New species of Cyrilla (Cyrillaceae) from Cuba

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New species of *Cyrilla (Cyrillaceae)* from Cuba

Abstract

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In the study of the genus *Cyrilla* in Cuba seven new taxa are described: *C. coriacea, C. lutgardae, C. macrocarpa, C. megaphylla, C. microareolata* (with two subspecies) and *C. silvae.* Together with *C. cubensis* and *C. nipensis,* previously known, eight *Cyrilla* species grow in Cuba. Their principal diagnostic features are in leaf morphology and fruit size. *Cyrilla* species are found growing throughout Cuba, in lowland and mountains, principally in gallery woods along rivers, in montane and submontane rainforest, cloud forest, pine woods, xerophytic ± thorny scrub on serpentine and in savannahs. A key to all Cuban taxa is provided.

Additional key words: *Ericales,* taxonomy, Greater Antilles, distribution

Introduction

The family *Cyrillaceae* Lindl. comprises two genera: *Cliftonia* Banks ex C. F. Gaertn. (southeastern North America) and *Cyrilla* (southeastern North America, Central America, northern South America and Antilles). The genus *Purdiaea* Planch. (Cuba, Central and South America), traditionally included in this family, has recently been transferred to *Clethraceae* Klotzsch (Anderberg & Zhang 2002; Kubitzki 2004).

Cyrilla shows a high degree of variation in foliar morphology, which has been used by some authors (Mattick 1935; Uphof 1942) to define nine different species in the genus, whereas others (Gilg 1892; Thomas 1960) accept only one highly variable species. Thomas (1960: 83), having studied the variation of leaves, petals and anthers, concluded that "there are not real gaps or discontinuities separating one pattern from the next. Instead, the different patterns of variation are connected by intermediate forms". By consequence he relegated all 11 previously described species (16 taxa) to the synonymy of the single *C. racemiflora*.

For Cuba, Alain (1953) accepted four species: *Cyrilla racemiflora* L., *C. nipensis* Urb., *C. cubensis* P. Wilson and *C. nitidissima* Urb. Later (Alain 1969), following Thomas (1960), reduced these four to the single *C. racemiflora.* Borhidi & Muñiz (1971) considered two of them as subspecies of *C. cubensis: C. cubensis* subsp. *nitidissima* (Urb.) Borhidi and *C. cubensis* subsp. *nipensis* (Urb.) Borhidi.

When revising Cuban *Cyrilla* for my treatment of *Cyrillaceae* for the "Flora de la República de Cuba", I found a high variation in morphology particularly in E Cuba, obviously the centre of diversity of the genus. Contrary to Thomas (1960), who also noted that diversity, I found discrete patterns of leaf morphology traits, which allow the recognition of separate species. In the present paper six new species are described. Adding two species formerly described, *C. cubensis* (incl. *C. nitidissima*) and *C. nipensis* (Fig. 12), Cuba hosts eight *Cyrilla* species in total. The Cuban record of *C. racemiflora,* endemic to southeastern North America, is erroneous.

The present paper is based on the study of specimens from the following herbaria: B, BM, F, G, GH, GOET, HAC, HAJB, JE, NY, S, US (abbreviations after Holmgren & al. 1990), supplemented with observations in the

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field. The descriptive terminology of leaf morphology follows Hickey (1973) and Stearn (1973).

Description of the genus

Cyrilla Garden ex L., Syst. Nat., ed. 12, 2: 182. 1767 & Mant. Pl.: 5. 1767. – Type: *Cyrilla racemiflora* L.

Evergreen shrubs, or trees up to 25-30 m tall; young shoots green or reddish. *Petioles* of young leaves green or reddish. *Leaves* sometimes reddish when young, simple, alternate, entire, glabrous, sometimes with wax layers and needles. *Inflorescence* a simple raceme, in the axils of the leaves of the last year, glabrous. *Bracts* solitary at the base of the pedicel of each flower, persistent, the bracts of basal flowers bigger than those of apical ones. *Bracteoles* two, alternate or subopposite, near the middle of the pedicel, in the upper third, or at the base of the flower close to the calyx, persistent in fruit. *Flowers* pentamerous, actinomorphic, bisexual; *sepals* 5, equal, basally jointed, thickened, persistent; *petals* 5, equal, free, medially and basally thickened, boat-shaped, white; *stamens* 5, alternating with the petals, filaments flat, anthers versatile, dehiscing by longitudinal slits; *disk* present; *ovary* superior, style short, persistent in fruit, stigma 2-lobed. *Fruits* dry, indehiscent, 2-locular; *seeds* one per locule, without seed coat.

