

TAXONOMIC STUDIES IN THE MICONIEAE
(MELASTOMATACEAE). VIII. A REVISION OF THE SPECIES
OF THE *MICONIA DESPORTESII* COMPLEX ON HISPANIOLA

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ABSTRACT. The Hispaniolan species of *Miconia* section *Cremanium* with setose-serrate leaves (i.e., the *M. desportesii* complex) include *M. desportesii*, *M. tetrastoma*, *M. monciana*, and *M. sphagnicola*. Species descriptions, nomenclatural information, specimen citations, and eco-geographical characterizations for these species are presented, along with an identification key. These species occur from 800 to 2400 m elevation in moist montane forests, moist forests on limestone, cloud forests, and moist forests of *Pinus occidentalis*. All are endemic to Hispaniola and restricted in distribution except for *M. tetrastoma*, which is more widespread and also occurs in Cuba.

Key Words: *Miconia*, Melastomataceae, Hispaniola, endemics

Fieldwork conducted in Haiti and the Dominican Republic and a survey of herbarium material in connection with an investigation of the systematics of *Miconia* section *Chaenopleura* (DC.) Triana (Melastomataceae: Miconieae) have yielded numerous specimens of *Miconia* Ruiz & Pav. that belong to other sections of this large and diverse genus. These were carefully studied in connection with an investigation of generic and sectional limits within Miconieae (Judd and Skee 1991), and especially were used to clarify the monophyly of the Antillean species of section *Chaenopleura* (Judd, in prep.). The six Hispaniolan species of *Miconia* section *Cremanium* (D. Don) Naudin are united by androecial characters, and all but two are endemic to this island. It is, therefore, convenient to present here a taxonomic revision of a phenetically similar (and likely closely related) group of four species: the *M. desportesii* complex.

Miconia section *Cremanium* often has been confused with section *Chaenopleura* (Gleason 1958; Judd and Skee 1991), but the two groups are easily distinguished, at least in the Antilles. Species of *Miconia* section *Cremanium* have anthers that open by a gaping apical pore that sometimes is extended, forming a short to elongate, broadly to narrowly V-shaped longitudinal slit, with the septum between the anther sacs clearly visible and usually protruding; the anthers also often have bilobed

basal appendages. In contrast, the anthers of species of section *Chaenopleura* are more strongly obovate and open by two longitudinal slit-like pores (Cogniaux 1891; Judd 1994; Judd and Beaman 1988; Judd and Karpook 1993; Judd and Skean 1987, 1991, 1994a, b; Judd et al. 1988, 1995; Liogier 2000; Wurdack 1973, 1980). In both groups the stamens are the same color as the petals (frequently white) and are arranged radially (i.e., the androecium is actinomorphic). It is likely that some South American species of section *Chaenopleura* [e.g., *M. campii* Wurdack, *M. chionophila* Naudin, *M. bullata* (Turcz.) Triana, *M. latifolia* (D. Don) Naudin, *M. salicifolia* (Bonpl. ex Naudin) Naudin, and *M. cernua* Naudin; see also Gleason 1958; Judd and Skean 1991] are taxonomically misplaced; these have the anthers opening by gaping apical pores that are characteristic of section *Cremanium*. More study of sectional delimitations within *Miconia* certainly is needed. However, the distinctions in anther morphology outlined above consistently distinguish the species treated here from those of section *Chaenopleura*, which at least in the Greater Antilles is a large and diverse group and likely constitutes a clade (Judd, in prep.) based on both morphological and molecular data.

SECTION *CREMANIUM* ON HISPANIOLA, WITH EMPHASIS ON
THE *MICONIA DESPORTESII* COMPLEX

Although the monophyly of section *Cremanium*, as currently circumscribed, is unclear, most of the species with enlarged to gaping anther pores that occur on Hispaniola do appear to be closely related. Four of the species of section *Cremanium*, here called the *Miconia desportesii* complex, share the following conditions: 1) usually narrowly paniculate to racemose inflorescences, 2) leaves setose-serrate, 3) indumentum of abaxial surface of the lamina of only minute globular hairs, the variably stellate hairs restricted to major veins, and 4) twigs with two opposing faces slightly concave, and these positioned above the point of petiole attachment at adjacent proximal node. These species are *M. desportesii*, *M. tetrastoma*, *M. monciona*, and *M. sphagnicola*. In addition, all but one of these species have distinctive seeds with a roughened seed coat, the outer layer of which is composed of isodiametric, bulging cells. *Miconia desportesii* has seeds with a smooth testa.

Within this group, *Miconia sphagnicola* and *M. monciona* may be sister species; both share the putative apomorphic characters of very small leaves (i.e., 4–25 × 2–9.5 mm) and a low to prostrate habit (i.e., shrubs not over 1 m tall). *Miconia sphagnicola* is especially distinctive because of its large, somewhat ellipsoid, red fruits. The mature fruits of

M. tetrastoma and *M. desportesii* are smaller, more or less globose, and blue or blue-black. Unfortunately, mature fruits have not been collected in *M. monciona* (although the immature fruits clearly are globose). *Miconia desportesii* may be most closely related to *M. monciona* and *M. sphagnicola*. *Miconia desportesii*, *M. sphagnicola*, and *M. monciona* have fairly narrow inflorescences with 0–4 major branch pairs, with the proximal segment of the lowermost branches (when present) 2.5–17 mm long, the flowers in 3- to 5-flowered glomerules, and each anther opening by a single large pore, often extending into a short notch or V-shaped longitudinal slit, with the septum between the anther sacs clearly visible, dividing the opening in half. Their narrowly paniculate to racemose inflorescences and glomerulate flowers may be synapomorphic.

Miconia tetrastoma, on the other hand, is very distinctive, because its stems have elongate-branched, irregularly stellate, dendritic, to globular-stellate hairs that are roughened-granular (due to bulging, papillae-like, and thin-walled cells) and often disintegrating. The stellate hairs of *M. desportesii*, *M. monciona*, and *M. sphagnicola* are more or less smooth (i.e., lack these thin-walled, bulging cells). *Miconia tetrastoma* also differs in the structure of the anther pore, resulting in a pore with four (instead of two) openings, as reflected in its specific epithet. The flowers in this species are in dichasia and are well separated from each other. It is of interest that pouch-like mite-domatia have evolved, probably independently, in *M. desportesii* (where they are always present) and in *M. tetrastoma* (where they are of variable occurrence).

In contrast to the species discussed above, a poorly known species from the Massif de la Hotte, Haiti, which should be placed in section *Cremanium* (based on its anthers, which have a large apical pore, with an evident, but not protruding septum), lacks the features outlined above for the *M. desportesii* complex (see also key). This species, known in the literature as *Ossaea alloeotricha* Urb., is not considered further here. It is the subject of a separate study in which it is provided with a detailed description and transferred to *Miconia*, along with a more detailed consideration of its relationships (Judd et al., 2004).

A final species of section *Cremanium* on Hispaniola is the distinctive *Miconia tetrandra* (Sw.) D. Don ex G. Don. It is widely distributed on Hispaniola and grows throughout the Greater and Lesser Antilles (Cogniaux 1891). This species is phenetically divergent from members of the *M. desportesii* complex, especially in its larger and entire-margined leaves, indumentum of flattened-stellate hairs, and flowers with only four stamens (see key). The presumed Hispaniolan endemic, *M. abeggii* Urb. & Ekman [Ark. Bot. 22A (17): 35. 1929; based on a single

gathering: HAITI. Massif du Nord, Port Margot, Morne Maleuvre, 800–1000 m, 8 Dec 1924, *E. L. Ekman H21709* (s!)], is not distinguishable from *M. tetrandra*. It merely represents a vigorous sterile shoot, and is not separable in any feature from some vigorously growing plants of *M. tetrandra*. Leaf size in this widespread and common species ranges from 7–28 cm in length and 1.7–12 cm in width.

For convenience, *Miconia tetrandra* and *Ossaea alloeotricha* are included in the key, which thus includes all Hispaniolan members of *Miconia* section *Cremanium*. However, these species are not formally included in this taxonomic treatment as they are likely not closely related to the members of the *M. desportesii* complex.

A brief taxonomic review of the Hispaniolan species of *Miconia* section *Cremanium* with setose-serrate leaves (i.e., the *M. desportesii* complex) is provided below. The morphological variation evident within and between each is presented (see descriptions and key) along with a summary of their geographical ranges and habitat preferences.

MEASUREMENTS, TERMINOLOGY, AND COMMON CHARACTERS

All measurements (except plant height and flower and fruit color, which were taken from information given on specimen labels or observed in the field, and floral and fruit measurements, which were taken from liquid-preserved or rehydrated material) included in the key and descriptions of species come directly from dried herbarium material. Inflorescence length was measured from the terminal flower to the point at which the first branch-pair emerges from the axis, and the peduncle is defined as the internode separating the cyme from uppermost leaf pair. The prominent veins running in convergent arches toward the leaf apex are termed secondary veins since it is clear that they branch from the midvein.

All species of the complex have opposite and decussate leaves, although they often appear to be distichous in *Miconia sphagnicola*. The petals are white, glabrous, imbricate, and apically interlocking in bud, with the apex rounded, emarginate, with an asymmetrically located notch, and the margin entire. The stamens are white and glabrous. The style is straight, terete, glabrous, and slightly sunken into apex of ovary; placentation is axile.

