

THE REINSTATEMENT OF *BEAUTEMPZIA* (CAPPARACEAE) AND A
KEY TO THE GENERA OF NEOTROPICAL CAPPARACEAE WITH
VARIOUSLY STELLATE OR PELTATE INDUMENTA

Xavier Cornejo

*The New York Botanical Garden
200th St. and Kazimiroff Avenue
Bronx, New York 10458-5126, U.S.A.
xcornejo@nybg.org,
xcornejoquay@gmail.com*

Hugh H. Iltis

*Department of Botany,
University of Wisconsin
430 Lincoln Drive,
Madison, Wisconsin 53706, U.S.A.
swis@charter.net*

ABSTRACT

Beautempzia (Benth. & Hook. f.) Gaudich. is resurrected as a monospecific genus of neotropical Capparaceae. It is represented only by *Beautempzia avicenniifolia* (Kunth) Alleiz., a species restricted to the very dry woodlands and thorn scrub of western Ecuador and deserts in Peru. Its basionym *Capparis avicenniifolia* Kunth and its synonym *Capparis ovalifolia* Ruiz & Pav. ex DC. are lectotypified. The studied specimens are fully cited, and a key to the neotropical genera of Capparaceae with variously stellate or peltate indumenta is provided.

KEY WORDS: *Beautempzia*, Capparaceae, coastal dry forests, Ecuador, Peru

RESUMEN

Resucitamos *Beautempzia* (Benth. & Hook. f.) Gaudich., un género neotropical de Capparaceae, únicamente representado por *Beautempzia avicenniifolia* (Kunth) Alleiz., una especie restringida a los matorrales muy secos del occidente de Ecuador y los desiertos de Perú. Se lectotifican a su basónimo *Capparis avicenniifolia* Kunth, y a su sinónimo *Capparis ovalifolia* Ruiz & Pav. ex DC. Se citan los especímenes estudiados de esta especie y se presenta una clave para los géneros neotropicales de Capparaceae que tienen indumento estrellado de varios tipos o peltado.

PALABRAS CLAVE: *Beautempzia*, Capparaceae, bosques secos costeros, Ecuador, Perú

Beautempzia was proposed by Gaudichaud (1842) as a new generic name with a single species based on *Capparis avicenniifolia* Kunth (1821), a distinctive species of neotropical Capparaceae, restricted to the very dry woodlands and thorn scrub of western Ecuador and deserts in Peru. Hindered by ill health (Johnston 1944), Gaudichaud was able to only publish plate 56 with the name *Beautempzia avicenniaefolia*, without text. Gaudichaud's plate 56 consists of a leafy branch bearing inflorescences and a fruit, and a detailed group of separate figures, all without captions or descriptions (Fig. 1). Therefore, *Beautempzia* Gaudich. (1842) is not valid because Art. 41.2 of the ICBN (McNeill et al. 2006) states, a description or diagnosis is required for valid publication of a genus.

