New Species and a New Combination in Mabea (Euphorbiaceae) from South America

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ABSTRACT. Five species of Mabea new to science are proposed and distinguished from their relatives, based to a large extent on characters of pistillate flowers and leaves. All have a limited distribution. Another species is reduced to a subspecies of M. fistulifera.

Mabea Aublet is a neotropical genus of Euphorbiaceae that has its greatest diversity in the Amazon region. It comprises approximately 40 species, some of which are new to science and are described herein. Useful diagnostic characters for the genus are the six-parted calyx of pistillate flowers (other numbers of sepals rarely reported, mostly for single plants), the irregularly but mostly five-parted calyx of staminate flowers, the persistent and dense pubescence of the pistillate flowers and fruits, and the peculiar dendritic type of hairs. Other characters cited in older literature do not cover all species of Mabea (e.g., long pedicels and styles) or are not useful at all.

In distinguishing the species of Mabea, characters of pistillate flowers (e.g., sepals and color of pubescence) and leaves (e.g., venation and glands) are most useful in many cases. Fruits, seeds, and staminate flowers, on the other hand, often are quite uniform. A revision including a more detailed discussion will be published later.

Mabea arenicola Esser, sp. nov. TYPE: Brazil. Amazonas: basin of Rio Negro, road Caman- nus–Uaupés, near Camanauas, 2 Nov. 1971 (fl), G. T. Prance, P. J. M. Maas, P. B. Woolcott, O. P. Monteiro & J. F. Ramos M15993 (holotype, NY; isotypes, F, S, U, W). Figure 1.

Arbor M. speciosa Mueller Argoviensis affinis sed thyrasis non nisi 15–20 mm latis (1–2(–4) florum feminis instructis, stylo 6–10 mm longis, glandibus bractearum flororum masculinorum plerumque distincte elevatis, laminis foliorum glabris differt.

Tree up to 10 m tall, sometimes climbing. Twigs glabrous. Leaf blades elliptical to oblong, (11–)14–19 cm long, (5–)6–8 cm wide, apically acuminate (acumen at least as long as wide, often twice as long as wide), basally obtuse to rounded, indistinctly serrate to entire; secondary veins below the acumen in 14–17(–19) pairs, clearly brochidodromous; glabrous; abaxially glaucous because of cuticular folds, only larger veins excepted; marginal nectar glands 5–20 on each half of blade, 0.35–0.55 mm diam., situated abaxially a little away and separated from the marginal selerenchyma. Petoiles 11–15 mm long, glabrous. Stipules not known. Thyrises yellowish to reddish, mostly compound; staminate part 4–8 cm long, 15–20 mm diam., axis with few short (< 0.1 mm) rarely branched hairs. Glands of bracts of staminate cymes always elevated, mostly by their own length, length of glands 2 mm; cymes 3(–7)–flowered, pedicels 3–5 mm long, free; stamens up to 30 per flower. Pistillate flowers (1–)2(–4); bracts glandless or with glands smaller than those of distal bracts; pedicel 5–8 mm long, in fruit up to 22 mm; sepals glandless, up to 2.5 mm long, not extending beyond ovary, not divided; ovary brownish pubescent; style 6–10 mm, in fruit up to 12 mm long. Fruits 16 mm long; shape unknown. Seeds 9 mm long, 7.5 mm wide, 6.5 mm deep, slightly carunculate.

Mabea arenicola is known from widely separated localities of northwestern Amazonia. It is a species of noninundated, woody vegetation on white sands, i.e., the “caatingas” of the upper Rio Negro. Collected in flower March to May, September, November; in fruit March to May, July, November.

Vernacular names: marima, rebentillo.

Mabea arenicola is most closely related to M. speciosa Mueller Argoviensis. Its type specimens have been distributed as M. caudata Pax & K. Hoffmann, which is a synonym of M. speciosa.