KEY TO THE SPECIES OF *MICONIA* SECTION *CREMANIUM* ON HISPANIOLA

1. Leaf margin entire; hairs of abaxial surface flattened-stellate; stamens 4, equaling the number of petals; leaf lamina 7–28 cm long *M. tetrandra*

1. Leaf margin serrulate or setose-serrate/serrulate; hairs of abaxial leaf surface dendritic to elongate-branched, globular-stellate or obscurely stellate, sometimes roughened (due to minute, papillae-like cells), along with minute globular hairs; stamens 8 or 10, twice the number of petals; leaf lamina 0.4–14.5 cm long (2)
2. Adaxial leaf surface with several rows of conical projections (at apices of bullations); indumentum of abaxial leaf surface with thick-stalked, irregularly dendritic to elongate-branched hairs, along with smaller globular-branched hairs and minute globular hairs; leaf margin serrulate, the teeth to 0.4 mm long, each lacking a terminal seta; young twigs quadrangular to terete; flowers 4-merous with ovary 2-loculate; proximal portion of filaments 1.1–1.4 mm long *Ossaea alloetricha*
2. Adaxial leaf surface lacking conical projections (although it may be \pm bullate); indumentum of abaxial leaf surface with minute globular hairs, with thin-stalked, irregularly to globular-globular stellate hairs and minute globular hairs on major veins (or in *M. tetrastoma*, of minute globular hairs, with thin-stalked, roughened and often disintegrating, \pm obscurely stellate to dendritic hairs on midvein and secondary veins); leaf margin clearly setose-serrate, the teeth to 0.6–0.97 mm long, each terminated by a hair-like seta; young twigs with two opposing sides slightly concave; flowers 5-merous with ovary 3-loculate (but in *M. sphagnicola*, 4- or 5-merous, with ovary 2- or 3-loculate); proximal portion of filaments 1.25–2.7 mm long (3) *M. desportesii* complex
3. Stems with elongate-branched, irregularly stellate, dendritic, to globular-stellate hairs, these rough-granular (due to bulging, papillae-like, thin-walled cells) and often disintegrating, and with minute globular hairs; inflorescences with 3–8 major branch pairs, with proximal segment of lowermost branches 4–30 mm long, the flowers in dichasia, clearly separated; anther opening by a single large pore, with the septum between the anther sacs extending beyond the pore apex, dividing into four smaller pores *M. tetrastoma*
3. Stems with irregularly stellate to globular-stellate and elongate-branched hairs (the latter only at the nodes),

these lacking bulging, thin-walled cells, and with minute globular hairs; inflorescences with 0–4 major branch pairs, with proximal segment of lowermost branches (when present) 2.5–17 mm long, the flowers in 3- to 5-flowered glomerules; anther opening by a single large pore, often extending into a short notch or V-shaped longitudinal slit, with the septum between the anther sacs clearly visible, dividing the opening in half . . . (4)

4. Leaves with pouch-like domatia on abaxial surface at junction of major secondary veins with the midvein; erect shrub 4 m tall; leaf base narrowly to widely decurrent; petals 1.3–1.9 × 0.8–1 mm; berry blue-black, 2–3 mm long; testa smooth

. *M. desportesii*

4. Leaves lacking pouch-like domatia; ± erect to prostrate shrub to 1 m tall; leaf base acute to rounded; petals 1.7–3.6 × 1.2–2.2 mm; berry red, 5.6–8.4 mm long (in *M. sphagnicola*, but mature fruits not reported in *M. monciana*, in which they may reach 3.5 mm); testa roughened, with individual cells bulging (5)

5. Leaves 4–13.3 × 2–5.75 mm, with one pair of secondary veins; petiole 0.6–2 mm long; low, often prostrate shrub, to 0.4 (–1) m tall, usually rooting along branches; flowers 4- or 5-merous; ovary 2- or 3-loculate *M. sphagnicola*

5. Leaves 10–25 × 4.6–9.5 mm, with two pairs of secondary veins (one of these inconspicuous); petiole 1.3–5 mm long; shrub to 1 m tall, not rooting along branches; flowers 5-merous; ovary 3-loculate *M. monciana*

TAXONOMIC TREATMENT

1. *Miconia desportesii* Urb., Symb. Antill. 8: 496. 1921. TYPE: DOMINICAN REPUBLIC. Prov. Barahona: inter brachia rivulorum Cañada maluca, 1600 m, Apr 1912 (fl), *Padre M. Fuertes 1491* (HOLOTYPE: B, presumably destroyed; ISOTYPE: NY!, here designated as a lectotype). Figure 1.

Shrub to 4 m tall. Indumentum of multicellular, ferruginous, irregularly stellate to globular-stellate, and minute globular hairs. Young

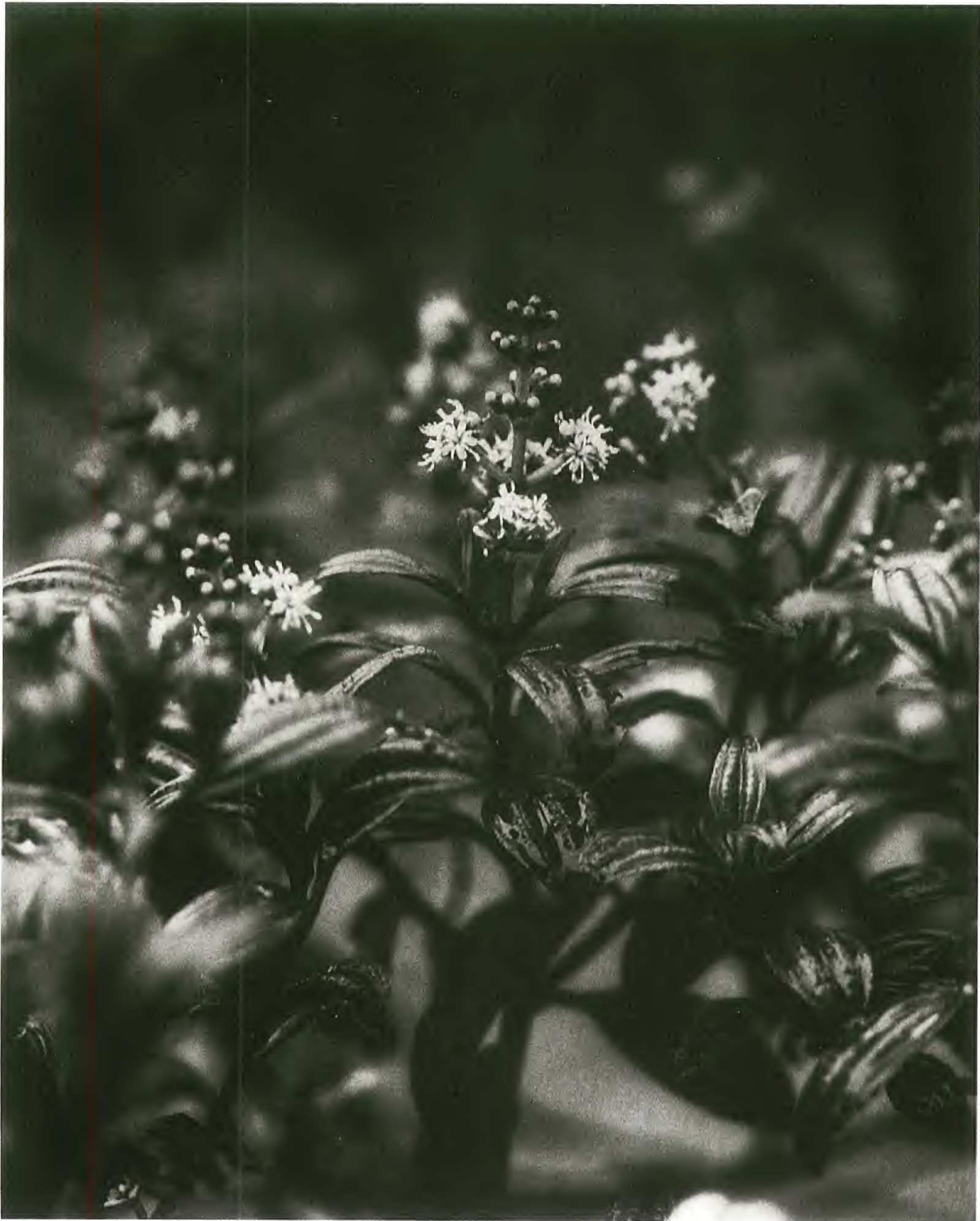


Figure 1. *Miconia desportesii*, flowering, on road between San José de Ocoa and Valle Nuevo, Cordillera Central, Dominican Republic.

twigs \pm rectangular in cross section, with two opposing faces slightly concave (i.e., those positioned above point of petiole attachment of adjacent proximal node) and the alternate faces slightly convex, 0.75–3 mm wide, becoming terete with age, the indumentum of moderate to dense multicellular, irregularly stellate to globose-stellate hairs, and minute globular hairs on the concave surfaces, becoming sparsely pubescent with age; nearly glabrous on the convex surfaces, with some

elongate-branched hairs at the nodes; internodes 3.25–25 mm long. Leaves with petiole 1.25–9.5 mm long, the indumentum sparse, similar to that of the twigs, to essentially glabrous; blade elliptic to ovate, sometimes narrowly so, 9.5–54 × 4.4–19 mm, flat, coriaceous, the apex acute to obtuse, the base narrowly to broadly decurrent, the margin distinctly serrate, at least distally (ca. proximal 20–60% of margin entire), plane to slightly revolute, the largest teeth to 0.1–0.6 mm, most narrowed to a slender apical portion having the form of a seta; venation acrodromous, distinctly suprabasal, with prominent midvein and 2 pairs of secondary veins, with 1 pair of conspicuous secondary veins placed 0.85–3.3 mm in from margin, with 1 pair of inconspicuous intramarginal secondary veins, and numerous percurrent tertiary veins oriented subperpendicular to midvein, the tertiary veins either connected by quaternary veins or separated by variously developed composite-intertertiary veins; adaxial surface green, usually drying dark brown, the indumentum essentially glabrous, but with a few minute globular or ± irregularly stellate hairs along midvein or major secondary veins, the midvein and major secondary veins slightly to strongly impressed, tertiary veins not to very slightly impressed, other veins not impressed, surface wrinkled and minutely papillose after drying because of the presence of scattered druse crystals; abaxial surface light green, sparsely to moderately covered with ferruginous to reddish minute globular hairs, the midvein and major secondary veins prominently to moderately raised, all other veins ± flat; with a pair of pouch-like domatia 0.9–1.6 mm long, located at the junction of the major secondary veins and the midvein, occasionally with a second pair of domatia at the leaf base. Inflorescences terminal, several to many flowered, paniculate to racemose cymes of 2 or 3 major branch-pairs, 1.9–5.4 cm long, 1.4–2.6 cm across; proximal segment of lowermost inflorescence branches 3.2–12.3 mm long, distal internodes increasingly shorter, ultimate branches 0–0.6 mm, and flowers appearing in 3- (to 5-) flowered glomerules, terminating inflorescence branches, with a few hairs similar to those of the twigs; peduncle 6.1–15 mm, with similar indumentum; each inflorescence branch associated with a deciduous narrowly ovate to obovate or oblong bract, 3.5–14 × 0.5–3 mm, the apex acute to obtuse; flowers in dichasia, each subtended by 2 caducous narrowly elliptic to linear bracteoles 1–1.95 × 0.3–0.5 mm, the indumentum of a few minute globular or irregularly branched hairs, especially along margin, or glabrous, the apices acute to acuminate; the lowermost inflorescence branches sometimes in the axils of leaves. Flowers sessile or nearly so, the pedicel 0–0.5 mm long. Hypanthium cylindrical-orbicular, free