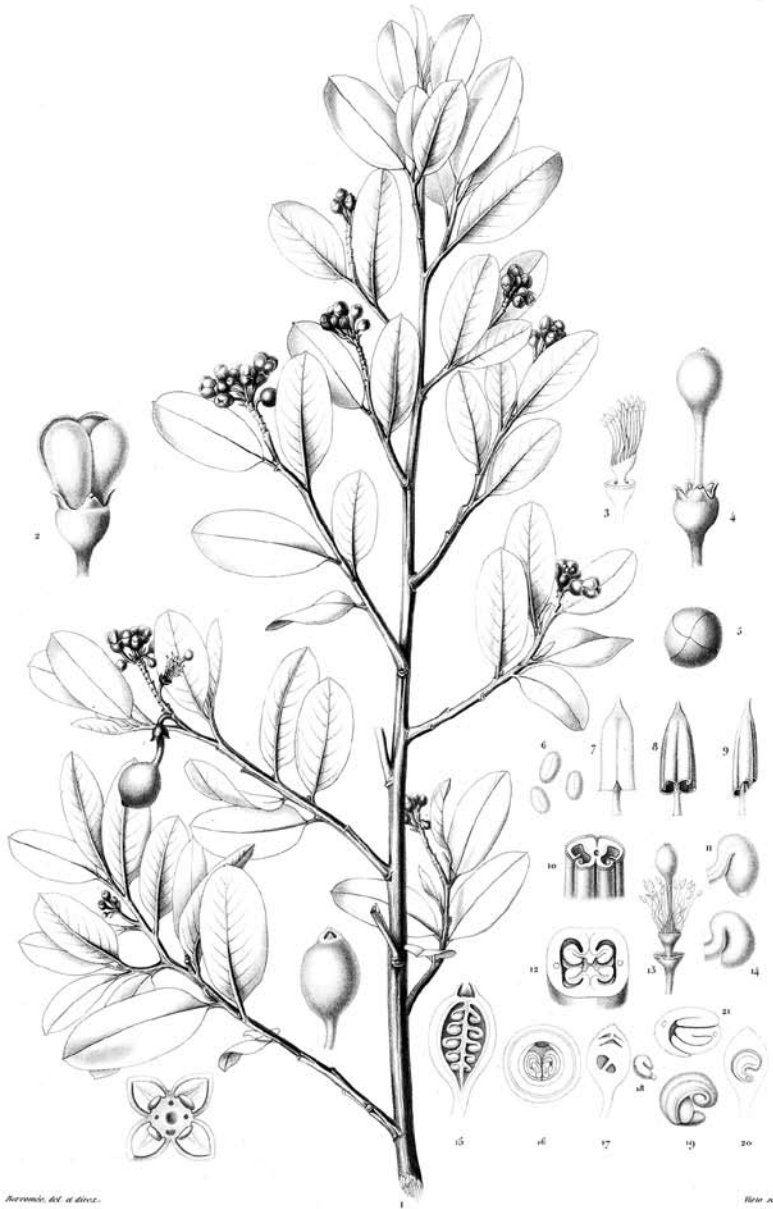
Subsequently, Bentham and Hooker f. (1862: 109) formally established *Beautempzia* as a section of *Capparis*, with a short latin description, citing "Gaud. Voy. Bonite, t. 56," and without citation of any type species. That is the earliest legitimate name that has priority and must be followed in accordance with Arts. 41.2, 45.1, 45.3 of ICBN (McNeill et al. 2006). Three years later Eichler, in Martius' *Flora Brasiliensis* (1865: 267, 269), raised it to *Capparis* subg. *Beautempzia*, citing Bentham & Hook f., "Gaud. Voy. Bonite t. 56," with a Latin diagnosis, and only represented by a single species, *Capparis avicenniifolia*. The respective captions for Gaudichaud's plate 56 were published in French 14 years after the publication of Gaudichaud's Atlas, 12 years after Gaudichaud's death, and after the Bentham and Hooker f. establishment of *Capparis* sect. *Beautempzia*. That work (Gaudichaud 1866) was accomplished with the collaboration of Charles D'Alleizette, who provided explications and descriptions for the plates, validating the generic name and the respective new combination (Gaudichaud 1842). Although Gaudichaud (1842, 1866) did not cite the basionyms, Art. 33.3 of the ICBN support them as valid taxa those published before Jan 1953.

Hutchinson (1967: 307) attempted to realign the taxonomy of the genus *Capparis*, and correctly re-

Voy. de la Bonite.

CAPPARIDÉES.

Pl. 56.



BEAUTEMPESIA AVICENNIIFOLIA . Nob.

*Paris, Atlas Botanique, Editeur
Imprimerie royale.*

FIG. 1. *Beutempesia avicenniifolia* (Kunth) Alleiz. Plate 56 reproduced from Gaudichaud's Atlas (1842). 1. Branch. 2. Flower. 3. Androphore and stamens. 4. Young fruit. 5. Flower bud, adaxial view. 6. Pollen grains. 7-9. Anthers, dorsal, ventral and lateral views. 10. Cross section of anther. 11. Ovules. 12. Cross section of ovary. 13. Pistil and stamens. 14. Ovules. 15. Longitudinal section of ovary. 16. Cross section of fruit. 17. Longitudinal section of young fruit. 18. Seed. 19. Embryo. 20. Longitudinal section of fruit. 21. Longitudinal section of embryo.

garded *Beautempesia* as a valid genus. In this paper, *Beautempesia* is again recognized as a neotropical genus of Capparaceae.

Beautempesia (Benth. & Hook. f.) Gaudich., *Voy. Bonite*, Bot. 4:38. 1866. TYPE: *Capparis avicenniifolia* Kunth. BASIONYM: *Capparis* sect. *Beautempesia* Benth. & Hook. f., *Gen. Pl.* 1:109. 1862. *Capparis* subg. *Beautempesia* (Benth. & Hook. f.) Eichl. in Mart., *Fl. Bras.* 13(1):276. 1865. *Beautempesia* Gaudich., *Voy. Bonite*, Bot. 3 (Atlas), pl. 56. 1842, nom. inval.