Without flowers Mabea arenicola is hardly distinguishable from M. speciosa. The leaves are always glabrous and thus are different from typical M. speciosa, but fall within the range of variation of that species. Mabea arenicola differs from M. speciosa most remarkably by the discontinuously narrower diameter of the staminate part of the thyrises. Other differences include: the bracteal glands of the staminate cymes are more elevated from

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Figure 1. *Mabea arenicola* Esser. — A. Habit. — B. Pistillate flower. — C. Staminate cymule. — D. Portion of abaxial leaf margin showing glands. (All drawn from the type collection, Prance et al. 15993.)
the inflorescence axis in *M. arenicola* than in *M. speciosa* (hardly elevated only in Liesner 3786); there are fewer pistillate flowers per thyrse in *M. arenicola* than in *M. speciosa*. Whereas many-flowered staminate cymules are rare in *M. speciosa*, they are quite common in *M. arenicola*. This last character occurs in more than half of the specimens of *M. arenicola*, but can vary within one specimen. Furthermore, the number of stamens per staminate flower of *M. arenicola* is smaller than in the case in *M. speciosa* with ca. 40–60 stamens; however, the variability of stamen number has been underestimated in the past and should be used with caution. The apically mucronate to rounded leaves of *M. sub serrulata* Spruce ex Bentham, which are not glaucous abaxially and do not bear leaf glands, distinguish that species from *M. arenicola*.

The distribution of *Mabea arenicola* is discontinuous, judged by the specimens known; it may be limited by the scattered distribution of white sand localities in Amazonia. It is at least partially sympatric with that of *M. speciosa* (e.g., in Colombia), but not of *M. sub serrulata*.

The name of the species refers to the fact that up to now it is only known growing on white sands.

**Paratypes. COLOMBIA. Amazonas: Río Igará–Parana, La Chorrera, menant au amont des rapides, 17 Sep. 1973 (fl), C. Sastre 2241 (COL), VENEZUELA. Territorio Federal Amazonas: 8 km from San Carlos de Rio Negro on road to Solano, 125 m, 19 Sep. 1975 (fl, imm. fr), P. E. Berry 1428 (NY); Dep. Casiquiare, alrededores de Yavita (rio Temi) y cerca de la carretera Yavita–Pimichin hasta el km 5 hacia Pimichin, 125–140 m, 6–19 July 1969 (fl), G. S. Bunting et al. 3834 (U); road from San Fernando de Atahapo to Santa Barbara, 12–40 km from San Fernando, 110 m, 24 Mar. 1974 (fl), A. Gentry & S. Tillet 10871 (HBG); IVIC Study Area, 4 km E of San Carlos de Rio Negro, ca. 20 km S of confluence of Rio Negro and Brazo Casiquiare, 120 m, 23 Nov. 1977 (fl, fr), R. L. Liesner 3786 (DAV, MO), 4 Apr. 1979 (fl), R. L. Liesner 6107 (DAV, MO); 2 km E of San Carlos de Rio Negro, 120 m, 7 Apr. 1979 (imm. fr), R. L. Liesner 6319 (DAV, MO), R. L. Liesner 6358 (DAV, MO); 3–5 km NE of San Carlos de Rio Negro, 120 m, 4 May 1979 (fr), R. L. Liesner 7197 (DAV, MO); Yavita, 128 m, 2 Mar. 1942 (imm. fr), Ll. Williams 14172 (F, G).

*Mabea longibracteata* Esser, sp. nov. TYPE: Venezuela. Territorio Federal Amazonas: Depto. Rio Negro, along Rio Mawarimuna, E of Cerro de la Nebina expedition base camp, 0°50'S, 66°09'W, 140 m, 2 May 1984 (fl), W. W. Thomas 3322 (holotype, DAV 104182).

Figure 2.

*Mabea similars* *M. speciosa* Mueller Argoviensis et *M. occidentalis* Bentham sed laminis foliiorum sparse et perdurantur pubescentibus, axe inflorescentiae dense pila

loso, sepalis florium femineorum longitudinem duplicum ovariae adaequantibus saepe dimidio fissis, bracteis cymularum masculinarum 5–8 mm longis glandibus suis plus quam duplo longioribus.

Tree up to 12 m tall. Young twigs with dense, short pubescence. Leaf blades elliptic, (13–)17–25 cm long, 5.5–10.0 cm wide, apically acuminate (acumen at least twice as long as wide), basally obtuse to rounded, margin hardly serrate; secondary veins below the acumen in 17–23 pairs, distinctly brochidodromous; abaxially clearly and persistently but scattered pubescent, especially near midvein; glaucous only on intercostal fields, not on veins; 0–6 marginal glands on each half of blade, 0.1–0.3 mm diam., situated abaxially on the margin. Petioles (5)–17–10 mm long, pubescent. Stipules 20–25 mm long. Thyrses pale to greenish, not branched; stamine part 13–16 cm long, 3.5–5.0 cm wide, axis with dense indumentum of fairly long (up to 0.25–0.4 mm), branched, sometimes also shortly papillate hairs. Bracts of staminate cymes 5–8 mm long, more than twice exceeding the bracteal glands, length of glands 2 mm, 0–1 mm removed from axis of thyrs; cymes three-flowered, pedicels 15–22 mm long, free; stamens ca. 40–60 per flower. Pistillate flowers 3–6; bracts glandless, rarely with glands similar to those of distal bracts; pedicel 14–23 mm, in fruit up to 24 mm long; sepals glandless, (3–)4–6 mm long, 2–3 mm wide, twice as long as ovary, often bifid apically; ovary brownish pubescent; style 15–25 mm long. Fruits 15–18 mm long, shape unknown. Seeds hardly carunculate, 10–12 mm long, 7.5–8.5 mm wide, 6–7 mm deep.