Dispersal — The dry fruits are able to float and are dispersed by running water. The roots of *Cyrilla* form a network, more or less parallel to the soil surface, and produce adventive buds, which leads to the formation of large clonal stands (Thomas 1960), a phenomenon that can also be observed in the eastern Cuban mountains.

Distribution — Principally on the banks of rivers and streams; in the coastal plains of southeastern North America, the lowlands and mountains of Central America, northern South America and the Antilles; in montane and submontane rainforest, cloud forest, pine woods, gallery woods, xerophytic ± thorny scrub on serpentine and savannahs.

Key to the Cuban taxa

1. Secondary and tertiary veins on the abaxial leaf surface of equal thickness 2
– Secondary veins on the abaxial leaf surface thicker and more prominent than tertiary veins . . . 4
2. Leaves 2 × longer than wide, not mucronulate, areoles > 1 mm in diameter . . . . . *C. silvae*
– Leaves 3 × longer than wide, mucronulate, areoles < 1 mm in diameter *(C. microareolata)* . . . 3
3. Leaf blade ≤ 6 cm long, acute, base narrowly cuneate . . *C. microareolata* subsp. *microareolata*
– Leaf blade generally 6-9.5 cm long, obtuse, base acute . . *C. microareolata* subsp. *macrophylla*
4. Leaf blade acute or subacute 5
– Leaf blade obtuse or rounded 6
5. Leaf blade subacute, notched . . *C. lutgardae*
– Leaf blade acute, without apical notch *C. nipensis*
6. Tertiary veins on the adaxial leaf surface prominent toward the slightly revolute margin; dry leaves brown adaxially 7
– Tertiary veins on the adaxial leaf surface obscure toward the margin; dry leaves olive green adaxially 8
7. Leaf blade obovate, base acute; fruits spherical . . . . . *C. macrocarpa*
– Leaf blade elliptic, base obtuse or rounded; fruits ovoid . . . . . *C. megaphylla*
8. Leaves 2 × longer than wide; adaxial surface scarcely shiny; racemes 6-12 cm long . *C. coriacea*
– Leaves 1½ × longer than wide; adaxial surface very shiny; racemes 3-4 cm long . . . *C. cubensis*

Description of new taxa

Cyrilla coriacea Berazaín, **sp. nov.**
Holotype: Cuba, Holguín, Moa, cerca del aserrío La Melba, Charrascos, 25.4.1981, *G. Arnold, J. Bisse, H. Dietrich, L. González, L. Lepper, B. Mory HFC 44964* (HAJB; isotypes: B, HAJB, JE). – Fig. 1.

Ab aliis speciebus hujus generis foliis eximie coriaceis, in sicco supra olivaceis subnitidis subtus ferrugineis, nonnusquam convolutis, leviter emarginatis differt.

Shrub or tree up to 6 m tall; shoots green. *Leaves* green when young; *petiole* (4-)7.7(-13) mm long, green in young leaves; *blade* (2.3-)5.2(-7.3) × (1.1-)2.2 (-3.7) cm, elliptic, rarely obovate, rounded or obtuse, slightly emarginate, base obtuse or acute, very coriaceous, margin revolute; sometimes leaf blades rolled; venation on adaxial surface: central vein depressed, secondary veins prominent or prominule, tertiary veins prominule; venation on abaxial surface: central vein prominent or very prominent, secondary veins prominent, tertiary veins prominule, both forming a large reticule; adaxial surface slightly bright, olive; abaxial surface ferrugineus in dry material; without wax. *Racemes* (6-)7.8 (-12.5) cm long; *bracts* of basal flowers 2-2.3 × 0.1-1.4 mm, ovate, obtuse; bracts of apical flowers 1.6-1.8 × 1 mm, narrowly triangular, very acute; *bracteoles* subopposite at the calyx base, 0.3-1 × 0.2 mm, long-triangular, very acute. *Pedicels* 1-2 mm long at anthesis, 2-2.2 mm long at fruiting. *Flowers* 3-4 mm in diameter; *sepals* 0.5-1.3 × 0.5-1 mm, ovate, acute; *petals* 1.5-2.2 × 0.6-0.8 mm, ovate, acute; *stamens* 1.2-2.5 mm, filaments 1.8-2.1 mm, anthers 0.5-0.9 mm long, elliptic, connective not extended; *ovary* 1-1.8 mm long, 0.6-0.7 mm in diameter, ovoid, style 0.5 mm long. *Fruits* 2-3 × 2-3 mm, ovoid.