portion ca. 0.5–0.95 mm long, the outer surface with very sparse, ferruginous, minute globular hairs, the inner surface glabrous and slightly ridged, with ridges extending at hypanthium apex as minute extensions. External calyx teeth 5, $0.1\text{--}0.22 \times 0.7\text{--}1.1$ mm, triangular, with acute to obtuse apex, indumentum glabrous; internal calyx lobes 5, $0.28\text{--}0.41 \times 0.7\text{--}1$ mm, triangular to ovate-triangular, pale green (?) to red, glabrous, the apex acute to rounded (shortly acuminate), the margin \pm entire; calyx tube 0.1–0.2 mm long. Petals 5, ovate to obovate or oblong, $1.3\text{--}1.9 \times 0.8\text{--}1$ mm, glabrous, white to pink tinged, imbricate and interlocking in bud, with apex rounded, with an asymmetrically located notch; margin entire. Stamens 10, geniculate; proximal portion 1.25–1.7 mm long; distal segment (anther and distal portion of style) 1.5–2 mm long, the anther 1–1.15 mm long, with fertile portion of anther sacs 0.5–0.6 mm long, opening by a single, large, terminal pore, sometimes extending into a short ventral notch, with septum between the anther sacs clearly visible, the base slightly lobed, and with a dorsal, apically oriented projection ca. 0.06–0.16 mm long. Ovary 3-loculate (N=8), ca. 2/3-inferior, globose to ovoid, $1.3\text{--}1.5 \times 0.85\text{--}1.1$ mm, glabrous, strongly ridged, and these ending in rounded apical projections, with crown to 0.55–0.75 mm encircling the base of style; style 2.35–3.15 mm long; stigma slightly expanded. Berries globose to ellipsoid, $2\text{--}3 \times 1.85\text{--}3.1$ mm, reddish when immature, turning blue-black, essentially glabrous. Seeds rounded-pyramidal, 0.94–1.57 mm long; testa with isodiametric cells, the surface smooth.

DISTRIBUTION AND ECOLOGY. *Miconia desportesii* is endemic to Hispaniola (the Dominican Republic) and occurs in the Cordillera Central and Sierra de Baoruco (Figure 2) in cloud forests and moist forests of *Pinus occidentalis* Sw. from 1600 to 2150 m elevation. Commonly associated melastomes include *M. selleana* Urb. & Ekman, *M. zanonii* Judd, Skee & R. S. Beaman, and *Tetrazygia urbaniana* (Cogn.) Croizat ex Moscoso. Other common associates are *Baccharis myrsinites* (Lam.) Pers., *Brunellia comocladifolia* Humb. & Bonpl. subsp. *domingensis* Cuatr., *Buddleja domingensis* Urb., *Eupatorium illitum* Urb., *Fuchsia triphylla* L., *Garrya fadyenii* Hook., *Gaultheria domingensis* Urb., *Lobelia rotundifolia* Juss., *Lyonia buchii* Urb., *Myrica picardae* Krug & Urb., *Myrsine coriacea* (Sw.) R. Br. ex Roem. & Schult., *Rhytidophyllum auriculatum* Hook., and *Vaccinium racemosum* (Vahl) Wilbur & Luteyn.

SPECIMENS EXAMINED: DOMINICAN REPUBLIC. Prov. Azua [as Prov. La Vega]: Constanza, Loma La Vieja, ca. 2000 m, E. L. Ekman H14056 (A, NY, S). Prov.

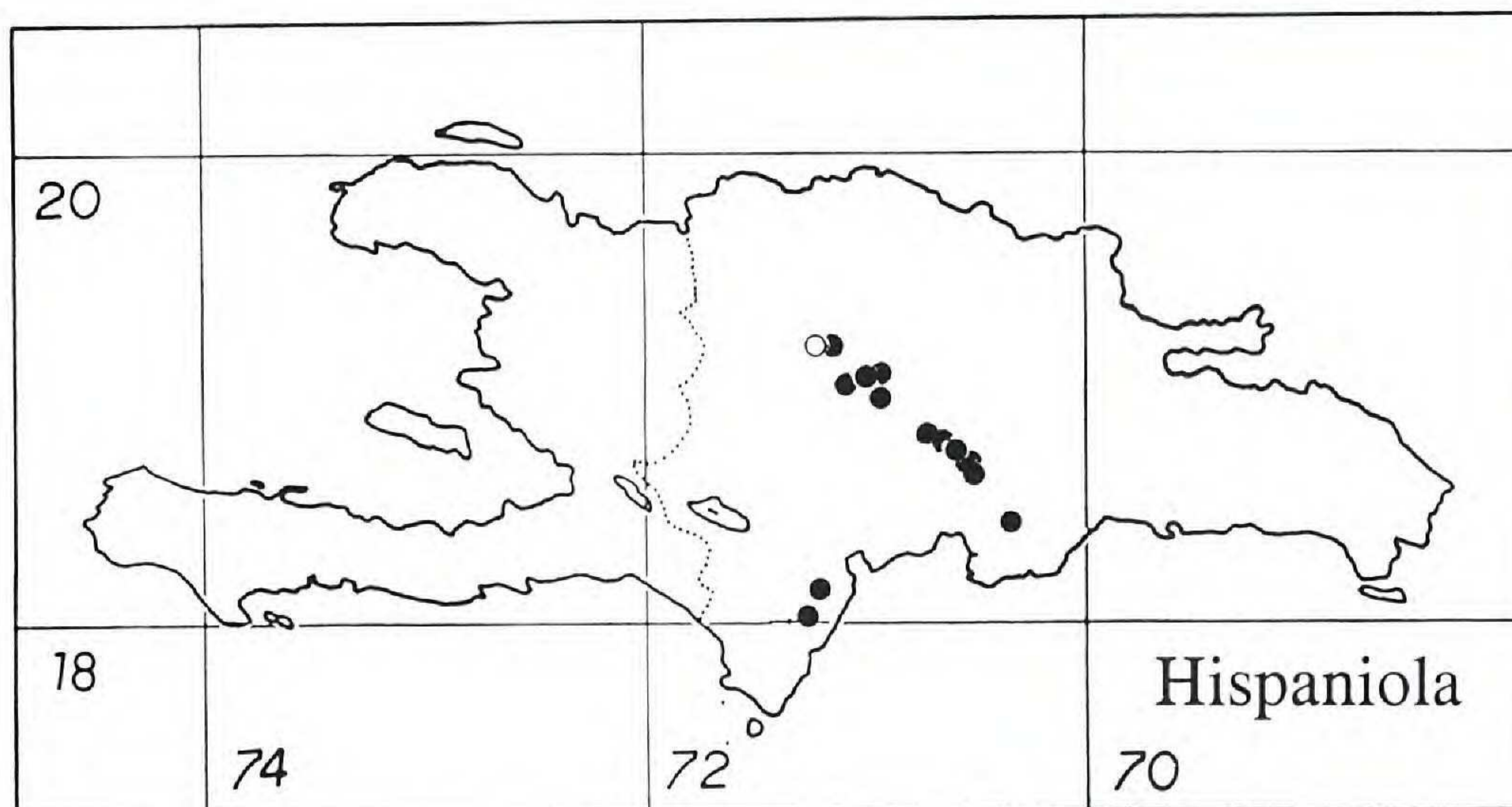


Figure 2. Distribution of *Miconia desportesii* (dots) and *M. monciona* (circle) on Hispaniola.

Barahona: Sierra de Bahoruco, on Loma Remigio, above El Burren de Aguas Blancas, and inland from La Ciénaga de Barahona, 18°04'N, 71°12'W, 1150–1287 m, *T. A. Zanoni* 42211 (FLAS). Prov. Peravia: Cordillera Central, N slope of Loma Valvacoa (Balbacoa), ca. 25 km WNE of San Cristóbal, 18°27.5'N, 70°21'W, 1630–1700 m, *F. Jiménez* 837 (FLAS); La Horma Arriba, San José de Ocoa, 1800–2000 m, *A. H. Liogier* 18598 (F, NY); 41 km from San José de Ocoa on rd. to Valle Nuevo, at “El Gelechar,” La Nevera, 18°43'N, 70°36'W, 2400 m, *A. Veloz* 1066 (FLAS). Prov. Santiago: Cordillera Central, Monción, high ridge between Río Magua and Río San Juan, 2100 m, *E. L. Ekman* H12832 (GH, II, s, US); La Rucilla, 1800–2000 m, *A. H. Liogier* 12143 (NY, US); La Cotorra to La Rucilla, 1900 m, *A. H. Liogier* 21720 (NY, US); base of La Cotorra, 1110–2710 m, *E. Marcano* [*J. Jiménez* No.] 4820 (FLAS, US). Prov. La Vega: Cordillera Central, ca. 41.2 km S of Constanza (and 41.8 km N of San José de Ocoa) on rd. between San José de Ocoa and Valle Nuevo, 2150 m, *W. S. Judd* 5108 (A, DUKE, F, FLAS, JBSD, MICH, MO, MSC, NY, s, US); La Nevera, from Valle Nuevo to San José de Ocoa, 2100 m, *A. H. Liogier* 15495 (NY, US); La Cotorra, Ciénaga de Manabao, Jarabacoa, 1900 m, *A. H. Liogier* 17204 (II, NY, US); La Nivera, Valle Nuevo, 2100 m, *A. H. Liogier* 17994 (F, II, NY, US); Cordillera Central, along Rt. 41, 41.8 km N of San José de Ocoa, between San José de Ocoa and Valle Nuevo, 2150 m, *J. D. Slean* 1735 (B, FLAS, JBSD, NY, s); Cordillera Central, Parque Nacional J. A. Bermúdez, “La Laguna,” ca. 3 hours on foot from La Ciénaga (de Manabo) along trail to Pico Duarte, 19°02'N, 70°32'W, 2000 m, *T. A. Zanoni* 37478 (FLAS).