Unarmed shrubs or small trees, with stellate trichomes throughout. Leaves simple, spirally arranged, with petioles of similar length, lacking a pulvinus and stipules. Inflorescences terminal short racemes; flowers pedicellate, zygomorphic, linear-bracteate, the bracts soon deciduous, the flowerbuds globose-obovate just preceding anthesis. Calyx with open aestivation, gamosepalous, hemispherical-cyathiform, tetralobulate to slightly tetracrenate or subtruncate. Hypanthium present. Nectary scales 4, deltoid, mostly free, fused at the base, rounded at the apex. Corolla spirally twisted (torsivus), petals 4, unguiculate, sessile. Stamens 16 to 18, the outer provided with short staminal nectaries at base of filaments, the inner with glandular tissue at base of filaments, all perfectly articulated with each other at the base, and forming a nectariferous dish-shaped digitate pseudotorus supported by a common androphore. At anthesis the stamens project outward and arch upward, with the gynophore abaxially strongly off-center. Ovary 2-locular. Fruits small pepos (1–)2–4 × 1–2 cm, containing a sticky orange pulp (in vivo); seeds cochlate-reniform, rounded to bean-shaped, slightly flattened laterally, the testa light brown (in vivo), with a sarcotesta infiltrated by hairs, the cotyledons convolute, the embryo white.

Etymology.—The generic name is formed by the French adjective *beau*, which means beautiful, and the French noun *temps*, which means weather. That refers to the beautiful weather that impressed Gaudichaud during his visit to the coast of Peru where he found this genus.

Beautempesia is characterized by stellate trichomes, gamosepalous hemispherical-cyathiform calyces with very short to highly reduced lobes, presence of staminal nectaries articulated to the base of the filaments, forming a nectariferous dish-shaped digitate pseudotorus, and pepo fruits.

Due to the presence of relatively small zygomorphic flowers with off center gynophores, unguiculate petals, hypanthium, and seeds with white embryo, covered by a sarcotesta, *Beautempesia* resembles *Atamisquea* Miers, another bee-pollinated and xerophytic specialized monotypic genus (Cornejo & Iltis 2008). But the latter mainly differs from *Beautempesia* by the presence of 2-seriate calyces with well developed dimorphic decussate sepals (vs. calyces 1-seriate with small or reduced lobes), ovary at the apex and style sharply acute to subrostrate (vs. ovary at the apex thick, without style and with the stigma capitate, sessile), and the absence (vs. presence) of a dish-shaped pseudotorus.

This is a monospecific genus restricted to the dry coastal woodlands and thorn scrub of Ecuador and deserts in Peru. It is represented by the following species.

Beautempesia avicenniifolia (Kunth) Gaudich. [*avicenniaefolia*], *Voy. Bonite*, Bot. 4:38. 1866. (**Fig. 1**). BASIONYM: *Capparis avicenniifolia* Kunth [*avicennifolia*], *Nov. Gen. Sp.* 5:94. 1821. *Colicodendron avicenniifolium* (Kunth) Seemann [*avicenniaefolium*], Bot. H.M.S. Herald 1:78. 1853. TYPE: PERU: "Crescit in litore arenoso Maris Pacifici, inter Cascas et Trujillo Peruvianorum, Floret Augusto," *Humboldt & Bonpland 3722* (LECTOTYPE, here designated: P; DUPLICATES OF THE LECTOTYPE: B-10 0242517 [WIS photo]).

Capparis ovalifolia Ruiz & Pav. ex DC., *Prodr.* 1:253. 1824. *Capparis ovalifolia* Ruiz & Pav. ex E.A. López, *Ann. Inst. Bot. A.J. Cavanilles* 16:384, fig. 432a. 1958, nom. illegit. TYPE: ECUADOR. PROV. GUAYAS: [Huayaquil], MORTO, 1803, J. Tafalla (=Ruiz) s.n. (LECTOTYPE, here designated: MA).