Fig. 1. *Cyrilla coriacea,* holotype specimen.

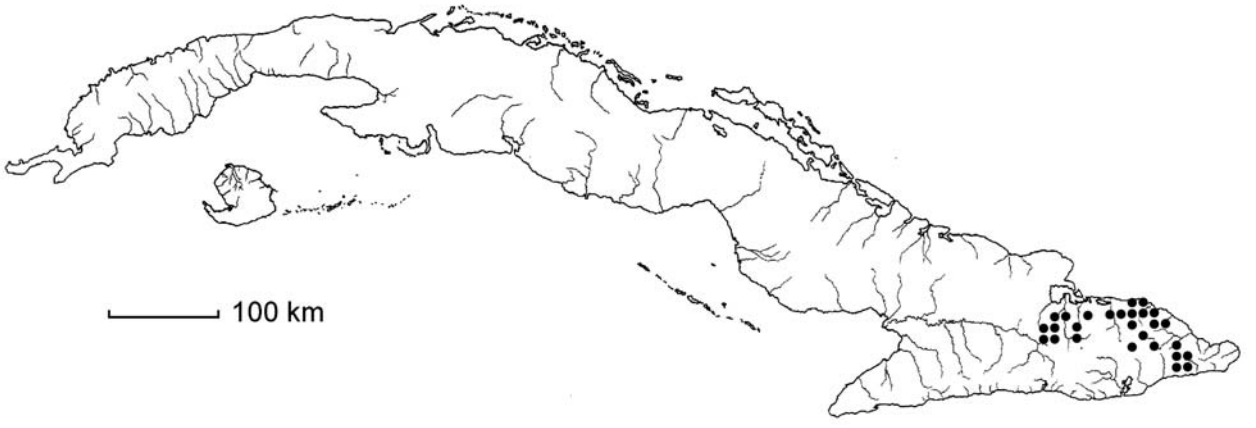

Fig. 2. *Cyrilla coriacea,* total known distribution.

Phenology — Flowering material has been collected from March to August, fruiting material from January to February, in April, from June to August and in October.

Etymology — The epithet refers to the fact that the leaves are very coriaceous.

Distribution and habitat — Endemic to E Cuba, provinces of Guantánamo, Holguín and Santiago de Cuba. In pluvial montane rainforest, pine woods, cloud forest, gallery woods and ± thorny xerophytic scrub on serpentine. Altitude: 30-800 m. – Fig. 2.