*Mabea longibracteata* is an endemic of the vicinity of Cerro de la Nebina. It grows in lowland rainforests on riverbanks and in swamps of clear and white water. Collected in flower May, December; in fruit July, December to February.

The type specimen of *Mabea longibracteata* has been distributed as *M. saramaccensis* Croizat.

*Mabea longibracteata* is most closely related to *M. occidentalis* Bentham and *M. speciosa* Mueller Argoviensis, both of which occur allopatrically in nonimundated primary rainforests of large parts of South and Central America. It differs from both species in the larger bracts of the staminate cymes, which surmount their glands by more than 2 mm, and in its sepal and stipule lengths, which are longer than is the case with its relatives. Correlated with this, the sepals of the female flowers often are a little bifid. Another difference is the persistent but only scattered indumentum of the leaves, which makes this new species distinguishable even without flowers. *Mabea occidentalis* always has glabrous...
Figure 2. *Mabea longibracteata* Esser. — A. Inflorescence habit. — B. Pistillate flower. — C. Staminate cymule. — D. Leaves. — E. Stipule. — F. Portion of abaxial leaf margin showing glands. (A, D drawn from the type collection Thomas 3322; B, C, E, F from Gentry & Stein 47219.)
leaves, and *M. speciosa* bears a much denser pubescence if it is not completely glabrous.

Conspicuously long bracts, after which the species is named, are found only in species not closely related such as *Mabea klugii* Steyermark and *M. macrocalyx* Esser, which differ by much shorter styles and eucamptodromous leaf venation.

**Paratypes.** BRAZIL. Amazonas: Rios Negro, Cauburi, Maturacá, Serra da Nebélina, between Misión Saliesiana and Serra Piraqüí, 800–1,000 m, 23 Jan. 1986 (fr), N. T. Silva & U. Brazao NY 60861 (NY); VENEZUELA. Territorio Federal Amazonas: vicinity of Nebélina Base Camp along Río Mawarinuma, along whitewater stream E of camp, 140 m, 4 Dec. 1984 (imm. fr), T. B. Croat 59606 (HBG, MO); Depto. Río Negro, upper Río Baria, 66°17–22°W, 1°01–0°51°N, 100 m, 20 July 1984 (fr), G. Davidez 27544 (HBG); swamp between Río Mawarinuma and headwaters of Río Baria, 66°15’W, 0°52’N, 140 m, 7 May 1984 (fl), A. Gentry & B. Stein 47219 (HBG); Depto. Río Negro, along stream to 0–2 km E of Cerro de la Nebélina Base Camp, which is on Río Mawarinuma, 140 m, 22 Feb. 1984 (fr), R. L. Lienesz 16181 (DAV, HBG); 1.5 km E of Cerro de la Nebélina base camp, 0–3 km S of main river, 140 m, 2–3 Dec. 1984 (fl), R. L. Lienesz 17423 (HBG); Cerro Nulita y el caserío San Camilo (El Nula), 1.5 km al N de San Camilo, oeste de la carretera, 280 m, 3 Apr. 1968 (fl, fr), J. A. Steyermark, G. Bunting & C. Blanco 101594 (holotype, NY; isotypes, DAV—2 sheets, NY, U, US). Figure 3.

*Mabea macrocalyx* Esser, sp. nov. TYPE: Venezuela. Apure: Reserva Forestal San Camilo, al suroeste del caserío San Camilo (El Nula), a lo largo de la Quebrada La Azulita, 280 m, 30 Mar. 1968 (fl, fr), J. A. Steyermark, G. Bunting & C. Blanco 101594 (holotype, NY; isotypes, DAV—2 sheets, NY, U, US).

