

Skottsbergiliana New Genus (Cucurbitaceae) of Hawaii Island Hawaiian Plant Studies 41¹

HAROLD ST. JOHN²

THE FAMILY CUCURBITACEAE is represented in the native flora of Hawaii only by the genus *Sicyos*. At present there are known 16 species of it in the islands. Because of its significant differences, one of them, *S. lasiocephalus*, is now removed and made the basis of a new genus.

numerous, in a pedunculate head; fruits are utracles but with 5 tissues, 2 chartaceous envelopes, a thin pellicle, a hard outer testa, and a thin inner testa; ovule single, pendulous; seed pendulous, ellipsoid; hilum 2-lobed; endosperm none.

HOLOTYPE: *Skottsbergiliana lasiocephala* (Skotts.) St. John.

TAXONOMIC TREATMENT

Skottsbergiliana gen. nov. (family Cucurbitaceae, tribe Sicyoideae)

DIAGNOSIS: Liana herbacea est, caulibus angulosis, cirrhis 2-3-furcatis, foliis alternatis petiolatis membranaceis suborbicularibus 5-lobatis vel 5-partitis subintegris vel denticulatis, inflorescentiis masculis femineisque plerumque ex eodem nodo, floribus masculis in paniculis et sine lobis calycis, perianthiis vadosis cum 5 lobis rotatis, filamentis connatis, antheris 3 in capite circinatis, floribus femineis multis in capite pedunculato, fructibus utriculatis sed circum embryonem cum 5 textis, hypanthio chartaceo, pelliculo membranaceo, testa exteriori duro sed interiori subtili, ovula unica pendenti, semine pendenti ellipsoideo, hilo bilobato, endospermio nullo.

DISCUSSION: The closest relative of this new genus is *Sicyos* which has the fruit either an utricle or a nut, but the seed is enclosed in a single outer envelope or tissue. *Skottsbergiliana* has the seed enclosed in three outer envelopes.

In the general texts statements are given as to the number of the corolla lobes in *Sicyos*. Cogniaux (1881: 346, 869) says that the corolla lobes of both staminate and pistillate flowers have 5 lobes. Müller and Pax in Engler and Prantl (1894: 35) say, "Blumen 5 zählig." Hutchinson (1967: 415) says, "male...corolla rotate, deeply 5-partite; female flowers with corolla as in the male;..."

The writer now has available 35 Hawaiian species of *Sicyos* with the flowers of both sexes represented. Only one has the staminate corolla 4-lobed; all the others have them 5-lobed. As to their pistillate corollas 15 have them 5-lobed; 5 have them 3-lobed; 13 have them 4-lobed; and one has them 6-lobed. From these statistics it is obvious that in this detail the generic description of *Sicyos* should be altered.

DIAGNOSIS: Herbaceous vines; stems angled; tendrils 2-3-forked; leaves alternate, petioled, membranous, suborbicular, 5-lobed or 5-parted, subentire or denticulate; tendrils, staminate inflorescences, and pistillate inflorescences and tendrils together (or single) at a node and lateral to the petiole base; staminate flowers in panicles; staminate flowers pale, lacking calyx lobes, the perianth shallow and with 5 rotate lobes; filaments connate, bearing the 3 anthers coiled in a head; pistillate flowers

KEY TO SPECIES

Utricle 5-5.5 mm long, fusiform, with a beak 0.5-0.8 mm long, not ribbed; seed 2-2.3 mm wide; blades shallowly lobed, as much as $\frac{1}{3}$ way. 1. *S. lasiocephala*.

Utricle 5-7 mm long, ellipsoid, almost beakless, the upper half ribbed; blades 5-partite.

. 2. *S. partita*.

¹ Manuscript received 21 June 1973.

² Bernice P. Bishop Museum, P.O. Box 6037, Honolulu, Hawaii 96818, U.S.A.