Additional specimens examined — GUANTÁNAMO: BARACOA: Moa, La Iberia, 3.5.1973, *Álvarez & Berazaín HFC 24217* (HAJB); subida al mirador de la meseta de La Iberia, 14.4.1985, *Álvarez & al. HFC 56001* (B, HAJB, JE); altiplano de la Mina Iberia, entre el mirador y el Río Jaguaní, 14.4.1985, *Álvarez & al. HFC 56036* (B, HAJB, JE); Loma Los Guineos, 100-400 m, 14.4. 1986, *Arias & al. HFC 58678* (B, HAJB, JE); subida a la Sierra Azul, ladera noreste, 14.4.1986, *Arias & al. HFC 58781* (HAJB, JE); Loma Los Guineos, 19.4.1986, *Arias & al. HFC 59031* (B, HAJB, JE); altiplano de la Mina Iberia, 600-700 m, 3.1968, *Bisse & Köhler HFC 6329* (HAJB, JE); camino de la Mina Iberia a la Melba, 30.12.1968, *Bisse & Lippold HFC 11506* (HAJB, JE). – IMÍAS: Sierra del Purial, La Gurbia, 700 m, 5.1968, *Bisse & Köhler HFC 9374* (HAJB, JE); Sierra de Imías, La Yamagua, Loma Maestra de Yamagua, 750-850 m, 14.4.1984, *Arias & al. HFC 52905* (B, HAJB, JE); Sierra de Imías, Loma al N.O. del Alto de Yamagua, 800-900 m, 18.4.1984, *Arias & al. HFC 53400* (B, HAJB, JE). – MAISÍ: Loma oeste del Río Tacre, 15.7. 1975, *Areces & al. HFC 27485A* (HAJB). – YATERAS: Palenque, suroeste de Pico Galano, 400-700 m, 5.1968, *Bisse & Köhler HFC 9506A* (HAJB), *HFC 9507* (JE); Cupeyal del Norte, 700 m, 6.1967, *Bisse & Rojas HFC 3541* (HAJB, JE), *HFC 3545* (JE), *HFC 3700* (HAJB, JE); Palenque, Cuchillas del Toa, orillas del arroyo Cayo Fortuna, 22.3. 1972, *Bisse & al. HFC 22718* (HAJB, JE); Palenque, Cayo Fortuna, Sierra del Frijol, orillas del Río Toa, 300 m, 11.5.1983, *Arias & al. HFC 49262* (HAJB, JE); Loma Mensura, Sierra de Nipe, 650-950 m, 18.7.1970, *Borhidi & al. SV 172/32* (HAC); Srra. [Sra.] de Magueg [Maguey], offener Buschwald am fels. Gratweg 2 km W Cupeyal, 760 m, 11.1.1968, *Kuban.-Deutsch. A. v. Humboldt-Expedition 666* (HAC); Campamento de Los Rusos, cabezadas del Río Yarey, 12.3.1987, *Pérez Asso SV 37658* (HAC). — HOLGUÍN: FRANK PAÍS: Sierra Cristal, al suroeste de El Culebro en la subida al Alto del Mono, 8.4.1987, *Bässler & al. HFC 60709* (HAJB); Sierra Cristal, al suroeste de El Culebro en la subida al Pico Cielo, 13.4.1987, *Bässler & al. HFC 61112* (B, HAJB, JE). – MAYARÍ: Pinares de Mayarí, Woodfred, en la orilla de una cañada, 20.5.2005, *F. Areces & al. HFC 83505* (HAJB), 26.3.2005, *F. Areces & al. HFC 83507* (HAJB); Pinares de Mayarí, 31.3. 1990, *Berazaín HFC 68981* (HAJB); Pinares de Mayarí, Río Guayabo, 8.8.1989, *Berazaín HFC 69261* (HAJB); Sierra Cristal, charrascales cerca de Mandinga, 300 m, 4.1968, *Bisse & Köhler HFC 6658A* (HAJB), *HFC 8637* (HAJB, JE); orillas de las cabezadas del Río Piloto, 700-800 m, 30.9.1977, *Álvarez & al. HFC 35726* (B, HAJB, JE); Pinares de Mayarí, Pinar Redondo, orillas del Río Piloto, 350-400 m, 25.3.1983, *Arias & al. HFC 50165* (B, HAJB, JE); Pinares de la Sierra de Nipe, 5.1940, *Carabia LS 3621* (HAC, MT, NY); Sierra de Nipe, 24.4.1914, *Ekman 2168* (NY, S); Pico del Cristal, Sierra del Cristal, 1900 a 3750 pies de alto, 25.8.1959, *López Figueiras UO 94* (HAC, HAJB, US 2287530); crest of Sierra de Nipe, 600-700 m, 16.-18.10.1941, *Morton & Acuña 3250* (US 1782975); Sierra Nipe near Woodfred, 450-550 m, 15.1.1910, *Shafer 3575* (NY). – MOA: Pinares, 15.4.1945, *Acuña 8542* (HAC-Roig); Pinares camino a Cayo Coco, 15.4.1945, *Acuña 8543* (HAC-Roig); Mina Delta, 400 m, 7.1949, *Alain & Clemente LS 920* (GH, HAJB, US 2288011); Cerro de Cananova, 7.1949, *Alaín & Clemente LS 984* (GH); cabezadas del Río Jiguaní, Mina Yarey, 15.5.1983, *Álvarez & al. HFC 49549* (HAJB); km 23 en el camino a La Melba, 19.4.1985, *Arias & al. HFC 56182* (HAJB,