*Mabea* laminis foliorum oblongo-ellipticos glabris non farinosis, sepals florum femineorum magnis foliaceis pinнатinerviis partialiter pilosis glabrescentibus, fructibus 25–40 mm longis, cetera *M. klugii* Steyermark similis.

Tree up to 15 m. Young twigs with yellowish brown pubescence. Leaf blades elliptical to oblone, 13–21 cm long, 5.0–8.5 cm wide, apically acuminate (acumen less than twice as long as wide), basally obtuse to subcordate, hardly serrate; secondary veins below the acumen in 12–16 (19) pairs, eucamptodromous; glabrous; abaxially not glaucous; marginal glands 15–45 on each half of blade, 0.2–0.3(-0.5) mm diam., situated abaxially and not directly on the margin. Petioles 9–15 mm long, glabrous. Stipules ±10 mm long. Thyrses not branched, stamineate part 11–15 cm long, 3 cm diam., axis with dense indumentum of shortly papillate and longer (0.15–0.2 mm) branched hairs. Bracts of stamineate cymules with mostly sessile and seldom basally elevated glands, length of glands 2 mm; cymules three-flowered, pedicels 12–14 mm long, free; stamens 25–40 per flower. Pistillate flowers 2–3; bracts with or without glands; pedicel 17–20 mm, in fruit up to 35 mm long; sepals leaflike, at anthesis 9–17 mm long, 3–8 mm wide, undivided, totally veiling the ovary, with conspicuous venation, pubescent only near base and on veins, glabrescent, sometimes with numerous minute marginal glands; ovary with lanate indumentum; style 10 mm, in fruit up to 22 mm long. Fruits 25–40 mm long, deeply sulcate, with lanate indumentum. Seeds 9–11 mm long, 6–9 mm wide, 7 mm deep, with large caruncle.

*Mabea macrocalyx* occurs in the Venezuelan part of the Andes, the Cordillera da Mérida. It grows in primary evergreen rainforests of 180–1,600 m altitude, often on sandy soils. Collected in flower February to April, June, July, September, October; in fruit February to May, July, September to November; sterile February.

**Vernacular names:** fruto de guacharaca, rabo de mula.

*Mabea macrocalyx* is easily recognized because of the large leaflike calyx lobes of its pistillate flowers and fruits. Remarkable are the size of these sepals, their conspicuous pinnate venation, their pubescence only near base and veins, and their glands, which resemble the marginal glands of leaf blades, but may be lacking. All these characters are unknown in any other species of *Mabea*. In most other morphological characters and in ecology it resembles *M. klugii* Steyermark and *M. elata* Steyermark. These two are probably the most closely related species and occur allopatrically: *M. klugii* from Costa Rica and Colombia southwards to Bolivia, *M. elata* in Ecuador and neighboring regions. Besides lacking the extraordinary sepals, they both differ by distinctly pubescent leaf blades with more conspicuous marginal serrulation and well-developed cuticular folds on their abaxial surfaces. The fruits of *M. klugii* are smaller (16–19 mm long) than those of *M. macrocalyx* and hardly sulcate; those of *M. elata* are unknown up to now. The bark of *M. macrocalyx* shows more conspicuous lenticels than observed in the other species.

**Paratypes.** VENEZUELA. Apure: Distr. Páez, Selva de Cutuñí, between Cuatufi on the Río Cutuñí and the Río Sanare, 300–350 m, 8–12 Nov. 1982 (fr), G. Davidez & A. C. González 21961 (MO); Reserva Forestal San Camilo, Cerro Nulita, a lo largo meridional del Río Nulita, 4½–5 km al N del caserío San Camilo (El Nula), oeste de la carretera, 280 m, 3 Apr. 1968 (fr), J. A. Steyermark et al. 101770 (DAV, NY, U); Cerro Nulita, entre el Río Nulita y el caserío San Camilo (El Nula), 1,5 km al N de San Camilo, oeste de la carretera, en las filas y faldas...
Figure 3. *Mabea macrocalyx* Esser. — A. Habit. — B. Pistillate flower. — C. Staminate cymule. — D. Portion of abaxial leaf margin showing glands. (All drawn from the type collection, Steyermark et al. 101594.)
Mabea ovata Esser, sp. nov. TYPE: Brazil. Pará: Rio Jari, Monte Dourado, Planalto A, 5 Oct. 1968 (fl), N. T. Silva 1120 (holotype, IAN 127497; isotypes, NY — 2 sheets). Figure 4.