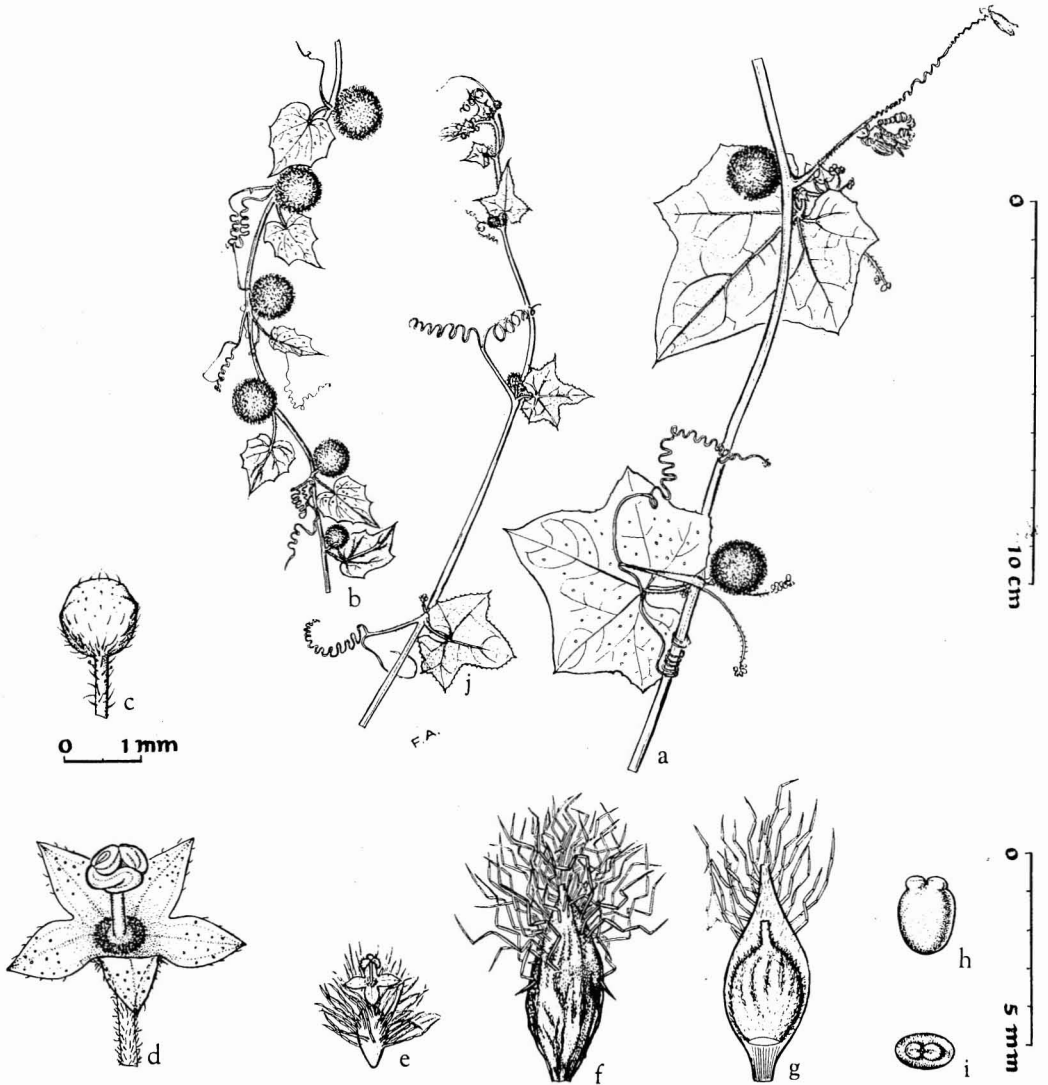


FIG 1. *Skottsbergiliana lasiocephala* (Skotts.) St. John, from lectotype. *a, b*, habit, $\times \frac{1}{2}$; *c*, staminate bud, $\times 10$; *d*, staminate flower, $\times 5$; *e*, pistillate flower, $\times 5$; *f*, fruiting utricle, $\times 5$; *g*, longitudinal median section of utricle, with the pericarp, $\times 5$; *h*, seed, lateral view, $\times 5$; *i*, seed and hilum, apical view, $\times 5$; *j*, young shoot, $\times \frac{1}{2}$.

1. *Skottsbergiliana lasiocephala* (Skotts.)
comb. nov.

Sicyos lasiocephalus Skotts., Acta Hort.
gothoburg. 10: 184-188, fig. 23, 1936.