JE); entre Revuelta de Los Chinos y la base del Toldo, 20.4.1985, *Álvarez & al. HFC 56442* (B, HAJB, JE), *HFC 56460* (B, HAJB, JE); Río Cayo Guam, 17.3.2000, *Baró & al. SV 41364* (HAC); carretera Moa-La Melba, km 12-13, 7.9.1994, *Berazaín & al. HFC 71426* (HAJB); orillas del Río Jiguaní, cerca de la Mina Yarey, 4.4.1972, *Bisse & Berazaín HFC 21999* (HAJB, JE); charrascales en el altiplano de la Sierra de Moa, 600-900 m, 3.1968, *Bisse & Köhler HFC 6653* (HAJB, JE); La Melba, charrascal cerca del aserrío, 400-500 m, 3.1968, *Bisse & Köhler HFC 7222* (HAJB, JE); parte inferior del camino a La Melba, 4.1968, *Bisse & Köhler HFC 7567* (HAJB, JE); alrededores del Aserrío La Melba, 450-500 m, 24.4. 1980, *Álvarez & al. HFC 42190* (B, HAJB, JE); Altos de la Sierra de Moa, entre Altos de La Calinga y ladera oeste de la Loma del Toldo, 1800 m, 21.4.1981, *Bisse & al. HFC 44660* (B, HAJB, JE); Revuelta de Los Chinos, 700 m, 22.4.1981, *Bisse & al. HFC 44812* (B, HAJB, JE); cabezadas del Río Jiguaní, Mina Yarey, 400 m, 15.5.1983, *Arias & al. HFC 49523* (B, HAJB, JE); Cuchillas de Moa, 4.1972, *Catasús HFC s.n.* (HAJB); nuevo camino de La Breña, 7.6.1945, *Clemente LS 4426* (GH, HAC); between Cerro de Miraflores and Centeno, 8.1950, *Clemente LS 7407* (GH, US 2289005); cerca de la Tienda, 18.7.1944, *Clemente & Alaín LS 4117* (GH, HAC); Monte de La Breña, 27.6.1945, *Clemente & al. LS 4426* (HAJB); camino nuevo de las minas Cayoguán, 7.1949, *Clemente & al. NSC 6798* (HAC); camino de la Mina Delta, 7.1949, *Clemente & al. NSC 6821* (HAC); camino de Centeno, Cananova, 7.1949, *Clemente & al. NSC 6888* (HAC); camino del Cerro de Cananova a Centeno, entre Cananova y Moa, 8.1950, *Clemente & al. LS 7407* (HAC); 15 SW of Compañía de Moa Mill, Sierra de Moa, 7.1941, *Howard 5857* (GH, NY, US 1959052): Cerro de Miraflores, Cananova, 7.1942, *León (Valentín Montero) LS 21148* (GH, HAC, HAJB, MT); La Melba, 400-500 m, 6.4.1970, *Lippold HFC 16408* (HAJB, JE), *HFC 16428* (JE); camino Mina Merceditas, 16.3.2000, *Machado & al. SV 41381* (HAC); plateau entre le Rio Cabañas et le Rio Moa, 400 m, 27.-31.5.1943, *Marie Victorin & Clemente LS 21781* (HAC, MT); en el km 18 de la carretera a La Melba, 2.4.1990, *Oviedo & al. HFC 69027* (HAJB); vicinity of camp San Benito, 900 m, 24.2.1910, *Shafer 4067* (NY), *4068* (NY), *4082* (NY); camp La Gloria, S of Sierra de Moa, 24.-30. 12.1910, *Shafer 8083* (NY). – Sagua de Tánamo: Reservación de Cupeyal, Sierra Cristal, 8.2.1970, *Borhidi & al. SV 81/98* (HAC). — Santiago de Cuba: Segundo Frente: Camino entre El Halcón y las cabezadas del Río Levisa, al sur del Pico Cristal, 700 m, 24.4.1985, *Álvarez & al. HFC 56482* (B, HAJB, JE); subida al firme del Pico Cristal, cerca del canadá, 800 m, 27.4.1985, *Álvarez & al. HFC 56907* (B, HAJB, JE); arroyos y cañadas en la falda sur de la loma El Gallego, 29.4.1985, *Álvarez & al. HFC 56998* (B, HAJB, JE); subida al Pico Cristal por el suroeste, 30.4. 1985, *Álvarez & al. HFC 57200* (B, HAJB, JE), *HFC 57219* (HAJB); pinares y arroyos en la ladera este de la Loma El Gallego, 2.5.1985, *Álvarez & al. HFC 57249* (B, HAJB, JE); Sierra Cristal, NE desde el camino de La Zanja, 19.10. 2000, *Bécquer & Matos HFC 79812* (HAJB); Sierra Cristal, Loma Los Mulos, 600 m, 4.1986, *Bisse & Köhler HFC 7560* (HAJB, JE); Mayari Arriba, Sierra de Mícara, 800 m, 6.1967, *Bisse & Rojas HFC 4233A* (HAJB).

Cyrilla lutgardae Berazaín, **sp. nov.**
Holotype: Cuba, Holguín, Mayarí, pinares de Mayarí, Mogotes del Río Piloto, 400 m, 1.6.1983, *I. Arias, C. Beurton, J. Bisse, H. Dietrich, J. Gutiérrez, L. Lepper, E. Köhler, R. Rankin HFC 50672* (HAJB; isotypes: B, HAJB, JE). – Fig. 3.