Specimens examined: **ECUADOR. Manabi:** Bahía de Caráquez, 12 May 1968, *Harling et al.* 9454 (GB, US, WIS); Punta de Jaramijó, ca. 7 m, 5 May 1985, *Harling & Andersson* 24852 (GB, NY, QCA, WIS); Manta, 6 Apr 1955, *Asplund* 15972 (B, LD, NY, S, TEX, Z); vicinity of Manta, 80°41'W, 0°57'S, ca. 5 m, 1 Oct 1985, *Madsen* 61025 (AAU, QCA, QCNE); 14 km SW of Manta on new road to San Lorenzo, 80°47'W 1°01'S, 300 m, 2 Jun 1997, *Neill & Asanza* 10708 (DAV, MO, QCNE, WIS); Via Rocafuerte-Manta, bosque de La Armada, 80°44'W, 0°7'S, 10 m, 24 Nov 1992, *Alvarez* (collected by *Mosquera*) 747 (AAU, MO, QCNE); road Montecristi-Jipijapa, 13 May 1968, *Harling et al.* 9488 (GB, GH, QCA, WIS); 20 km N of Jipijapa, *Pennington & Tenorio* 10696 (K, QCA, QCNE); 6 km SW of Jipijapa on road to Cayo, río seco de Jipijapa drainage, 225 m, 2 Nov 1965, *Anderson* 2501 (RSA, WASH); Machalilla National Park, Playa Los Frailes, 80°44'W, 1°31'S, 125 m, 4 Aug 1990, *Cerón et al.* 11760 (MO, QCNE, WIS); 5 m, 23 Jan 1991, *Gentry & Josse* 72701 (MO, QCNE); km 19, bosque