Fig. 1

DIAGNOSIS OF LECTOTYPE: Liana herbacea est, caule longitudinaliter anguloso pallide rubro ad stramineo et albi-hirsutulo ad subglabrato, internodis 2-11 cm longis eis petiolis et cirrhis

subadpresse albi-hirsutulis, cirrhis in nodis lateralibus 2-3-furcatis cum caule 8-30 mm longo compresso anguloso, furcis gracilibus in spiris, petiolis 6-15 mm longis minute albi-pilosulis, laminis 2-6 cm longis 2-5.5 cm latis suborbicularibus sed 5-lobatis lobis late deltoideis et $\frac{1}{3}$ ad centrum extensis, sinibus 4-13 mm profundis latis et vadosis, apice subito acuminato marginibus subintegris sed apicibus venularum umbonatis distentis, sinu

basali anguste U-formato aperto vel clauso, laminis subtiliter papyraceis supra obscure viridibus et remote hispidulis plerumque glabris basis pilorum punctos albos glutinosos persistentes formantibus infra subadpresse albi-hispidulis pilis plerumque persistentibus, paniculis masculis 3–5 cm longis albi-hirsutulis, pedunculo 10–15 mm longo, pedicellis 1–2 mm longis, alabastris masculis 1.5–2 mm diametro in tubo et in marginibus hirsutulis tubo in radio 1.2 mm longo in centro glanduloso, lobis calycis nullis, lobis perianthii 2–2.2 mm longis 1.4–1.5 mm latis elliptici-ovatis acutis 3–5-nervis intra capitate glandulosi-puberulis extra remote hirsutulis, columna filamentarum 1.5 mm longa, 3 antheris 1.5 mm longis in capite circinatis, floribus femineis 50–60 in capite sessili vel subsessili, pedunculo 0–5 mm longo, capite 10–15 mm diametro globoso a pilis longis multis occultatis, lobis calycis nullis, corolla epigyna in rostro elliptico, pistillo 2.3 mm longo, perianthio 1.5 mm diametro 4-lobato, lobis 0.5 mm longis ellipticis subacutis intra glandulosi-punctatis et extra ad apicem, stylo 0.5 mm longo, stigmatibus 3 et 0.3 mm longis cernuis puberulis, utriculo cum hypanthio 5–5.5 mm longo 1.8–2.3 mm lato 1.3 mm crasso fusiformi firme chartaceo pallide badio dimidio infero laevi glabro dimidio supero extra lanato pilis 2–3 mm longis intra catenulate brunneo pilosulo, pericarpio 3.5–4.7 mm longo lanceoloideo subtili pellucido dimidio supero extra piloso, pelliculo 3 mm longo ellipsoideo rostrato subtili glabro seminem vestirenti, semine 1.7–2 mm longo 2–2.3 mm lato 0.7–0.9 mm crasso ellipsoideo compresso osseoso pallide badio exlucido, hilo 1.8 mm longo apicali elevato stramineo ad juga bina labiis crassis simulanti quoque in margine descendenti.

DIAGNOSIS OF LECTOTYPE: Herbaceous vine; stem longitudinally ribbed, pinkish to stramineous, and white hirsutulous to subglabrate, internodes 2–11 cm long, they, the petioles, and tendrils subappressed white hirsutulous; tendril lateral to the petiole base, 2–3-forked, the stalk 8–30 mm long, flattened, angled, the forks slender, spiralling; petioles 6–15 mm long; blades 2–6 cm long, 2–5.5 cm wide, suborbicular in general outline, 5-lobed, the