Miconia desportesii can easily be distinguished from the other species treated here by its leaves with decurrent bases, consistent presence of mite-domatia (abaxially, at junction of major secondary veins and midvein, and occasionally also at junction of minor secondary veins and midvein), smaller flowers (e.g., petals 1.3–1.9 mm long and 0.8–1 mm wide; anthers 1–1.15 mm long), and seeds with a smooth testa.

2. *Miconia monciona* Urb. & Ekman, Ark. Bot. 23A (11): 17. 1931.
TYPE: DOMINICAN REPUBLIC. Prov. Monte Cristi [now the border between Prov. Santiago and Prov. San Juan]: Cordillera Central, Monción, high ridge between Rio Cenobi and Rio San Juan, ca. 1900 m, 11 Jun 1929 (fl), *E. L. Ekman H12807* (HOLOTYPE: S!; ISOTYPES: GH!, NY!, S!, US!).

Shrub to ca. 1 m tall. Indumentum of multicellular, ferrugineous, irregularly stellate to globular-stellate hairs, and minute globular hairs. Young twigs \pm rectangular in cross section, with two opposing faces slightly concave (i.e., those positioned above point of petiole attachment of adjacent proximal node) and the alternate faces slightly convex, 1–2.5 mm wide, becoming terete with age, the indumentum of moderate to dense multicellular, irregularly stellate to globular-stellate hairs, and minute globular hairs, with some elongate-branched hairs at the node, becoming only sparsely pubescent with age; internodes 3–24 mm long. Leaves with petiole 1.3–5 mm long, the indumentum sparse to moderate, similar to that of the twigs; blade ovate to elliptic, 10–25 \times 4.6–9.5 mm, flat, coriaceous, the apex acute, the base obtuse to rounded, the margin distinctly serrate, at least distally (ca. proximal 25–50% of margin entire), plane to slightly revolute, the largest teeth to 0.15–0.8 mm, most narrowed to a slender apical portion having the form of a seta; venation acrodromous, basal, with prominent midvein and 2 pairs of secondary veins, with 1 pair of conspicuous secondary veins placed 0.6–1.5 mm in from margin, with 1 pair of inconspicuous intramarginal secondary veins, and numerous percurrent tertiary veins oriented subperpendicular to midvein, the tertiary veins either connected by quaternary veins or separated by variously developed composite-intertertiary veins; adaxial surface green, sometimes yellowish after drying, the indumentum essentially glabrous, but with some ferrugineous, \pm stellate hairs along midvein, the midvein strongly to moderately impressed, the major secondary veins slightly to very slightly impressed, minor secondary veins, tertiary and higher order veins not impressed, surface roughened and minutely papillose after drying because of the presence of numerous druse crystals; abaxial surface light green, sometimes yellowish after drying, moderately covered with reddish brown minute globular hairs, with a few globular-stellate hairs on midvein and major secondary veins, but these quickly deciduous, the midvein and major secondary veins prominently to moderately raised, all other veins \pm flat. Inflorescences terminal, several-flowered, racemose cymes of 2 to 4 major branch-pairs, 2–4.5 cm long, 1–1.6 cm across; proximal segment of lowermost inflorescence branches 4–8 mm long,

distal internodes increasingly shorter, ultimate branches 0.3–1.1 mm long, and flowers appearing in 3- to 5-flowered glomerules, terminating inflorescence branches, with sparse to moderate hairs similar to those of the twigs; peduncle 1.25–2.1 cm long, with similar indumentum; each inflorescence branch associated with \pm deciduous, narrowly obovate to oblong bract, $4.5\text{--}10 \times 1\text{--}2.75$ mm, the apex acute; flowers in dichasia, each subtended by 2 caducous narrowly obovate to linear bracteoles $2\text{--}3 \times 0.5\text{--}0.9$ mm, the indumentum of a few minute globular hairs, the apices acute; the lowermost inflorescence branches sometimes in the axils of leaves. Flowers sessile or nearly so, the pedicel 0–0.4 mm long. Hypanthium cylindrical-orbicular, free portion ca. 1–1.3 mm long, the outer surface with moderate, ferruginous, minute globular hairs, the inner surface glabrous and not ridged. External calyx teeth 5, $0.4\text{--}0.85 \times 0.9\text{--}1.3$ mm, triangular, with acute to acuminate apex, indumentum of a few minute globular hairs, but frequently glabrous; internal calyx lobes 5, $0.5\text{--}0.72 \times 0.9\text{--}1.1$ mm, ovate-triangular, pale green to reddish, glabrous, the apex \pm obtuse, the margin entire to minutely fimbriate; calyx tube 0.15–0.22 mm long. Petals 5, broadly ovate to obovate, $2.9\text{--}3.5 \times 1.65\text{--}2.2$ mm, glabrous, white to pink tinged, imbricate and apically interlocking in bud, with apex rounded, with an asymmetrically located notch; margin entire. Stamens 10, geniculate; proximal portion 1.8–2.2 mm long; distal segment (anther and distal portion of filament) 2.1–2.85 mm long, the anther 0.95–1.65 mm long, with fertile portion of anther sacs 0.8–1.25 mm long, opening by a single, large, terminal pore, often extending into a short slit, with the septum between the anther sacs clearly visible, the base slightly lobed, and with a dorsal, apically oriented projection ca. 0.25 mm long. Ovary 3-loculate (N = 5), ca. 3/5-inferior, \pm globose, $1.4\text{--}2.1 \times 1.25\text{--}1.9$ mm, glabrous, \pm ridged, and these ending in minute, rounded, apical projections, with crown to 0.7–0.9 mm encircling the base of style; style 4.5–5.3 mm long; stigma somewhat expanded. Berries globose, only immature fruits seen, and fruits possibly reaching ca. 3.5×2.5 mm when mature. Seeds rounded-pyramidal, ca. 0.75–1.1 mm long; testa ornamented with isodiametric, \pm bulging cells.

DISTRIBUTION AND ECOLOGY. Endemic to the Dominican Republic, in the Cordillera Central, on ridge between Rio Cenobi and Rio San Juan (Figure 2), in pinelands (*Pinus occidentalis*), ca. 1900 m.

SPECIMENS EXAMINED: Only known from the type.

In their description Urban and Ekman (Urban 1931) compare this species with *Miconia desportesii*. The species is poorly known, and has

only been collected once, where it is evidently sympatric with *M. sphagnicola*. It would be especially interesting to see mature fruits; if they are blue then red fruits are apomorphic for *M. sphagnicola*, while the discovery of red fruits would add to the similarities, likely synapomorphic, with *M. sphagnicola*.

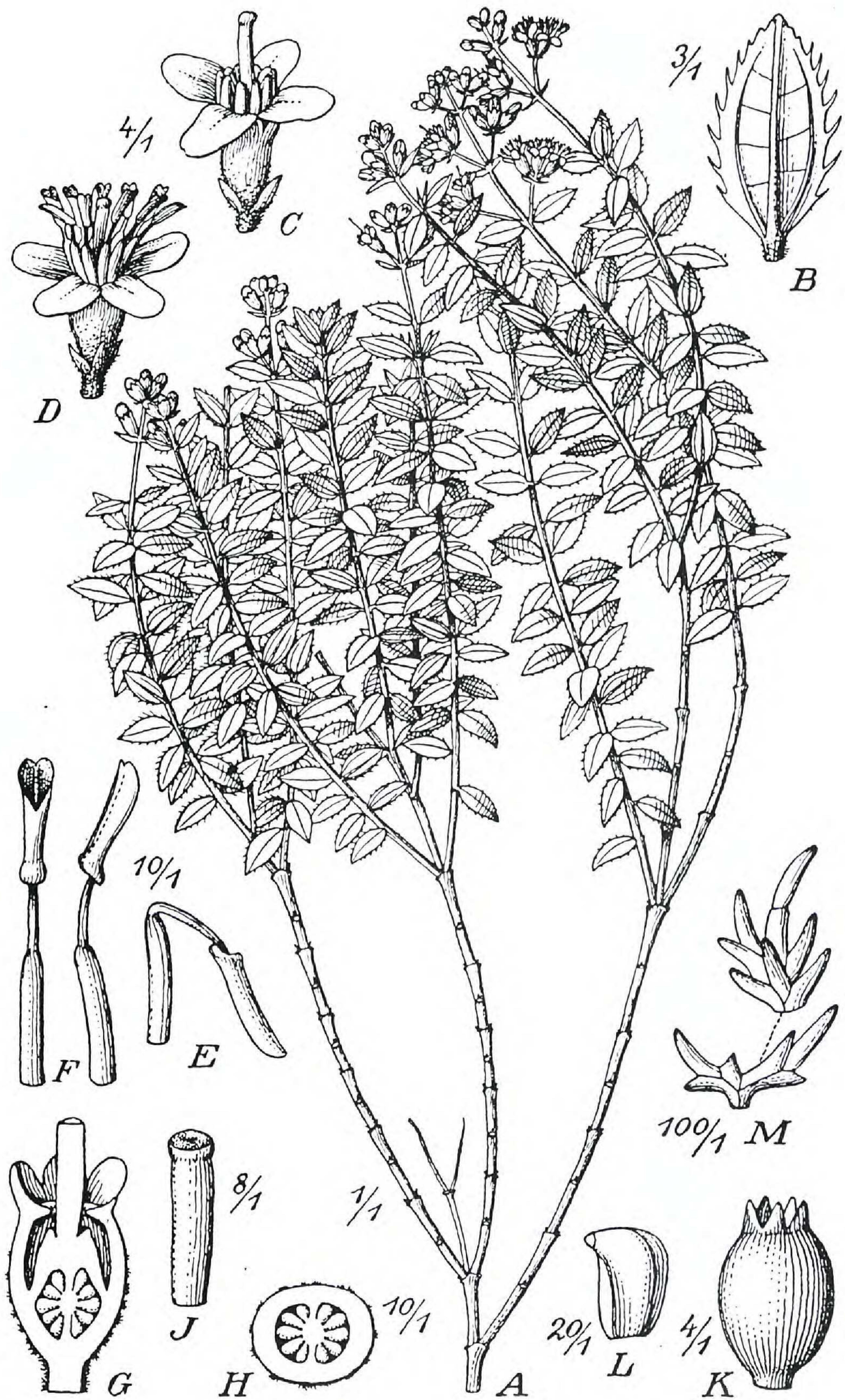
3. *Miconia sphagnicola* Urb. & Ekman, Ark. Bot. 23A (11): 19. 1931.