may seco tropical, ca. 30 m, Aug 1994, *Bonifaz & Cornejo 2447* (GUAY); Isla de La Plata, 81°13'W, 1°16'S, 26–27 Jun 1973, *Holm-Nielsen et al. 7286* (AAU, NY, QCNE); 81°04'W, 1°17'S, ca. 25 m, 5 Feb 1992, *Josse 760* (AAU); 81°06'W, 1°18'S, ca. 35 m, 18 Aug 1993, *Núñez 127* (MO, QCNE); 81°04'W 1°17'S, ca. 60 m, 6 Apr 1991, *Cerón et al. 13986* (QCNE); 81°06'W 0°26'S, 70 m, 21 Nov 1993, *Woodruff & Núñez 580* (NY, QCNE). **Guayas:** Guayaquil, 1841, *Hinds s.n.* (K [in Sinclair Bot. Voy. Sulphur]); Colonche, 2 May 1956, *Asplund 20404* (NY, S, TEX, US); Manglaralto, ca. 5 m, 10 Feb 1966, *Sánchez 10* (GUAY, WIS); between Salinas and Manglaralto, 19 Nov 1952, *Fagerlind & Wibom 208* (LD, MO); Punta Ayangue, 80°46'W 1°57'S, 19 Mar 1941, *Svenson 11343* (BKL); Ayangue, 10 m, 26 Oct 2007, *Cornejo & Grochowski 7998* (GUAY, NY [sample for DNA studies]); a la entrada de Ayangue, entre Palmar y Valdivia, Aug 1980, *Valverde 4826* (GUAY, SEL, MO); small hill at Paoa, 10 km N of San Pablo, ca. 2 km from the shore, 80°45'W, 2°06'S, ca. 50 m, 26 Mar 1973, *Holm-Nielsen et al. 2532* (AAU, MO, NY); Salinas, 80°58'W, 2°13'S, 0 m, 2 Nov 1983, *Barford et al. 48448* (AAU, QCNE, WIS); road Guayaquil-Salinas, km 2–3 W of Progreso, 80°25'W, 2°23'S, 100 m, 4 Feb 1987, *Bohlin et al. 1167* (GB, QCA); km 89–90 from Guayaquil, just E of village of Buenos Aires, 35 m, 17 Jul 1986, *Plowman & Alcorn 14312* (F, QCA, WIS); km 80 W of Guayaquil, 25 Aug 1965, *Játiva & Epling 914* (LA, NY); along highway 17 km W of Progreso (Gómez-Rendón), 12 km E of Zapotal, 80°30'W, 2°22'S, ca. 100 m, 25 Jun 1977, *Iltis & Iltis E-1* (QCA, WIS). ca. 2.5 km SE of Salinas, just S of highway to Santa Elena, 80°57'W, 2°12'S, 2 m, 26 Jun 1977, *Iltis & Iltis E-20* (QCA, WIS); Punta de Santa Elena, 81°W, 2°12'S, 21 Mar 1973, *Holm-Nielsen et al. 2353* (AAU); between Santa Elena and Punta Blanca, 80°50'W, 2°11'S, 22 Mar 1973, *Holm-Nielsen et al. 2402* (AAU); between Santa Elena and Ancón, 80°49'W, 2°13'S, 26 Feb 1941, *Svenson 11171* (BKL, GH, NY, US); 4–6 km S of Santa Elena on road to Ancón, sea level, 18 Feb 1974, *Gentry 10010* (MO, WIS); near Ancón, 25 Aug 1965, *Játiva & Epling 916* (LA); Lado sur de Península Santa Elena, entre Punta Ancón y Atahualpa, 30 m, 19 Feb 1982, *Baslev 2242* (GH, NY, QCA, QCNE); Chanduy, in litore Maris Pacifi, Jun 1862, *Spruce 6402* (BM, CGE, K, LE, OXF, P); 1 km NW of Chanduy towards Atahualpa, 80°41'W, 2°23'S, ca. 5 m, 18 Mar 1973, *Holm-Nielsen et al. 2147* (AAU, NY); Punta Carnero, 0 m, 20 May 1981, *Dodson & Clendenin 10994* (MO, QCNE, SEL, WIS); Pacific coast immediately W of Punta Carnero, 80°55'W, 2°15'S, 17 Mar 1973, *Holm-Nielsen et al. 2000* (AAU, MO, NY, QCNE, WIS); 400 m E of Punta Carnero, 80°55'W, 2°15'S, 17 Mar 1973, *Holm-Nielsen et al. 2052* (AAU, MO, NY, S); Via Playas—Posorja, May 1978, *Valverde 2541* (GUAY, MO, SEL); Ayalán, 80°20'W, 2°40'S, 1 Mar 1990, *Bonifaz 682* (GUAY, WIS); Morro, cercanías, 5 m, 20 Aug 2002, *Cornejo 7585* (AAU, COL, GUAY, MO, QCA, QCNE, US, WIS [sample for DNA studies]); Isla Puná, Puná Nueva to Santa Teresa, 79°57'W, 2°43'S, 0 m, 3 Dec 1987, *Madsen 64140* (AAU, QCA, QCNE, MO); midway between Puná Nueva and Zapote, 79°56'W, 2°44'S, 0 m, 3 Sep 1987, *Madsen 63879* (AAU, K, MO, NY, QCA, QCNE); Zapote to Estero de Lagarto, 79°57'W, 2°43'S, 0 m, 4 Aug 1987, *Madsen 63826* (AAU, GUAY, K, MO, NY, QCA, QCNE); entre Puerto Grande y Puná Nueva, 80°7'W, 2°57'S, 0 m, 8 Jul 1995, *Jaramillo 18175* (QCA); Insula Puna, Oct 1892, *Eggers 14756* (GH, LE, M, US, K); ibidem, *Mille 785* (US). **El Oro:** ca. 1 km N of Huaquillas, 1 May 1980, *Harling & Andersson 18812* (GB, QCA, WIS); Huaquillas, 14 Mar 1955, *Asplund 15743* (S, LD, NY); entre Huaquillas y Arenillas, al lado de la carretera, 15 Apr–15 May 1979, *Albert de Escobar 1262* (QCA, WIS); Isla Santa Clara o del Muerto, 80°28'W, 3°12'S, ca. 30 m, 4 May 1997, *Vargas & Canaday 1444* (MO, NY, QCNE, WIS); Isla Bellavista, 80°13'15"W, 3°24'40"S, 5 m, 19 Mar 1997, *Van den Eynden & Cueva 946* (LOJA, QCA, QCNE). **Loja:** Lucarqui, ca. 79°50'48"W, 4°07'17"S, *Vivar & Merino 3430* (LOJA, QCA, QCNE); road Catacocha-Macará, km 42, 79°50'W, 4°08'S, 800 m, 2 Sep 2000, *Madsen & Sánchez 7169* (NY). **PERU. Tumbes:** Prov. Tumbes, Distr. Tumbes, Bosque Nacional de Tumbes, cerca de El Caucho o entre El Caucho y Pampas del Hospital, 8 Jan 1968, *Simpson & Schunke 600* (NY). **Piura:** Talara, 9 Apr 1929, *Haight 12* (NY); Dept. Paita, Sechura desert between Paita and Piura at turnoff on road to Sechura, ca. 100 m, 1 Jan 1964, *Hutchinson & Wright 3356* (UC, NY). **Lambayeque:** Dept. Lambayeque, near puente Chongoyape, ca. 2 km E of bridge, 450 m, 9 Feb 1988, *Gentry et al. 61379* (MO, NY); entre Hda. Patapoy Chongoyape, 200–300 m, 13 Aug 1952, *Ferreira 8384* (NY); Carretera entre Cayalti y Oyotún, 150 m, 10 Oct 1986, *Díaz 2086* (MO, NY); 28 km of Olmos, 125 m, 9 Jun 1978, *Gentry et al. 22545* (NY). **Cajamarca:** Prov. Contumazá, 700 m, 29 Dec 1983, *Sagástegui & Mostacedo 11355* (NY). **La Libertad:** Prov. Trujillo, alrededores de Simbal, 550 m, 20 Jun 1986, *Mostacero et al. 1117* (F, MO, NY [2]); just N of Paiján along road between Trujillo and San Pedro Lloc, < 500 m, 2 Jan 1983, *Stevens 21985* (MO, NY). **Ica:** without locality, *Ruiz s.n.*, 1788 (B, MA [not seen], MO [ex herb. Pavón]).