broadly deltoid lobes extending 1/3 way to center, the sinuses 4–13 mm deep, wide and shallow, the apex abruptly acuminate, the margin subentire but with slight umbonate projections at the veinlet tips, the basal sinus narrowly U-shaped, open or closed by the overlapping lobes, texture thin chartaceous, above dark green and sparsely hispidulous, the hairs mostly breaking off, leaving a white glutinous base, then this shedding to leave a shallow concave socket, but some hairs persisting near the margins and along the principal veins, below abundantly white, half appressed hispidulous, the hairs mostly persistent, but some deliquescent and forming a viscid white spot; staminate panicles 3–5 cm long, white hirsutulous throughout; peduncle 10–15 mm long; pedicels 1–2 mm long; staminate buds 1.5–2 mm in diameter, hirsutulous on the tube and the margins; calyx teeth wanting; perianth 4.5–6 mm in diameter, the tube 1.2 mm in radius, glandular at the center, the 5 lobes 2–2.2 mm long, 1.4–1.5 mm wide, elliptic ovate, acute, 3–5-nerved, within capitate glandular puberulous, without sparsely hirsutulous; filament column 1.5 mm long; anthers 3 and 1.5 mm long, coiled in a head; pistillate inflorescences sessile or subsessile and with a hirsutulous peduncle to 5 mm long, axillary, and together with a staminate one; pistillate head 10–15 mm in diameter, globose, the parts well concealed by a multitude of long hairs; flowers about 50–60 in each head; calyx lobes wanting; corolla epigynous on an elliptic beaked pistil 2.3 mm long; perianth 1.5 mm in diameter, 4-lobed, the lobes 0.5 mm long, elliptic, subacute, glandular dotted within, and without near the apex; style 0.5 mm long; stigmas 3 and 0.3 mm long, ligulate, cernuous, puberulous; utricle of a hypanthium 5–5.5 mm long, 1.8–2.3 mm wide, 1.3 mm thick, fusiform, firm chartaceous, pale brown, the lower half smooth, glabrous, the upper half lanate without, not ribbed, with brownish tangled catenulate hairs 2–3 mm long, and pilosulous within; next within is the pericarp 3.5–4.7 mm long, lanceoloid, thin, transparent, the upper half pilose without; next within is the pellicle 3 mm long, ellipsoid, beaked, thin, glabrous, closely investing but easily peeled from the seed which is 1.7–2 mm long, 2–2.3 mm wide,

0.7–0.9 mm thick, ellipsoid, compressed, bony, light brown, dull, the apical hilum raised, 1.8 mm long, stramineous, like 2 pairs of fat lips in a line, one running down each edge.

LECTOTYPE: Hawaiian Islands, Hawaii Island, N. Kona, along the road near Huehue on aa lava, 26/9/1926, *C. Skottsberg 1,947* (BISH), here designated. Isotype (GOTH).

SPECIMENS EXAMINED: Hawaiian Islands, Hawaii Island, 20 miles from Waimea toward Kona, in aa desert along road, Aug. 18, 1926, *O. Degener 9,896A* (NY); ditto, 21 miles, *Degener 18,042* (G, GH, MASS, NY); ditto between Puuwaawaa and Waimea, dry lava region, Aug. 18, 1926, *Degener 18,043* (NY).

DISCUSSION: In the original publication of *Sicyos lasiocephalus* Skottsberg did not designate a type. He cited his own collection, no. *1,947*, then mentioned and gave descriptive notes on two collections by Degener. Both of his figures were drawn partly from his own and partly from Degener's specimens, and he accepted all three as of the same species. Consequently it is necessary to select a lectotype, as is done above.

Skottsberg's diagnosis and discussion of this unique species was discriminating, but he did not note that the pericarp was pilose without, and the hypanthium was pilosulous within. This has been confirmed by study of the lectotype.

Skottsberg (1936: 187) considered the closest relative of his *Sicyos lasiocephalus* to be *S. hispidus* Hbd. However, that species has very different fruits, and is now placed in the section *Cladocarpa*, due to its fruits being woody and with numerous strong branches from it that are long hairy.

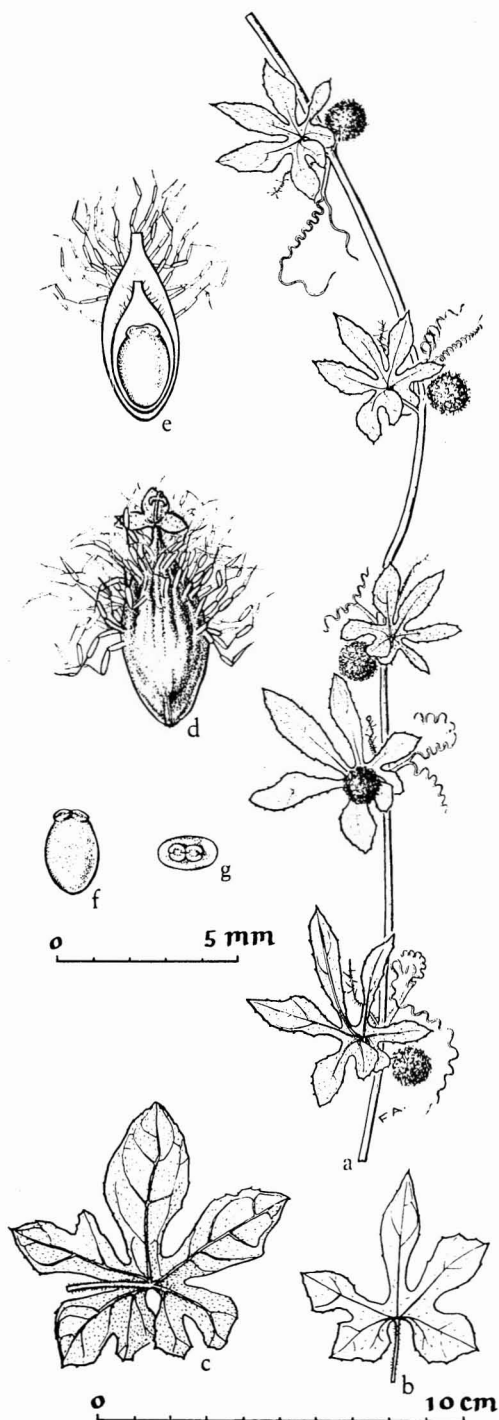
2. *Skottsbergiliana partita* sp. nov.