Ab aliis speciebus hujus generis foliorum lamina subacuta distincte emarginata, margine plana vel parum revoluta, subtus haud nitida differt.

Shrub or small tree, up to 3-4 m tall; shoots reddish. *Leaves* green when young; *petiole* (3-)5.3(-9) mm long, reddish in young leaves; *blade* (2.5-)4.1(-5) × (1-)1.5 (-2) cm, obovate, rarely elliptic, acute, emarginate, base acute, slightly coriaceous, margin plane to slightly revolute; venation on adaxial surface: central vein depressed, secondary veins prominent, tertiary veins prominule; venation on abaxial surface: central vein prominent, secondary veins prominent, tertiary veins prominule, both forming a large reticule; adaxial surface not bright; without wax. *Racemes* (4.5-)6.8(-9.5) cm long; *bracts* of basal flowers 1.2 × 0.6-0.8 mm, ovate to triangular, obtuse; bracts of apical flowers 0.7-1.2 × 0.3-0.5 mm, narrowly triangular, acute; *bracteoles* subopposite in the upper third of the pedicel, 0.8 × 0.3 mm, narrowly triangular, acute. *Pedicels* at anthesis 2-2.2 mm long, 2.2-2.8 mm long at fruiting. *Flowers* 3-4 mm in diameter; *sepals* 2.2-2.5 × 0.7-0.8 mm, ovate, acute; *petals* 2.2-2.5 × 0.8-1 mm, ovate, acute; *stamens* 1.2-2 mm, filaments 1.2-1.5 mm, anthers 0.5-0.9 mm long, elliptic, connective not extended; *ovary* 1-1.2 mm long, 0.8-1 mm in diameter; slender-ovoid, style 0.5 mm long. *Fruit* 1.8-2.2 × 1.8-2.2 mm, ovoid, sometimes spherical.

Phenology — Flowering material collected in January and March to October; fruiting material in February to March and May to November.

Etymology — The epithet commemorates Lutgarda González Géigel, a beloved professor of botany in the National Botanical Garden and Biology Faculty of Havana University.

Distribution and habitat — Endemic to central Cuba (provinces of Camagüey and Ciego de Ávila) and E Cuba (provinces of Guantánamo, Holguín and Santiago de Cuba). Altitude: 100-900 m. – Fig. 4.

Fig. 3. *Cyrilla lutgardae,* holotype specimen.

Fig. 4. *Cyrilla lutgardae,* total known distribution.