TYPE: DOMINICAN REPUBLIC. Prov. Monte Cristi [now the border between Prov. Santiago and Prov. San Juan]: Monción, Cordillera Central, high ridge between Rio Cenobi and Rio San Juan, pine patch, ca. 1900 m, 11 Jun 1929 (fl), *E. L. Ekman H12808* (HOLOTYPE: S!; ISOTYPES: A!, GH!, IJ!, NY!, S!). Figure 3.

Low, often \pm prostrate shrub to 0.4 m tall (but rarely to 1 m), and usually adventitiously rooting along prostrate portion of branches. Indumentum of multicellular, ferruginous, irregularly stellate to globular-stellate hairs, and minute globular hairs. Young twigs \pm rectangular in cross section, with two opposing faces slightly concave (i.e., those positioned above point of petiole attachment of adjacent proximal node) and the alternate faces slightly convex, 0.7–2 mm wide, becoming terete with age, the indumentum moderate to dense, multicellular, irregularly stellate to globular-stellate hairs, and minute globular hairs, with some elongate-branched hairs at the node, becoming only sparsely pubescent with age; internodes 2.5–13 (–23) mm long. Leaves with petiole 0.6–2 mm long, the indumentum \pm sparse, similar to that of the twigs; blade ovate to elliptic, 4–13.3 \times 2–5.75 mm, flat, coriaceous, the apex acute to obtuse, the base acute to rounded, the margin distinctly serrate, at least distally (ca. proximal 10–60% of margin entire), plane to revolute, the largest teeth to 0.1–0.9 mm, most narrowed to a slender apical portion having the form of a seta; venation acrodromous, basal, with prominent midvein and 1 pair of secondary veins, these placed 0.4–1 mm in from margin, and several percurrent tertiary veins oriented subperpendicular to midvein, the quaternary and higher-order veins obscure; adaxial surface green, not drying yellowish,

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Figure 3. *Miconia sphagnicola*. A. habit; B. leaf, abaxial view; C. 4-merous flower; D. 5-merous flower; E. immature stamen; F. mature stamens, showing means of dehiscence; G. ovary and hypanthium in longitudinal section; H. ovary in cross section; J. stigma and distal part of style; K. berry; L. seed; M. hair. Originally published in Urban (1931).



J. Pohl del.

Miconia sphagnicola Urb. et Ekm.

the indumentum essentially glabrous, but occasionally with a few ferrugineous, \pm stellate hairs on midvein, the midvein moderately to slightly impressed, the secondary veins slightly impressed or not impressed, the higher-order veins not impressed, surface wrinkled and minutely papillose after drying, in part because of the presence of scattered druse crystals; abaxial surface light green, moderately to sparsely covered with reddish brown minute globular hairs, with a few globular-stellate hairs on midvein and secondary veins, but these quickly deciduous, the midvein prominently to moderately raised, the secondary veins slightly raised to flat, all other veins flat. Inflorescences terminal, several-flowered, racemose to narrowly paniculate cymes of (0–) 1 to 3 major branch pairs, 1–4 (–5.2) cm long, 0.7–2.2 cm across; proximal segment of lowermost inflorescence branches (when present) 2.5–17 mm long, distal internodes increasingly shorter, ultimate branches 0–0.35 mm long, and flowers appearing in 3- (rarely 5-) flowered glomerules, terminating inflorescence and the inflorescence branches, but lateral dichasia reduced, each sometimes represented by a single flower, and even inflorescence branches sometimes reduced and bearing only a single, terminal flower (and inflorescence thus occasionally appearing to be a raceme, but with a terminal flower), with sparse hairs similar to those of twigs; peduncle 0.7–3 cm long, with similar indumentum; each inflorescence branch associated with \pm deciduous, narrowly elliptic to obovate bract, 2–8.6 \times 0.6–3 mm, the apex acute; flowers in dichasia, or seemingly solitary, each subtended by 2 caducous, narrowly elliptic, obovate, or linear bracteoles 0.95–2.5 \times 0.2–0.8, the indumentum of a few minute globular hairs, the apices acute; the lowermost inflorescence branches sometimes in the axils of leaves. Flowers sessile or nearly so, the pedicel 0–0.25 mm long. Hypanthium cylindrical-orbicular, free portion 0.9–1.25 mm, the outer surface with scattered minute globular to minute and obscurely stellate hairs, the inner surface glabrous and not ridged or only indistinctly ridged. External calyx teeth 4 or 5, 0.2–0.75 \times 0.4–0.9 mm, triangular, with \pm acute apex, the indumentum glabrous or with a few minute globular hairs; internal calyx lobes 4 or 5, 0.38–0.7 \times 0.8–1.05 mm, ovate-triangular, pale green to reddish, glabrous, the apex obtuse to rounded, the margin entire to minutely fimbriate; calyx tube 0.15–0.25 mm long. Petals 4 or 5, broadly elliptic to obovate, 1.7–3.6 \times 1.2–2.1 mm, glabrous, white, imbricate and apically interlocking in bud, with apex rounded, with an asymmetrically located notch; margin entire. Stamens 8 or 10, geniculate; proximal portion 1.55–2.7 mm long; distal segment (anther and distal portion of filament) 2.05–3.05 mm long, the anther 1.25–1.65 mm long, with fertile

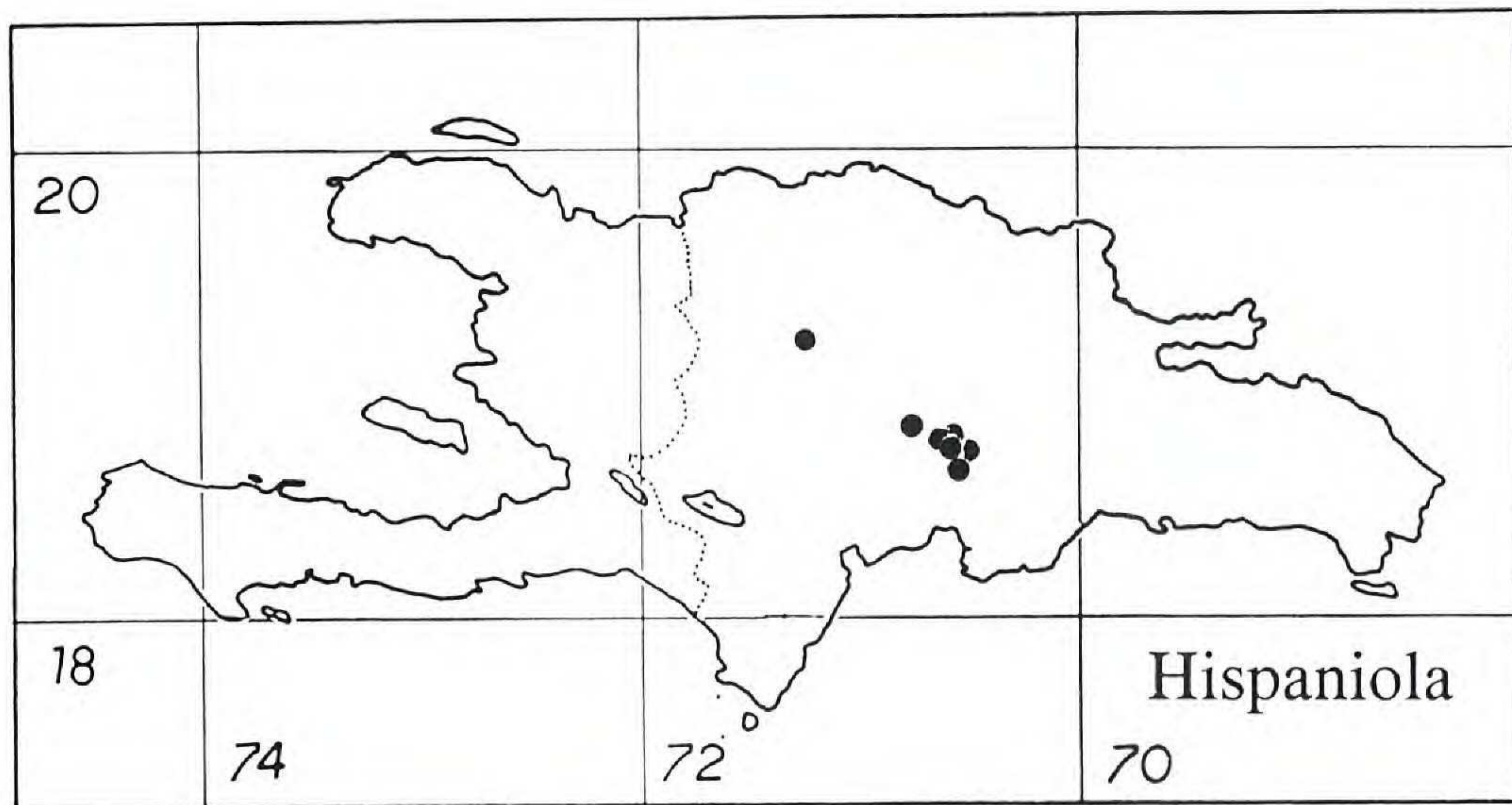


Figure 4. Distribution of *Miconia sphagnicola* on Hispaniola.