Mabea ovata is a species of terra-firme primary forests, known only from one locality in northeastern Amazonia. Collected in flower March, August, and October.

Vernacular name: taquirarana.

Mabea ovata is characterized by the sepal characteristics of pistillate flowers and some characters of the leaves. The sepals are unusually long and comparatively narrow and, in contrast to many other species, very often divided their entire length so that they simulate a larger number than six. They are only comparable to those of M. elegans Rusby (= M. prancei Emmerich, syn. nov.) and M. uleana Pax & K. Hoffmann, both of which grow on riverbanks and white sand areas of central Amazonia. These two species differ especially by their much narrower thyrses (diameter less than 2 cm) and characters of their leaves.

The leaves of Mabea ovata can be recognized by their shape, which may be elliptic but often is a little ovate, a shape quite unusual within Mabea. Therefore, the species is named for this character. Moreover, the leaf margins are unusual. Not only are the margins entire but the marginal glands are not abaxial ones as they are in nearly all other species. They are placed totally on the marginal sclerenchyma, if they are present at all. The secondary venation of M. ovata is more or less brochidodromous, sometimes intermediary to eucauc-
Figure 4. *Mabea ovata* Esser. — A. Habit. — B. Pistillate flower. — C. Staminate cymule. — D. Portion of abaxial leaf margin showing glands. (A–C drawn from Kubitzki 87-4; D from the type collection, Silva 1120.)
todromous; in other Mabea the two character states are clearly separate.

**Paratypes.** BRAZIL. Para: Monte Dourado, Waldrand der Reserva “Agua azul,” 27 Mar. 1987 (fl), K. Kubitzki 87-4 (HBG); Rio Jari, Planalto de Monte Dourado, 27 Aug. 1968 (fl), E. de Oliveira 4799 (NY).

**Mabea salicoides** Esser, sp. nov. TYPE: Brazil. Amazonas: Estrada Manaus–Itacoatiara km 133, 11 July 1974 (fl), W. Rodrigues & A. Loureiro 9489 (holotype, RB 222095; wood specimen, INPA Xil 5875 not seen). Figure 5.

*Mabea* laminis foliorum 11–17 cm longis 5 cm latris integris parce farinosis nervatura quasi brochidodroma glandulis paucis fere latrorsis, thyrsos usque ad 8 mm diametro tripliciter ramosi ovarii ferruginei pubescentibus et glandulis bractearum cymularum mascularum sessilibus, numero staminum uniuscujusque floris 15 non superante, cetera *M. piriri* Aublet affinis.

Tree, 10 m tall, 18 cm DBH. Young twigs shortly tomentose, otherwise glabrous. Leaf blades elliptic, 11–17 cm long, 5 cm wide, apically acuminate (acumen one to two times as long as wide), basally acute to obtuse, margin entire; secondary veins below the acumen in (7–)9–11 pairs, brochidodromous; adaxially nearly glabrous, abaxially shortly tomentose, rarely totally glabrescent; cuticular folds indistinct to absent; marginal glands 0–3 on each half of blade, up to 0.3 mm diam., situated on marginal sclerenchyma. Petioles 10–12 mm long, glabrous. Stipules not known. Thyrses yellowish, compound with at least three orders of branches; staminate part 4 cm long, 6–8 mm diam., axis with distinct indumentum of hardly branched, 0.1–0.15 mm-long hairs. Glands of bracts of staminate cymes touching the inflorescence axis, length of glands 0.5–1.0 mm; cymes three-flowered, pedicels 1.5–3 mm long, free; (2–)5–15 stamens per flower. Pistillate flowers 0–2; bracts glandless; pedicel 5–9 mm, in fruit up to 25 mm long; sepal glandless, up to 2 mm long, not extending beyond ovary, not divided; ovary brownish pubescent; style 4 mm long. Fruits 15–16 mm long, shape unknown. Seeds 10 mm long, 9 mm wide, 8 mm deep, without caruncle.

This species grows in terra-firme high forest near Manaus in central Amazonia, locally frequent, on soils with fine texture. Collected in flower July, September.

**Vernacular name:** taquari.

*Mabea* piriri Aublet (= *M. maynensis* Mueller Argoviensis) exhibits a considerable amount of variation in the diameter of the inflorescences, ranging from 2 to 4 cm. This new taxon, with a diameter of 6–8 mm, however, cannot be included within the concept of *M. piriri*. Furthermore, the bracteal glands of *M. salicoides* touch the axis on the entire length of the staminate part of the thyrses, a character state not observed in *M. piriri*. Correlated with the minute thyrses is the small number of stamens per flower, but this is a fallible character for *Mabea* at the species level. Characters of fruits and leaves do not differ significantly from those of *M. piriri*, although the pubescence, the wide loops of the secondary veins, i.e., the large distance of the consecutive secondary veins and the small number of them, would be unusual for *M. piriri*.