Etymology.—The specific epithet refers to the resemblance of the leaf blades of this species with those of the genus *Avicennia* L. (Acanthaceae).

Chromosome number.— $n = 8$, $2n = 16$ [! Pazy, ! Przywara]. Ecuador: Guayas, ca. 2.5 km SE of Salinas, *H.H. Iltis & M. Iltis E-20* (WIS). Ecuador: Guayas, along highway 17 km W of Progreso *H.H. Iltis & M. Iltis E-1* (WIS).

Local names.—ECUADOR. Bichaya (Indigenous?, *Madsen 64140*, 63826); Vichayo (Indigenous?, *Van den Eynden & Cueva 946*). PERU. Guayabito de gentil, Guayabo de gentil (Spanish, *Mostacero et al. 1117*); Vichayo (Indigenous?, *Simpson & Schunke 600*).

Uses.—The fruits at maturity have a sweet pulp, reported as edible (*Svenson 11343*, *Núñez 127*, *Van den Eynden & Cueva 946*; *Van den Eynden et al. 1999*). However, there are also reports that the “leaves and fruits are toxic, produce dizziness and hallucinations” (*Woytkowski 7068*, MO, WIS, in Dpto. Lambayeque, Peru).

Phenology and Ecological interactions.—This species flowers during the day (*Cornejo pers. obs.*). This is an uncommon feature in neotropical Capparaeae, which in the coasts of Ecuador and Peru is also shared

by the sympatric *Capparicordis crotonoides* (Kunth) Iltis & Cornejo. The small flowers with short stamens and gynophores of *Beautempisia avicenniifolia* are pollinated by bees (Madsen et al. 2001; *Madsen* 63879; Cornejo pers. obs.). The fruits are eaten and the seeds dispersed by the Sechura fox, *Lycalopex sechurae* Thomas (Huey 1969), a canid with similar distributional pattern to that of *Beautempisia avicenniifolia*.

Distribution.—Locally dominant along and close to the Pacific coast, from Cabo Pasado in Ecuador southward to Ica south of Lima, Peru, often found in the Ecuadorian coastal dry scrub forests, from sea level to 230 m (to 800 m in the very dry western Andean slopes of Loja), and in the Peruvian deserts, up to 700 m, often forming thickets and thus one of several dune stabilizers, apparently not salt tolerant.

This species has been misreported in Flora of Panama (Woodson et al. 1948) under the name of *Capparis ovalifolia*. However, *Beautempisia avicenniifolia* does not occur in that country. It is most likely that the single specimen cited for Panama (*Barclay s.n.*, “Isthmus of Darien”) was collected on the coast of Ecuador (perhaps by Hinds?, see cited specimen), on the Voyage of H.M.S. Sulphur.