portion of anther sacs 0.9–1.35 mm long, opening by a single large, terminal pore, which extends, forming a short broadly to narrowly V-shaped longitudinal slit, with the septum between the anther sacs clearly visible, the base slightly lobed, and sometimes with a dorsal projection to ca. 0.1 mm long. Ovary 2- or 3-loculate (N = 6, 4), ca. inferior to $\frac{1}{2}$ -inferior, \pm globose to ovoid, $0.6\text{--}1.3 \times 0.5\text{--}1.2$ mm, glabrous, not ridged or with variably developed ridges, and usually with minute, rounded apical projections, with crown 0.4–0.8 mm encircling the base of style; style 2.8–4.9 mm long; stigma usually slightly expanded. Berries globose to ellipsoid, $5.6\text{--}8.4 \times 4\text{--}7.15$ mm, bright red, essentially glabrous. Seeds rounded-pyramidal, 0.8–1.1 mm long; testa with isodiametric cells, minutely and densely tuberculate (due to bulging cells).

DISTRIBUTION AND ECOLOGY. *Miconia sphagnicola* is endemic to Hispaniola, where it occurs in the Dominican Republic, in the Cordillera Central (Figure 4), in cloud forests, grading into moist forests of *Pinus occidentalis*, or open, often burned forests of *P. occidentalis* with *Danthonia domingensis* Hack. & Pilg. and various shrubby species [e.g., *Baccharis myrsinites*, *Eupatorium illitum*, *Fuchsia pringsheimii* Urb., *Garrya fadyenii*, *Myrica picardae*, *Ilex tuerckheimii* Loes., *Miconia viscidula* Urb. & Ekman, *Lyonia heptamera* Urb., *L. tuerckheimii* Urb., *L. urbaniana* (Sleumer) J. Jiménez Alm.], from 1900–2400 m (see also Hager and Zanoni 1993; Horn et al. 2001). Associated melastomes include *Miconia selleana*, *M. viscidula*, *M. krugii* Cogn., *M. monciona*, and *Tetrazygia urbaniana*.

SPECIMENS EXAMINED: DOMINICAN REPUBLIC. Prov. La Vega: Valle Nuevo, 2400 m, *Bro. Augusto 1497* (A, JBSD, NY); 5 km above La Nuez on rd. to Constanza, *W. G. D'Arcy 2662* (FLAS, MO); Cordillera Central, Loma la Chorriosa, 18°46'N, 70°35'W, 2270 m, *R. García 5764* (FLAS); Cordillera Central, ca. 2 km N of "The Monument," Valle Nuevo, on rd. between Constanza and San José de Ocoa, ca. 34.6 km S of Constanza, 2200 m, *W. S. Judd 5115* (A, DUKE, FLAS, MO, NY, S, US); La Nevera, from Valle Nuevo to San José de Ocoa, 2100 m, *A. H. Liogier 13154* (F, GH, NY); La Nevera, Valle Nuevo, 2100 m, *A. H. Liogier 20676* (JBSD, NY); Valle Nuevo, Constanza, 2100 m, *A. H. Liogier 22354* (JBSD); Cordillera Central, along Rt. 41, ca. 2 km N of the monument at Valle Nuevo, 34.6 km S of Constanza, 2200 m, *J. D. Skeeve 1739* (FLAS); Cordillera Central, 5.4 km S of Constanza, and between 6 and 8 km W on rd. to Pinar Parejo, 18°50'N, 70°45'W, 6200–6300 ft., *T. A. Zanoni 19346* (FLAS, JBSD, NY); Cordillera Central, 39 km S of Constanza via the village of Río Grande, on the rd. to San José de Ocoa, "The Pyramid" monument, in the Arroyo Domingo, 18°49'N, 70°42'W, 7500 ft., *T. A. Zanoni 20130* (FLAS, JBSD, NY); Cordillera Central, Loma de Mono Mojao and Arroyo Las Piedras, 36 km S of Constanza and 2 km E of the rd., 18°43'N, 70°35'W, 7000 ft., *T. A. Zanoni 20874* (FLAS, JBSD); Cordillera Central, 45.5 km N of San José de Ocoa, 2 km N of "The Pyramid," a monument, on rd. to Constanza, 18°42.5'N, 70°36'W, 2280 m, *T. A. Zanoni 29099* (FLAS, JBSD, NY).

When this very distinctive species was described, Urban and Ekman (Urban 1931) considered it to be not closely related to any other Antillean species of *Miconia*. This statement is puzzling given the noteworthy morphological similarities with *M. monciana*, such as the small leaves and low stature. We note that *M. monciana* was described in the same publication as *M. sphagnicola* (Urban 1931) and that E. Ekman had collected these two species growing together in a high-elevation pineland.

Miconia sphagnicola is unique among Hispaniolan species of *Miconia* in its more or less prostrate habit, with frequent production of adventitious roots along the branches. The species is also distinctive because of its minute leaves (i.e., 4–13.3 mm long) with only a single pair of secondary veins, and the ellipsoid, red berries. Most species of *Miconia* have two or more pairs of secondary veins, and no other Hispaniolan species has red fruits (most have blue, blue-black, or purple fruits, at least at maturity).

4. *Miconia tetrastoma* Naudin, Ann. Sci. Nat., Bot., sér. 3, 16: 236. 1851. TYPE: CUBA. Prov. Oriente. Sierra Maestra, *J. J. Linden 2002* (HOLOTYPE: presumably at BR, not seen). Figure 5.

Shrub to 6 m tall. Indumentum of multicellular, ferruginous to whitish, roughened-granular, sessile to stalked, globular-stellate to dendritic, or elongate-branched hairs, often matted and disintegrating

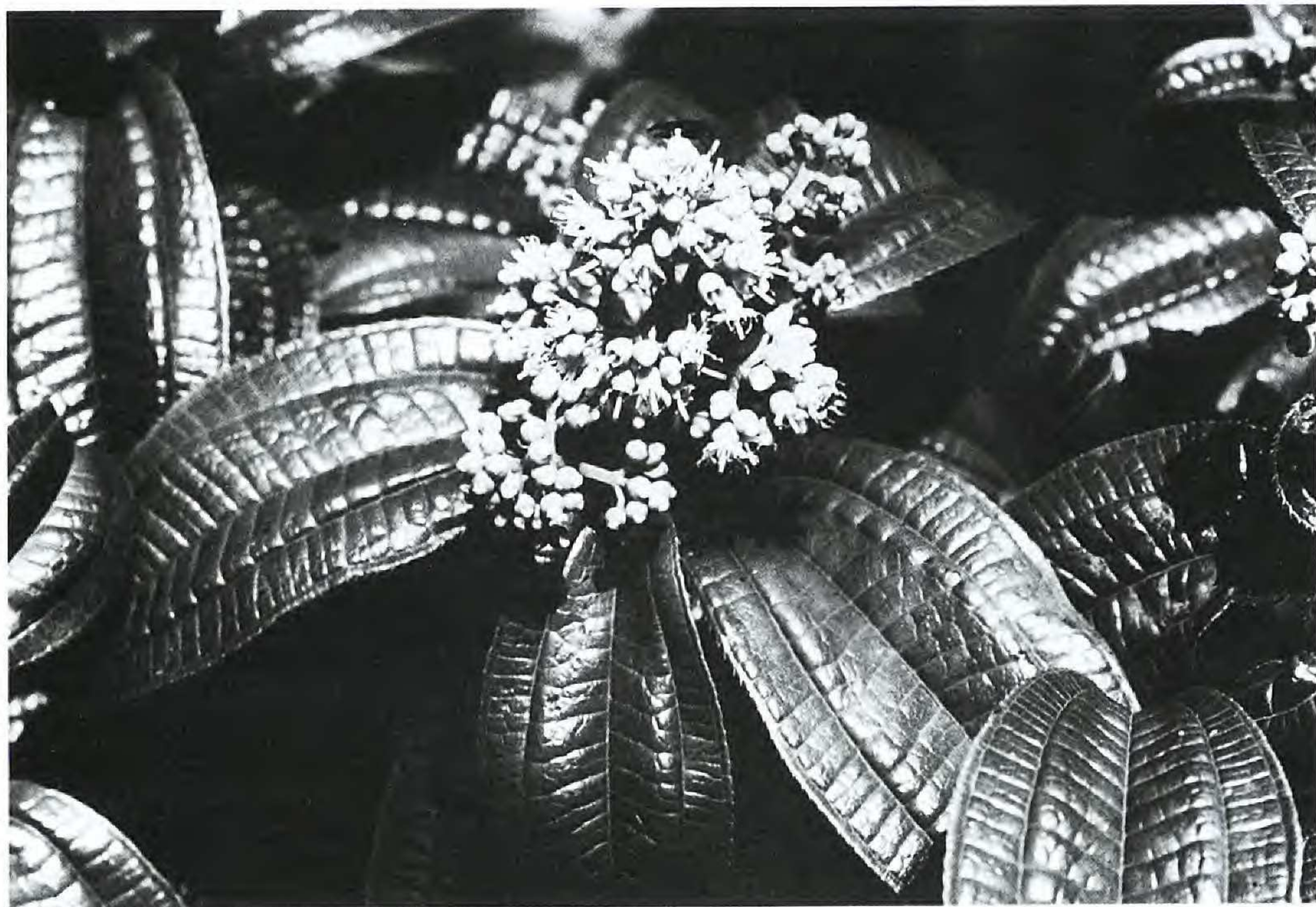


Figure 5. *Miconia tetrastoma*, flowering, from Morne Formon, Massif de la Hotte, Haiti.