Additional specimens examined — S. LOC.: *Wright 1320* (G, HAC, P, W). — CAMAGÜEY: En las orillas del Río Yucatán, 6.1967, *Bisse & Rojas HFC 2900* (HAJB, JE); Camagüey, 4.1954, *Rodríguez SV 19192* (HAC). — CIEGO DE ÁVILA: Florencia, San Felipe, entre el Obelisco de Isidro Piñeiro y la presa, 3.10.2002, *Gutiérrez & al. HFC 80372* (HAJB), *HFC 80374* (HAJB). — GUANTÁNAMO: BARACOA: Charrascos cerca de la Loma de la Farola, 500 m, 2.1968, *Bisse & Köhler HFC 5707* (HAJB, JE); Sierra Azul (inter Quibiján et Toa), 500 m, 23.1.1915, *Ekman 4381* (S); Santa María a Iberia, 11.5.1952, *Smith SV 626* (HAC); Guantánamo, *F. Hioram 2000* (MT); Guantánamo, 8.1914, *Roig 650* (HAC-Roig). – IMÍAS: Alto de Cotilla, 400-500 m, 29.5.1982, *Bässler & al. HFC 47150* (B, HAJB, JE). – MAISÍ: Peladeros de Jauco, 300-400 m, 5.1968, *Bisse & Köhler HFC 8008* (HAJB, JE); La Tinta, Peladeros de Jauco, desembocadura del Arroyo Baracoa, 6.6.1982, *Bässler & al. HFC 47736* (B, HAJB, JE); La Cuchilla, zona de La Olla, 9.6.1982, *Bässler & al. HFC 47995* (B, HAJB, JE); orillas del Río Jauco, Jauco Arriba, 17.4.-4.8.1924, *León LS 11755* (HAC, MT, US 1302121). – YATERAS: Peña Prieta, Toa, 600 m, 22.7.1953, *Alaín LS 3132* (GH, HAC, US 2288529); Cayo Fortuna 2.4.1972, *Bisse & Berazaín HFC 22321* (HAJB, JE); Monte Cristi, 700 m, 5.1968, *Bisse & Köhler HFC 9035* (HAJB, JE), *HFC 9252* (HAJB, JE); Monte Verde, 1.-7.1859, *Wright 1320* (GH, GOET). — HOLGUÍN: FRANK PAÍS: Entre el Aserrío Palenque y el Río Cabonico, 400-800 m, 2.5.1981, *Dietrich & al. HFC 45386* (B, HAJB, JE); Cuevas del Purnio, 5.11.1971, *Bisse & al. HFC 2064* (HAJB, JE). – MAYARÍ: El Prado, Nicaro, 26.-27. 5.1955, *Acuña SV 19694* (HAC, HAJB); arroyo afluente del Río Piloto, 10.8.1988, *Berazaín HFC 66172* (HAJB); Sierra de Nipe, Estación ECODEM, 4.8.1989, *Berazaín HFC 68535* (HAJB); arroyo cerca de la ECODEM, 31.3.1990, *Berazaín HFC 68980* (HAJB); pinares detrás del Motel "Pinares de Mayarí", 21.10. 1006, *Berazaín & González-Torres HFC 84134* (HAJB); cabezadas del Río Piloto, 21.10.2006, *Berazaín & González-Torres 84154* (HAJB); Sierra de Nipe, Mayarí Abajo, charrascales de la Loma de la Mensura, 700-1000 m, 6.1967, *Bisse & Rojas HFC 3902* (HAJB, JE); Sierra de Nipe, cayo de monte húmedo en el altiplano, 6.1967, *Bisse & Rojas HFC 3991* (HAJB, JE); cerca de Sierra Cristal, 16.2.1955, *G. Budouski SV 24129* (HAC); Sierra de Nipe, 5.1940, *Carabia LS 4087* (HAC); Sierra de Nipe, Cayo del Rey, Río Canapú, 23.5.1940, *Carabia LS 4087* (MT, NY); Sierra de Nipe sec Río Piedras, 500 m, 3.7.1914, *Ekman 1787* (S, US 2113619); Sierra de Nipe in manacales ad Río Ploto, 350 m, 14.3.1915, *Ekman 5013* (S); Sierra de Nipe in charrascales al Río Piloto, 10.6.1915, *Ekman 6009* (S); Sierra de Nipe ad marginem Río Piloto, 20.4.1919, *Ekman 9502* (S); Sierra de Nipe, camino de La Mina, 27.7.1940, *León & Alain LS 19172* (HAC, MT); Sierra de Nipe, Río Sojo, 27.7.1940, *León & Alain LS 19173* (HAC, MT); Sierra de Nipe, Cayo de Monte, al pie de La Mensura, 7.4.1941, *León & al. LS 19925* (HAC), *LS 20114* (MT), *LS 20117* (MT); Sierra de Nipe, 25.11. 1954, *López Figueiras SV 1601* (HAC, HAJB); Sierra de Nipe, márgenes del Río Naranjo, 25.11.1954, *López Figueiras LS 1635* (HAC, HAJB); Sierra de Nipe, arroyo sur le chemin de la mine Woodfred, 14.-18.5.1944, *Marie Victorin & Clemente LS 22062* (MT); Sierra de Nipe, al pie de La Mensura, 7.4. 1945, *Marie Victorin & al. LS 19925* (HAC); crest of Sierra Nipe, 600-700 m, 16.-17.10.1941, *Morton & Acuña 3068* (HAC, US 1782839); Sierra de la Boca, cerca de la Zoilita, 1.11. 1986, *E. del Risco SV 35094* (HAC). – MOA: Aeropuerto, 9.4.1945, *Acuña 8610* (HAC-Roig), *Acuña SV 12522* (HAC); sendero de Yamanigüey, 23.10.2006, *Berazaín & González-Torres HFC 84194* (HAJB); km 1.5 carretera Moa-Baracoa, 8.9.1994, *Berazaín & al. HFC 71391* (HAJB); carretera Moa-La Melba, km 8, 7.9.1994, *Berazaín & al. HFC 71418* (HAJB); charrascales al este de Yamanigüey, 3.1968, *Bisse & Köhler HFC 6059* (HAJB, JE); en las orillas del Río Jiguaní, cerca del segundo aserrío de La Melba, 4.1968, *Bisse & Köhler HFC 6780* (JE); charrascales al este de Yamanigüey, 15.8.1970, *Bisse & Lippold HFC 17862* (HAJB, JE); pinares de Playa La Vaca, 6.1967, *Bisse & Rojas 4283* (JE); Moa, 6.1939, *G. C. Bucher 27*