KEY TO THE AMERICAN GENERA OF CAPPARACEAE
WITH VARIOUSLY STELLATE OR PELTATE INDUMENTA

1. Corolla with closed aestivation from buds, stamens not quickly acrescent just before anthesis.
2. Calyx 1-seriate, bialate or spathaceous or 4-valvate with the sepals free or fused and the lobes regular, if irregular then the segments rupturing at or nearly to anthesis into 2 to 4 segments.
3. Calyx at anthesis splitting to the base by 1 or 2 ruptures, finally bialate or spathaceous _____ **Belencita**
3. Calyx at anthesis tubular, subcylindric or funnellform (*Steriphoma* Spreng.) or dish- or/to cup-shaped or hemispherical (the remaining genera), 2–4 sepals, lobes or segments.
4. Calyx tubular, subcylindric or funnellform, usually bright orange to orange-red (alive), the apical lobes 2–4, indistinct at the early bud stage; stamens (5–)6(–8); fruits indehiscent, decomposing at maturity, linear, ± torulose, oblong or cylindric to thickly bacciform _____ **Steriphoma**
4. Calyx dish- or/to cup-shaped or hemispherical, green, yellow or brown (alive), the 4 sepals or calyx lobes often distinct from early bud stage on, or totally fused but irregularly rupturing at anthesis into 2 to 4 segments (*Morisonia* L.); stamens (plus staminodes if any) 6 to 60; fruits globose, oblong to linear, if linear often torulose, capsular, pepos or amphisarca.
5. Sepals entirely fused, irregularly rupturing at anthesis into 2–3(–4) segments; inflorescences cauliflorous and/or ramiflorous; fruits spherical amphisarca with gynophores very thick and several times shorter than fruit body _____ **Morisonia**
5. Sepals or calyx lobes 4, distinct from bud or opening by linear sutures at or nearly to anthesis; inflorescences terminal; fruits globose, oblong to linear, if linear often torulose amphisarca, pseudoamphisarca, pepos or capsular, if amphisarca then with gynophores elongated.
6. Sepals widely spaced, longitudinally arranged on and hiding the petal sutures, exposing the petals and not exceeded by the corolla in buds; corolla with valvate aestivation; cotyledons somewhat folded, 4–7 mm thick _____ **Calanthea**
6. Sepals not widely spaced, entirely hiding the petals in young buds or if exposing the petals in buds, then never arranged on the petal sutures and greatly exceeded by the corolla (*Quadrella* [DC.] J. Presl, *Beautempisia*); corolla with torsivus or imbricate aestivation; cotyledons several times convolute, 0.7–1.5 mm thick.
7. Leaves ovate to ovate-cordate, as wide or wider than long, with (sub) palmate venation at the base of the blade; flowers with yellow petals, 4 to 8 stamens, the nectary appendages 4, linear to linear-triangular, inserted on the inner edge of the calyx cup; fruits dehiscent, with the soft and very flexible fruit-wall splitting and falling apart in 2 to 4 segments at maturity _____ **Capparicordis**
7. Leaves elliptic to obovate or oblong, two to several times longer than wide, with pinnate venation from leaf base; flowers with white to cream or greenish petals, 8 to 60 stamens, the nectary scales 4, triangular or/to deltoid, or 3- to 4-dentate or lobed nectary-dish or nectary-cup present, inserted within the hypanthium (*Colicodendron*, *Beautempisia*) or on a flat receptacle (*Quadrella*); fruits indehiscent or if dehiscent (*Quadrella*) then the fruit-wall coriaceous and remaining attached to the gynophore and placenta at maturity.
8. Calyx dialysepalous, hypanthium absent; fruits capsular, usually linear-torulose to oblong _____ **Quadrella**

8. Calyx gamosepalous, the sepals fused at least at the base, hypanthium present; fruits amphisarca, pseudoamphisarca or pepos.
9. Calyx \pm cup-shaped, with closed aestivation, the sepals developed, their margins and tips touching each other from bud until near anthesis; nectary of a 4-dentate dish or cup or a 3-lobed cup; filaments of the stamens without basal nectaries, therefore the dish-shaped digitate pseudotorus is absent; inflorescences bearing showy flowers pollinated by vertebrates (bats); fruits large amphisarca or pseudoamphisarca _____ **Colicodendron**
9. Calyx hemisphaerical-cyathiform, with open aestivation, the lobes very short to highly reduced, their margins not touching each other from bud; nectary of 4 scales, mostly free; staminal nectaries present at the base of the filaments forming a nectariferous dish-shaped digitate pseudotorus; inflorescences bearing small flowers pollinated by insects (bees); fruits small pepos _____ **Beautempsia**
2. Calyx 2-seriate, the sepals imbricate, partially exposing the inner pair of sepals in buds or the outer pair of sepals 2-valvate, entirely hidden the inner pair of sepals in buds until or nearly to anthesis.
10. Leaf blades developed; style absent, stigma capitate; fruits amphisarca or (indehiscent) pepos, 4–20 \times 4–8 cm, containing 10 to 30 larger seeds; indumenta stellate or/to candelabra throughout.
11. Flower buds ellipsoid to oblong-elliptic and somewhat dorsal-ventrally compressed; flowers asymmetric, petals imbricate in bud, at anthesis adaxially and laterally arranged, and the stamens abaxially arranged; staminodia present; nectary of 3- to 4-dentate nectary cup present _____ **Sarcotoximum**
11. Flower buds spherical to ovate-globose, not compressed; flowers symmetric, petals sinistrorsely-torsivus (spirally twisted) in bud, petals and stamens radially arranged at anthesis; staminodia absent; nectary of 4 scales present.
12. Shrubs to tall trees; inflorescences usually corymbose to racemes, floral bracts present, deciduous from young buds; sepals dimorphic, the outer pair valvate-connate or valvate-adnate, wider and entirely enclosing the narrower and more delicate inner pair of sepals until or nearly to anthesis; fruits amphisarca _____ **Neocalyptrocalyx**
12. Lianas or scandent shrubs; flowers always solitary in leaf axis, ebracteate; sepals \pm equal, imbricate in bud, the outer pair partially overlapping the inner pair, the inner pair exposed from very young bud; fruits pepos _____ **Mesocapparis**
10. Leaf blades reduced; short style present, stigma bilobed, rather undifferentiated; fruits pseudopeponoid (tardily dehiscent), 4–6 \times 4–6 mm, containing 1 to 2 small seeds; indumenta peltate throughout _____ **Atamisquea**
1. Corolla with open aestivation from buds, stamens usually quickly acresent just before anthesis _____ **Gen. nov.**