with age, and minute globular hairs. Young twigs rectangular in cross section, with two opposing faces slightly concave (i.e., those positioned above point of petiole attachment of adjacent proximal node) and the alternate faces slightly convex, 1–3.5 mm wide, becoming \pm quadrangular with age, the indumentum of moderate to sparse multicellular, elongate-branched, irregularly stellate, dendritic, to globular stellate hairs, these roughened-granular (due to bulging to papillae-like, thin-walled cells), and minute globular hairs, the hairs often becoming matted and disintegrating, and stems only sparsely pubescent with age; internodes 1–5.7 cm long. Leaves slightly anisophyllous, with petiole 6–18 mm long, the indumentum very sparse to moderate, similar to that of twigs; blade broadly to narrowly elliptic, or slightly ovate, or obovate, 3.4–14.5 \times 1.7–6.2 cm, flat to V-shaped, membranous to slightly coriaceous, the apex acuminate to long-acuminate, rarely acute, the base acute, obtuse, to rounded, the margin distinctly serrate, nearly throughout (ca. proximal 0–10% of margin entire), plane, the largest teeth to 0.3–0.97 mm, most narrowed to a slender apical portion having the form of a seta; venation acrodromous, basal to suprabasal, with prominent midvein and 2 pairs of secondary veins, with 1 pair of conspicuous secondary veins placed 3–14 mm in from margin and a second pair of inconspicuous secondary veins placed 0.5–2.4 mm in from margin, these

often \pm intramarginal, and rarely with an additional, partial, intramarginal outermost pair of veins, but these disappearing toward leaf base (or becoming composed on obviously inter-linked tertiary veins), and numerous percurrent tertiary veins oriented subperpendicular to midvein, the tertiary veins usually connected by quaternary veins but sometimes separated by variously developed composite-intertertiary veins; adaxial surface green, the indumentum essentially lacking, but with some ferruginous to whitish, \pm stellate to dendritic, roughened and often disintegrating hairs along midvein and major secondary veins, and with minute globular to short-armed hairs even on lamina, but these deciduous with age, the midvein through quaternary veins flat to moderately impressed, the surface minutely wrinkled when dry, with scattered minute "papillae" due to presence of druse crystals; abaxial surface light green, moderately to very sparsely covered with minute globular hairs, with a few to numerous roughened and often disintegrating, \pm obscurely stellate to dendritic hairs on midvein and secondary veins, but these often deciduous, the midvein and secondary veins prominently to slightly raised, tertiary and quaternary veins slightly raised to flat, all other veins \pm flat; sometimes with pouch-domatia at junction of major secondary veins and midvein. Inflorescences terminal, many-flowered, paniculate to racemose cymes of 3 to 8 major branch pairs, 2.5–8 cm long, 1.6–6.7 cm across; proximal segment of lowermost inflorescence branches 0.4–3 cm long, distal internodes increasingly shorter, ultimate branches 0.8–1.7 mm, and flowers not in glomerules, with sparse to moderate hairs similar to those of the twigs; peduncle 1.1–3 (–6) cm long, with similar indumentum; each inflorescence branch associated with deciduous, narrowly elliptic to obovate bract, 2–7.3 \times 0.5–2.5 mm, the apex acute; flowers in dichasia, each subtended by 2 caducous, \pm narrowly elliptic, \pm linear, or narrowly obovate bracteoles 1–3 \times 0.3–0.65 mm, the indumentum of irregularly branched hairs along margin, the apex acute to acuminate; the lowermost inflorescence branches sometimes in the axils of leaves. Flowers nearly sessile to distinctly pedicellate, the pedicel 0.15–0.65 mm long. Hypanthium cylindrical-orbicular, free portion 0.5–1.12 mm long, the outer surface with \pm sparse, ferruginous, minute globular to irregularly short-branched hairs, the inner surface with scattered minute globular hairs, especially toward rim, slightly ridged, due to extensions of partitions dividing lower portion of space between hypanthium and gynoecium into 10 pockets, into which fit the anthers (when reflexed, in bud). External calyx teeth 5, 0.15–0.4 \times 0.8–1.4 mm, triangular, with acuminate apex, \pm glabrous; internal calyx lobes 5, 0.3–0.4 \times 0.8–1.4 mm, triangular, pale green, glabrous, the apex obtuse to

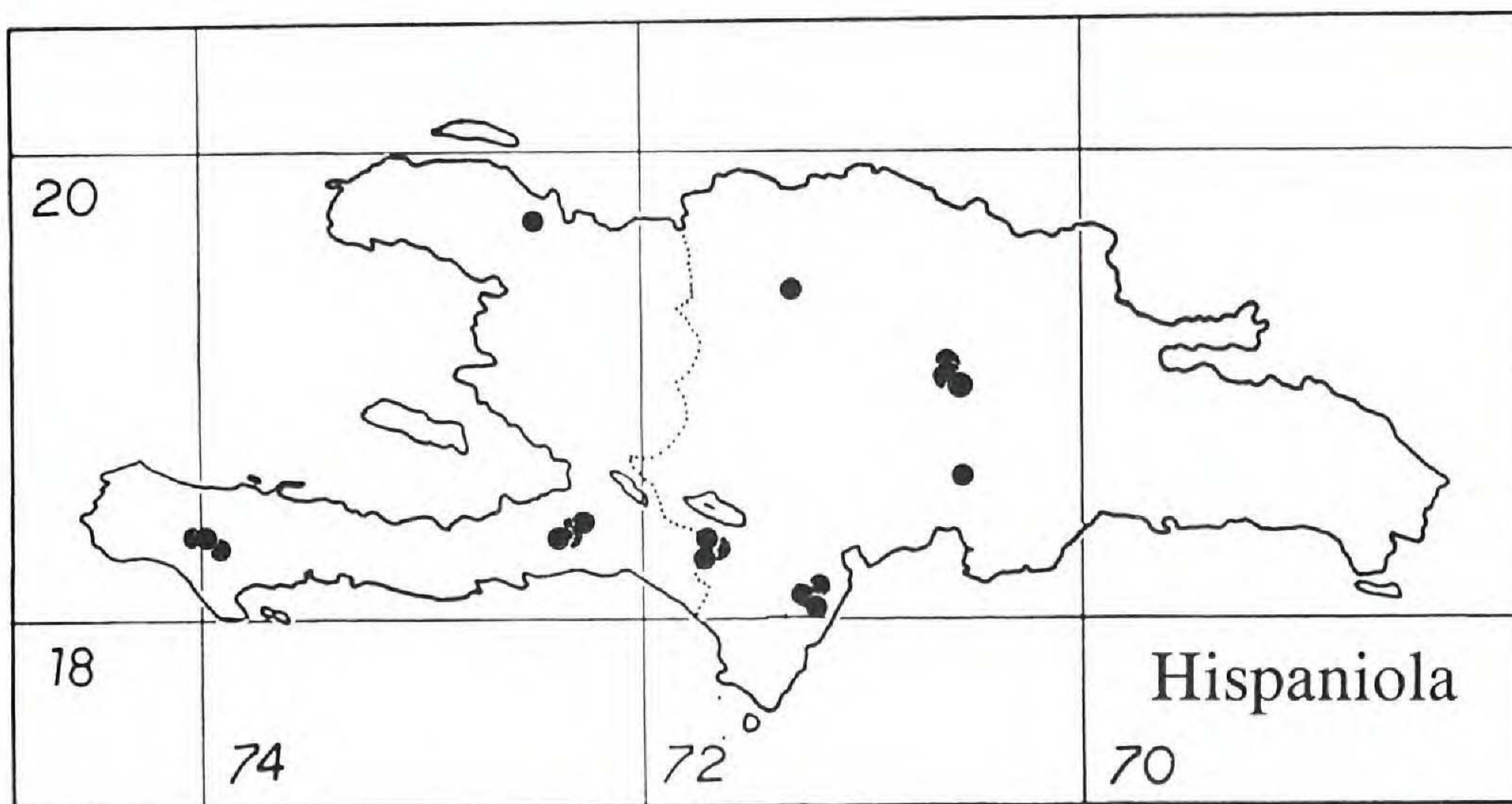


Figure 6. Distribution of *Miconia tetrastoma* on Hispaniola.

rounded or truncate, the margin entire to minutely erose; calyx tube 0.1–0.47 mm long. Petals 5, \pm broadly elliptic, 1.75–2.45 \times 1.45–1.75 mm, glabrous, white, imbricate and apically interlocking in bud, with apex rounded, with an asymmetrically located notch; margin entire. Stamens 10, geniculate; proximal portion 1.5–1.85 mm long; distal segment (anther and distal portion of filament) 1.8–2.4 mm long, the anther 1.25–1.6 mm long, with fertile portion of anther sacs 0.7–1.05 mm long, opening by a single, large, ventrally inclined, terminal pore, with the septum between the anther sacs clearly visible, extending beyond the pore apex, four-parted, dividing the pore into 4 smaller pores, the base tapering to filament, and with a slightly to strongly dorsally thickened (to 0.2 mm) connective. Ovary 3-loculate ($N = 9$), inferior or nearly so, \pm globose, 1.05–1.7 \times 1–1.35 mm, with a few minute globular hairs, especially near apex, strongly ridged, and these ending in minute, rounded apical projections, with crown to 0.25–0.7 mm encircling the base of style; style 2.8–3.6 mm long; stigma somewhat expanded. Berries globose, 3–6 \times 3–6 mm, pale to deep blue or blue-black, glabrous. Seeds \pm hemispherical to asymmetrically hemispherical, 0.4–0.55 mm long, with a broad and flat raphe; testa with isodiametric cells, minutely and densely tuberculate (due to bulging cells).