Fig. 2

DIAGNOSIS HOLOTYPI: Liana herbacea est, caulibus longitudinaliter pluriangulatis subviridibus ad stramineis albi-pilosulis et pilis in nodis persistentibus alibi glabratis, internodis 5–7.5 cm longis, cirrhis bifurcatis in nodis lateralibus cum caule 14–23 mm longo anguloso sparse puberulo furcis gracilibus in spiris et ad basim extra puberulis, petiolis

8–25 mm longis dense capitati-glandulosi-hispidulis, laminis 2–4 cm longis 2.5–6 cm latis suborbicularibus sed palmatim 5-partitis partis oblanceolatis subintegris sed remote ex apicibus venularum denticulatis supra remote hispidulis pilis cum basibus albis pustulatis infra grosse hispidulis pilis inaequalibus ex basibus albis pustulatis, sinu basali U-formato aperto vel clauso laminis subtiliter chartaceis supra obscure viridibus infra viridibus supra nervis puberulis infra nervis et intervallis hispidulis, paniculis masculis 2–2.5 cm longis glandulose pilosulis, pedunculo 12 mm longo, pedicellis 1–2 mm longis (alabastris non visis), inflorescentia feminali 10–16 mm longo ut videtur sessili sed cum pedunculo 5–8 mm longo pilosulo cum 30–48 floribus, capiti in fructu 10–16 mm diametro globoso cum pilis albis multis, calyce nullo, floribus epigynis in pistillo ellipsoideo, perianthio 1.8 mm diametro tubo 0.4 mm diametro cum 3 lobis 0.5 mm longis late ovatis subacutis glandulose atomiferis extra sparse intra copiose trinervis, stylo 0.7 mm longo, 3 lobis stigmatis 0.3 mm longis oblongis cernuis, utriculis in fructu 5–7 mm longo 1.8–2 mm lato ellipsoideo acuto fere erostrato firme chartaceo stramineo dimidio supero longitudinaliter costato et catenulate albi-piloso pilis 2.5–3 mm longis, intra supra in dimidio supero pilosis, pericarpio 3.3 mm longo late ellipsoideo rostrato subtiliter membranaceo pellucido in tertia supera extra pilosulo, semine 1.8–2.3 mm longo 1.3–1.7 mm lato 0.5 mm crasso ellipsoideo pallide badio exlucido, hilo 0.7 mm longo apicali elevato plano stramineo juga bina labiarum rotundatarum in linea simulanti.

DIAGNOSIS OF HOLOTYPE: Herbaceous vine; stems longitudinally several ribbed, greenish to stramineous, and white pilosulous, the hairs persisting at the nodes, glabrate elsewhere; internodes 5–7.5 cm long; tendrils lateral to the petiole base, 2-forked, the stalk 14–23 mm long, angled, sparsely puberulous, the forks slender, spiralling, near the base puberulous on the outer side; petioles 8–25 mm long, densely capitate glandular hispidulous; blades 2–4 cm long, 2.5–6 cm wide, suborbicular in outline but palmately 5-parted, the parts oblanceolate, subentire but remotely denticu-



