute or abruptly acute, mucronate, the bases occasionally rounded, usually somewhat cordate or truncate, the lateral bases somewhat oblique, the primary lateral veins in ca 6 pairs, the terminal leaflets 7.5-10.5 cm long, 6.0-10.0 cm wide, the laterals smaller; stipels setaceous, ca 1.5 mm long, persistent. Inflorescences to 26 cm long, florate 1/3 - 1/2 the length, erect, terminal or axillary, single, canescent to somewhat fulvous-ferruginous pubescent; tubercles sessile, globose, crowded distally, 4-6-flowered; bracts acuminate, ca 2 mm long; bracteoles triangular, ca 1 mm long, persistent; calyx tube 6-8 mm long, dark, sparsely puberulent outside and inside, all lobes blunt, ca 1.5 mm long, the upper entire or shallowly emarginate; flower petals persistent; standard spreading, pink, the lamina obovate, ca 8 mm long, 11.5-14.0 mm wide, ecallose, basally biauriculate, the claw ca 4 mm long; wings with the lamina oblanceolate, 8-12 mm long, ca 4 mm wide, the claw 3-4 mm long; keels with the lamina obliquely oblong, ca 8 mm long, ca 4 mm wide, the claw ca 4 mm long; stamens 10, the vexillary filament apparently free in the bud, fused at anthesis, glabrous, the anthers uniform, perfect; pistil with ca 90° geniculation, the ovary ca 6 mm long, white to fulvous villulose, 6-8-ovulate; style glabrous, stout; stigma terminal, oblique. Legume somewhat immature, oblong, coriaceous (?), flat, ca 7.5 cm long, ca 2 cm wide, with dense, appressed to ascending, canescent to fulvous pubescence; upper suture thickened, the lower margin swollen and with a small beak. Seeds (4?)-5-8, flat, oblong to somewhat reniform, the hilum linear, encircling nearly ½ the testa.

Specimens Cited: MEXICO: GUERRERO: Montes de Oca District, Vallecitos, 820 m alt., in an oak forest, Hinton 9900 (K, LAM, NY); Pasion, 500 m alt., in an oak forest, Hinton 10791 (K, NY, UC); Plato, 1000 m alt., in a pine forest, Hinton 14996 (LAM holotype, NY, US isotypes) GUERRERO & MICHOACAN: Cerro verde, region of oaks, 1200 m alt., E. Langlassé 583 (G, K).

This new species differs from relatively well known Cleobulia, such as C. multiflora Mart. ex Benth, and C. leiantha Benth., in possessing functional wings about as long as the keels, a pistil with an indurate swelling on the dorsal, distal end of the ovary, and its shrub habit. Other differences seem insignificant. The wing length character is significant since the dwarf wing character of all previously recognized Cleobulia species is heavily weighed in maintaining the separation of Cleobulia from Dioclea (Maxwell, 1977). The shrub habit, at least in open areas, is common to several Dioclea species and could be considered primitive compared to cipós, lianas, and vines. The functional longer wings could also be considered primitive compared to the reduced type common within the genus Cleobulia. The significance of the indurate swelling is unknown, but this results in the beak extending from the lower margin of the legume rather than from the upper as is more common in the flat, naviculate shaped legumes of many Dioclea.

Some legume and seed character similarities are found between Cleobulia crassistyla Maxwell and Cymbosema roseum Benth., a monotypic species found in Mexico. These similarities are not strong enough to warrant placement in Cymbosema (cf. Maxwell, 1970).

Similarities between the new species and other Cleobulia can be seen by comparing Figs. 1 and 2 with Fig. 3. Gynoecium similarities are especially strong. Other similarities, such as short pedicellate reddish flowers bunched on sessile, globose, distally crowded tubercles, the standards spreading rather than reflexed and the blunt calyx lobes about 1/4 the tube length, may be convergence due to hummingbird pollination syndrome (cf. Advances in Legume Systematics, 1981).

After studying the references cited, the relevant flora literature and herbarium specimens, I cannot place the new species with confidence in any existing genus within the Diocleinae other than Cleobulia.

I would like to thank the directors and curators of the herbaria cited for the opportunity to study their collections.

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Figure 1. Cleobulia crassistyla. A, inflorescence; B, leaf; C, terminal leaflet; D, stipule; E, fruit, dorsal side to the right; F, immature seed in fruit. All from Hinton 14996 (LAM, holotype).

Figure 2. Cleobulia crassistyla. A, flower aspect (mature); B, calyx open, inside; C, standard; D, keel; E, wing; F, androecium; G, disc and gynoecium. All from Hinton 14996 (LAM, holotype).

Figure 3. A, Cleobulia leiantha, flower aspect (mature), Silva & Souza 2232 (NY). B, C. diocleoides, keel and wing, Saint-Hilaire 1311 (P). C, C. leiantha, standard, keel, and wing, Silva & Souza 2232 (NY). D, C. multiflora standard, keel, and wing, Porto RB# 6995 (U). E, C. multiflora, vexillary stamen, Diogenes BHMG# 22,456 (BHMG). F, C. leiantha, androecium, Silva & Souza 2232 (NY). G, C. leiantha, vexillary stamen and gynoecium, Silva & Souza 2232 (NY) (from Maxwell, 1977).