DISTRIBUTION AND ECOLOGY. *Miconia tetrastoma* is restricted to Cuba, where it occurs in the Sierra Maestra (Leon and Alain 1957), and Hispaniola, where it occurs in the Cordillera Central/Massif du Nord, Massif de la Selle/Sierra de Baoruco, and Massif de la Hotte (Figure 6), in cloud forests and moist montane forests, moist forest on limestone, and

moist forests of *Pinus occidentalis*, from (800–) 1100–2219 m. Associated species of Melastomataceae include *Calycogonium torbecianum* Urb. & Ekman, *Clidemia umbellata* (Mill.) L. O. Williams, *Conostegia affinis* Urb., *C. icosandra* (Sw.) Urb., *Henriettea barkeri* (Urb. & Ekman) Alain, *Leandra lima* (Desr.) Judd & Skee, *L. limoides* (Urb.) Judd & Skee, *Mecranium amygdalinum* (Desr.) C. Wright in Sauvalle, *M. birimosum* (Naudin) Triana, *M. multiflorum* (Desr.) Triana, *M. ovatum* Cogn., *M. puberulum* Cogn., *M. revolutum* Skee & Judd, *Meriania brevipedunculata* Judd & Skee, *M. involucrata* (Desr.) Naudin, *M. parvifolia* Judd & Skee, *Miconia barkeri* Urb. & Ekman, *M. dielsiana* Urb., *M. domingensis* Cogn., *M. favosa* (Desr.) Naudin, *M. howardiana* Judd, V. T. Salzman & Skee, *M. hypiodes* Urb. & Ekman, *M. lanceolata* (Desr.) DC., *M. mirabilis* (Aubl.) L. O. Williams, *M. punctata* (Desr.) D. Don, *M. subcompressa* Urb., *M. xenotricha* Urb. & Ekman, *Sagraea curvipila* (Urb. & Ekman) Alain, *S. oligantha* (Urb.) Alain, *S. scalpta* (Vent.) Naudin, and *Tetrazygia crotonifolia* (Desr.) DC. Moist forest associates are very diverse; for a listing of characteristic species of the forests of the Massif de la Hotte see Judd (1987) and Judd et al. (1990, 1998), for the forests of Barbacoa-Casabito region see Mejía et al. (2000) and García et al. (1994), and for a general analysis of the vegetation of Hispaniola see Hager and Zanoni (1993) and Ciferri (1936).

SPECIMENS EXAMINED: DOMINICAN REPUBLIC. Prov. Barahona: La Tierra Fria, SW of Barahona, 4600 ft., *R. A. Howard* 12223 (A, S, US); between Monteada Nueva and Loma Alta, 5000 ft., *R. A. Howard* 12325 (A, S, US); Sierra de Baoruco, Monteada Nueva, near Polo, 1400–1425 m, *W. S. Judd* 5179 (FLAS, JBSD, NY, S); Sierra de Baoruco, Monteada Nueva, above Polo, 1325–1400 m, *W. S. Judd* 6578 (FLAS); Monteada Nueva, “Caña Brava,” S of Cabral, 1300 m, *A. H. Liogier* 11639 (NY, US); Caña Brava, Monteada Nueva, Barahona, 1300 m, *A. H. Liogier* 25145 (GH, JBSD, NY); Monteada Nueva, *E. Marcano* [*Herb. J. Jiménez* No.] 5281 (NY); Sierra de Baoruco, Loma “Pie Pol” (Pie de Palo) de La Guasára de Barahona, 18°10'N, 71°12'W, 1250 m, *T. A. Zanoni* 38645 (FLAS); Sierra de Baoruco, Loma Pie de Pol (Pie Pol), 18°10'N, 71°13'W, 1400 m, *T. A. Zanoni* 41116 (FLAS). Prov. Independencia: Zapotén, El Aguacate, Duvergé, 1300 m, *A. H. Liogier* 27014 (JBSD, NY); Sierra de Baoruco, 38 km S of Duvergé, or 5 km S of Aguacate, along the International Highway between Los Arroyos and Pedernales, 18°18'N, 71°42.5'W, 1550–1600 m, *T. A. Zanoni* 26569 (FLAS). Prov. Monseñor Nouel: rd. to Alto Casabito, ca. 8 km from junction with Highway Duarte, 890–925 m, *W. S. Judd* 6525 (FLAS). Prov. Pedernales: above Los Arroyos, 1700 m, *A. H. Liogier* 23221 (JBSD, NY). Prov. Peravia: Cordillera Central, 15 km N of Parque Central de San José de Ocoa and 10 km from the “cruce de Los Arroyos” on rd. to Carmona, 18°40'N, 70°32'W, 4400 ft., *T. A. Zanoni* 21449 (FLAS). Prov. Santiago Rodríguez: Cordillera Central, Monción, Lagunas de Cenobi, ca. 1100 m, *E. L. Ekman* H12765 (A, GH, S, US). Prov. La Vega: Cordillera Central, Reserva Científica Ebano Verde, Loma Golondrina, 1400–1565 m, 19°30'N, 70°33'W, *R. García* 46123 (FLAS); Cordillera

Central, Loma La Golondrina, ca. 1565–1500 m, E from Paso Bajito, *W. S. Judd 5159* (FLAS, GH, JBSD); Loma de la Sal, Jarabacoa, 1200 m, *A. H. Liogier 11367* (NY, US); Loma de la Sal, Jarabacoa, 1000–1400 m, *A. H. Liogier 11945* (GH, US); Loma de la Sal, Jarabacoa, 1300–1400 m, *A. H. Liogier 13389* (GH, US); Alto Casabito, Bonao, 1300 m, *A. H. Liogier 18308* (F, NY); Alto Casabito, Bonao, 1300 m, *A. H. Liogier 23006* (JBSD, NY); Loma de la Sal, Jarabacoa, 1200 m, *A. H. Liogier 23613* (JBSD, NY); Cordillera Central, Loma La Golondrina, 1525 m, *J. D. Skean 1786* (FLAS).

HAITI. Dept de L'Ouest: Massif de la Selle, Furcy, 1540 m, *E. L. Ekman H1290* (s); Massif de la Selle, Parc National Morne la Visite, Morne d'Enfer, 1850–1880 m, *W. S. Judd 4662* (EHH, FLAS); Parc National Morne la Visite, between Morne d'Enfer and Morne Fe Noir, 1660–1735 m, *W. S. Judd 4763* (FLAS); Massif de la Selle, along Kenscoff Rd. 2.9 mi. S of junction with rd. to Morne Teleco (= Morne Tranchant), ca. 5.4 mi. S of Kenscoff and 0.3 mi. N of Furcy, 1560 m, *W. S. Judd 6822* (EHH, FLAS). Dept. du Nord: Massif du Nord, Port Margot, top of Morne Maleuvre, ca. 1150 m, *E. L. Ekman H2815* (s, US). Dept. du Sud: mountains of "La Hotte," near Aux Cayes, ca. 800 m, *E. L. Ekman H142* (NY, s); Morne de la Hotte, western slopes of "Ma Blanche," ca. 1400 m, *E. L. Ekman H549* (NY, s); Massif de la Hotte, Parc National Pic Macaya, Morne Formon, ridge and N slopes, 1650–1800 m, *W. S. Judd 3741* (EHH, FLAS); Parc National Pic Macaya, Morne Cavalier, ca. 1530–1560 m, *W. S. Judd 4025* (FLAS, JBSD); Parc National Pic Macaya, S slopes of Morne Formon, just E of Pic Le Ciel, 1850–1950 m, *W. S. Judd 5742* (FLAS); Parc National Pic Macaya, near Deron plain, Bwa Deron, 1150–1190 m, *W. S. Judd 6904* (EHH, FLAS); Massif de la Hotte, Macaya Biosphere Reserve, S slopes of Morne Formon, in Ravine Fond Bleu, 1275–1300 m, *W. S. Judd 5759* (FLAS); Macaya Biosphere Reserve, Ravine de Sud, Gran Ravine, N slopes of Morne Formon, 1450–1780 m, *J. D. Skean 1346* (EHH, FLAS); *ibid.*, *J. D. Skean 1379* (EHH, FLAS); Macaya Biosphere Reserve, along high ridge from Morne Macaya to Pic Formon and Pic le Ciel, 1900–2219 m, *J. D. Skean 1470* (FLAS); Macaya Biosphere Reserve, ridge of Morne Formon, 1830–1860 m, *J. D. Skean 1538* (FLAS); Massif de la Hotte, Morne Formon, on the ridge, 1820 m, *J. D. Skean 1677* (DUKE, EHH, FLAS); Massif de la Hotte, Macaya Biosphere Reserve, Morne Formon, ridge E of Pic le Ciel, 1900–2100 m, *J. D. Skean 2449* (FLAS).

Miconia tetrastoma is phenetically distinctive because of its unusual branched hairs on the stems, inflorescence axes, and leaves, which have a distinctive granular surface texture due to the presence of numerous bulging, thin-walled cells. The species also has distinctive 4-pored anthers, and its flowers are not in dense glomerules. The leaves are immediately separable from other species of section *Cremanium* on Hispaniola because of acuminate to long-acuminate apices.

Miconia tetrastoma occurs at lower elevations, in a wider variety of habitats, and is more widespread (Figure 6) than any other species of section *Cremanium* on Hispaniola.

ACKNOWLEDGMENTS. We thank James D. Skean, Jr. for his companionship and assistance in fieldwork conducted in the Dominican Republic and Haiti, and for his useful comments on the manuscript. Thomas A. Zanoni,

Miliciadas Mejía, and the staff of the Jardín Botánico Nacional provided logistical support and assistance in obtaining collecting permits in the Dominican Republic. Charles Woods, Dan and Tia Cordier, Paul Paryski, and Florence Sergile provided help during fieldwork in Haiti and assistance in obtaining collecting permits in Haiti, for which we are grateful. We thank the curators of A, B, DUKE, F, FLAS, GH, II, JBSD, MICH, MO, MSC, NY, s, US for their loans of specimens. This research was supported, in part, by NSF Grant BSR-9016793.

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