late by excurrent veinlet tips, above remotely hispidulous from white pustulate bases, below coarsely hispidulous, the hairs of unequal width, from white pustulate bases, the basal sinus U-shaped, open or closed, texture thin chartaceous, above dark green, below green, the veins above puberulous, but below scabrous hispidulous like the intervals; staminate panicles 2–2.5 cm long, glandular pilosulous; peduncle 12 mm long; pedicels 1–2 mm long (the buds not seen); pistillate inflorescence 10–16 mm long, appearing sessile, but with a peduncle 5–8 mm long, pilosulous; fruiting pistillate head 10–16 mm in diameter, globose, very white hairy; flowers 30–48 to a head; calyx wanting; flowers epigynous on the ellipsoid pistils, the pistillate perianth 1.8 mm in diameter, the tube 0.4 mm in diameter, the 3 lobes 0.5 mm long, broadly ovate, subacute, glandular atomiferous, sparsely so without, abundantly so within, 3-nerved; style 0.7 mm long, the 3 stigmatic lobes 0.3 mm long, oblong, cernuous; in fruit the utricle 5–7 mm long, 1.8–2 mm wide, ellipsoid, acute, almost beakless, firm chartaceous, stramineous, the upper half longitudinally ribbed, and white catenulate pilose, the hairs 2.5–3 mm long, within pilose on the upper half; next within is the pericarp 3.3 mm long, broadly ellipsoid, beaked, white, thin membranous, translucent, pilosulous without on the upper third; and seated within this is the seed 1.8–2.3 mm long, 1.3–1.7 mm wide, 0.5 mm thick, ellipsoid, light brown, dull; the hilum apical, raised, flat, 0.7 mm long, stramineous, like two pairs of rounded lips in a line.

HOLOTYPE: Hawaiian Islands, Hawaii Island, 20 miles from Waimea toward Kona, aa desert, Aug. 17–18, 1926, *O. Degener* [9,896] (GOTH). Isotype (NY). Mounted with the holotype is a second stem with broader leaf lobes and less mature fruit. This is deemed to be *S. lasiocephala*, and is renumbered 9,896A.

DISCUSSION: The two species of *Skottsbergiliana* differ as follows: *S. lasiocephala* has the

FIG. 2. *Skottsbergiliana partita* St. John, from holotype. *a*, habit, $\times \frac{1}{2}$; *b*, *c*, leaves, $\times \frac{1}{2}$; *d*, fruiting utricle, with pistillate flower, $\times 5$; *e*, longitudinal median section of utricle and pericarp, with seed, $\times 5$; *f*, seed, lateral view, $\times 5$; *g*, seed and hilum, apical view, $\times 5$.

pistillate peduncle 0–5 mm long; pistillate heads with about 50–60 flowers; utricle in fruit 5–5.5 mm long, fusiform, not ribbed; seed 1.7–2 mm long, 2–2.3 mm wide; staminate panicles 3–5 cm long, white hirsutulous; stems white hirsutulous to subglabrate; petioles 6–15 mm long, finely white pilosulous; blades 2–6 cm long, shallowly lobed, as much as 1/3 way. *S. partita* has the pistillate peduncles 5–8 mm long; pistillate head with 30–48 flowers; utricle in fruit 5–7 mm long, ellipsoid, the upper half ribbed; seed 1.8–2.3 mm long, 1.3–1.7 mm wide; staminate panicles 2–2.5 cm long, glandular pilosulous; stems white pilosulous, the internodes glabrate; petioles 8–25 mm long, densely capitate glandular hispidulous; blades 2–4 cm long, palmately 5-parted.

The new epithet is the Latin participle *partitus*, divided or parted, and it is given with reference to the deeply parted blades.

LITERATURE CITED

- COGNIAUX, ALFRED. 1881. Cucurbitacées. Pages 325–1008 in A. De Candolle and C. De Candolle. *Monographiae Phanerogamarum*. Vol. 3. G. Masson, Paris.
- HUTCHINSON, JOHN. 1967. The genera of flowering plants. Vol. 2, Dicotyledones. At the Clarendon Press, Oxford, 659 pp.
- MÜLLER, E. G. O., and F. PAX. 1894. Pages 1–39, figs. 1–22 in A. Engler and K. Prantl. *Die natürlichen Pflanzenfamilien*. Vol. 4, no. 5, Cucurbitaceae. Verlag von Wilhelm Engelmann, Leipzig.
- SKOTTSBERG, C. 1936. Vascular plants from the Hawaiian Islands. II. *Acta Hort. gothoburg.* 10: 97–193, figs. 1–23.