ACKNOWLEDGMENTS

Thanks are due to the following herbaria for sending their collections as loan or gift for this study: AAU, B, BKL, CGE, DAV, F, GB, GH, GUAY, K, LA, LD, LE, MO, NY, OXF, P, QCA, QCNE, S, SEL, TEX, UC, US, WIS, Z. The authors thank an anonymous reviewer for providing a critical review of the manuscript, to John McNeill, Werner Greuter, John Wiersema and Gandhi Kanchi for their very helpful nomenclatural discussions, to Marie Long, Chris Pierce and Emma Antobam (NYBG Mertz library) for helping in different ways to obtain a scan of Gaudichaud's Plate 56 reproduced in figure 1 of this article, and to Barney Lipscomb for his efficient editorial work.

REFERENCES

- GAUDICHAUD, CH. 1866. Voyage autour du monde exécuté pendant les années 1836 et 1837 sur la corvette La Bonite, commandée par M. Vaillant Capitaine de Vaisseau, Botanique. Paris, Arthus Bertrand.
- BENTHAM, G. AND J.D. HOOKER. 1862. Capparideae. In: Genera Plantarum 1. London. Pp. 103–110.
- CORNEJO, X. AND H.H. ILLIS. 2008. Two new genera of Capparaceae: *Sarcotoximum* and *Mesocapparis* stat. nov., and the reinstatement of *Neocalyptrocalyx*. Harvard Pap. Bot. 13:103–116.
- EICHLER, A.W. 1865. Capparideae. In C.F.P. von Martius, ed., Flora brasiliensis 13(1). München. Pp. 237–292.
- GAUDICHAUD, CH. 1842. Voyage autour du monde sur la corvette La Bonite, Atlas. Paris.
- HUEY, R.B. 1969. Winter diet of the Peruvian desert fox. Ecology 50:1089–1091.

- HUTCHINSON, J. 1967. In: The genera of flowering plants (Angiospermae) Dicotyledones. Vol. 2. Clarendon Press, Oxford. Pp. 303–317
- JOHNSTON, I.M. 1944. Publication dates of Gaudichaud's botany of the Voyage of The Bonite. *J. Arnold Arbor.* 25: 481–487.
- KUNTH, C.S. 1821. Capparideae. In: von Humboldt, F.W.H.A., A.J.A. Bonpland, and C.S. Kunth. *Nova genera et species plantarum* [quarto ed.], 5. Paris. Pp. 82–98.
- MADSEN, J., H. BASLEV, AND R. MIX. 2001. *Flora of Puná Island: plant resources on a neotropical Island.* Aarhus University Press.
- MCNEILL, J., F.R. BARRIE, H.M. BURDET, V. DEMOULIN, D.L. HAWKSWORTH, K. MARHOLD, D.H. NICOLSON, J. PRADO, P.C. SILVA, J.E. SKOG, J.H. WIERSEMA, AND N.J. TURLAND. 2006. International code of botanical nomenclature (Vienna Code). Adopted by the 17th International Botanical Congress Vienna, Austria, July 2005. Gantner Verlag, Ruggell, Liechtenstein.
- VAN DEN EYNDEN, V., E. CUEVA & O. CABRERA. 1999. *Plantas silvestres comestibles del Sur del Ecuador – Wild edible plants of southern Ecuador.* Ediciones Abya-Yala, Quito, Ecuador.
- WOODSON, R.E. 1948. Capparidaceae. In: Woodson, R.E., R.W. Schery, and collaborators, eds. *Flora of Panama*, Part 5. *Ann. Missouri Bot. Gard.* 35: 75–99.