The other species of *Mabea* with very small thyrses (e.g., *M. pohliana* (Bentham) Mueller Argoviensis) exhibit leaves with clearly different indumentum, marginal glands and in most cases, moreover, with eucampodromous, not brochidodromous, secondary leaf venation.

The thyrses of this new species are reminiscent of catkins of genera like *Salix* L.; it is named for this resemblance.

Surprisingly, a plant collected in French Guiana resembles the cited specimens quite closely: GUYANE FRANÇAISE: Saïl, Monts La Frontière, 53°12’W, 3°37’S, alt. 200–400 m, 30 Oct. 1982 (fl), S. Mori & Boom 15146 (HBG); same tree, 9 Apr. 1983 (fr), S. Mori & J. Pipoly 15556 (HBG). This tree differs from the ones from Brazil in greater height (20 m), abaxially clearly farinose leaves with 12–13 secondary veins and 10–18 abaxial glands on each half, and in thyrses with completely glandless bracts. Therefore, it only partially agrees with the diagnosis given for *M. salicoides*. In characters of pubescence, fruits, pistillate and staminate flowers it covers this species very well. Unusually glandless bracts are known from, e.g., *M. taquari* Aublet; the other mentioned differences do not seem to justify separation. The two specimens, therefore, represent *M. salicoides*.

**Paratypes.** BRAZIL. Amazonas: Estrada Manaus–Itacoatiara, km 106, 14 Sep. 1965 (fl, imm. fr), W. Rodrigues & A. Loureiro 7161 (INPA); BR-174, km 64, depois 27 km leste no ZF-3 na Fazenda Esteio, Reserva 1301 do Projeto Dinamica Biológica de Fragmentos Florestais, 8 Jan. 1986 (fr), D. D. Ackerly 121 (NY).

**Mabea fistulifera** C. Martius subsp. *bahiensis* (Emmerich) Esser, stat. nov. Basionym: *Mabea bahiensis* Emmerich, Bradea 5: 289, 1989, fig. 2. TYPE: Brazil. Bahia: Espiçao Mestre, 34 km W of Barreiras, 710 m, 2 Mar. 1972 (fl), W. R. Anderson, M. Stieber & J. H. Kirkbridge, Jr. NY 36449 (holotype, R not seen; isotypes, AAU, NY, US).
Figure 5. *Mabea salicoides* Esser. — A. Habit. — B. Pistillate flower. — C. Staminate cymule. — D. Portion of abaxial leaf margin showing glands. (A, D drawn from the type collection Rodrigues & Loureiro 9489; B, C from Rodrigues & Loureiro 7161.)
This taxon should not be accepted as a separate species. It is distributed allopatrically to the typical *Mabea fistulifera* and differs only by the indumentum on the entire abaxial leaf surface and by the nearly crenate, hardly serrate margin of the blades with somewhat larger space between the teeth. Reproductive characters do not differ in any significant way. Because the indumentum of *M. fistulifera* occurs constantly and characteristically only on the median part of the leaf blades, these differing plants should be admitted as separate on the subspecific level.

Additional specimens examined. BRAZIL. Bahia: Espigão Mestre, ca. 100 km WSW of Barreiras, 750–800 m, 8 Mar. 1972 (fl), W. R. Anderson et al. NY 36830 (F, NY); valley of the Rio das Ondas, slopes of Espigão Mestre, ca. 25 km W of Barreiras, 600 m, 3 Mar. 1971 (fl), H. S. Irwin et al. NY 31359 (AAU, DAV, K, NY); Mun. Barreiras, estrada Belém–Brasília, BR 020, 40 km de Barreiras, 45°17'W, 12°05'S, 26 Mar. 1984 (fl), M. L. Moreira & E. F. Almeida 11 (RB); São Desidério, margem da BR 020, prox. à divisa Bahia–Goiás, 20 Mar. 1981 (fl), G. C. P. Pinto 237/61 (RB); Mun. Barreiras, 45°09'W, 12°07'S, 1,140 m, 22 May 1984 (fl), S. B. da Silva & R. A. Viega 354 (RB).

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