(HAC-Roig), *42* (NY), *LS 55* (HAC, HAC-Roig 8610); Caimanes Abajo, por el camino a Farallones de Moa, 29.3.1988, *Claro & al. HFC 63477* (HAJB); Moa, Ensenada, 5.1938, *Carabia LS 17825* (MT); orilla del pantano del aeropuerto, 5.1944, *Clemente NSC 3547* (GH, HAC, MT); Cayo Chiquito, 17.7.1944, *Clemente & al. LS Cl. 3809* (GH, HAC, MT); Río Yagrumaje del Medio, Punta Gorda, 18.7.1944, *Clemente & al. NSC 3851* (GH, HAC, MT); Cercanías del Aserrío, 23.7. 1947, *Clemente & al. NSC 5551* (HAC), *NSC 5596* (HAC); Moa, near airfield, 7.1941, *Howard 6013* (GH, NY, US 1959076), *6205* (GH, NY, P, US 1959107); 15 km SW of Compañia de Moa Mill, Sierra de Moa, 7.1941, *Howard 6035* (GH, NY); charrascos del Cerro de Miraflores, Cananova, 7.1942, *León 21135* (GH, HAL, MT); manigua cerca de la playa de Moa, 22.7.1947, *León & Clemente LS 23238* (HAC, GH), Moa, thickets, near the airstrip, 21.7.1944, *León & al. LS 20114* (GH, HAC, US 2289764); Cerro Miraflores, Cananova, 15.-16.4.1954, *López Figueiras 1238* (HAJB); Río Yagrumaje, 16.-23.4.1943, *Marie-Victorin & al. LS 21610* (GH, MT); Rio Yamaniguey, 27.2.-1.3.1910, *Shafer 4236* (NY, US 696329); banks of the Río Yagrumaje, 20°38'N, 74°53'W, 17.7.1951, *Webster 3789* (GH). – Rafael Freyre: Falda norte del Cerro Galano, 18.10.1978, *Álvarez & al. HFC 38245* (B, HAJB, JE). — Santiago de Cuba: Mella: Mayarí Abajo, pinares cerca de la Loma de la Estrella, 800 m, 12.8.1970, *Bisse & Lippold HFC 18123* (HAJB, JE); Alto de La Estrella, 400 m, 24.5.1983, *Bisse & al. HFC 50086* (B, HAJB, JE); Alto de La Estrella, 17.7.1987, *Gutiérrez HFC 62289* (HAJB). – Segundo Frente: Sierra Cristal, cabezadas del Río San Miguel, 600-800 m, 4.1968, *Bisse & Köhler HFC 8176* (HAJB, JE); Sierra Cristal, charrascal de la Loma Saca La Lengua, 600 m, 6.1967, *Bisse & Rojas HFC 4149* (HAJB, JE); Sierra Cristal, Loma del Desayuno, cabezadas del Río Arroyón, 600 m, 10.-16.10.2000, *Bécquer & Matos HFC 79781* (HAJB); Sierra del Cristal prope Río Levisa, 650 m, 9.3.1916, *Ekman 6883* (S); camino de Mayarí Abajo a Sierra del Cristal, 27.-28.8.1959, *López Figueiras UO 282* (HAJB, US 2287208).

Cyrilla macrocarpa Berazaín, **sp. nov.**
Holotype: Cuba, Holguín, Moa, camino a La Breña, 2 km después del río, 4.5.1973, *Álvarez & Berazaín HFC 24431* (HAJB; isotypes: B, HAJB, JE). – Fig. 5.

Ab aliis speciebus hujus generis foliis obovatis basin versus acutatis, in sicco supra atrobrunneis nitidis, subtus pallide brunnescentibus, praecipue autem fructibus cunctarum maximis depresso-globosis differt.

Shrub or small tree, up 3 m tall; branched; shoots reddish. *Leaves* green when young; *petiole* (2-)4.8(-9) mm long, reddish in young leaves; *blade* (2.2-)3.6(-5.9) × (0.9-)1.4(-2.1) cm, obovate, rarely elliptic, rounded, slightly emarginate, base acute, coriaceous, margin plane or slight revolute; venation on adaxial surface: central vein depressed, secondary veins prominent or prominule, tertiary veins prominule; venation on abaxial surface: central vein prominent, secondary veins prominent, tertiary veins prominule, both forming a large reticule; adaxial surface bright and dark brown, abaxial surface light brown in dry material; without wax. *Racemes* (4-)5.2(-6.5) cm long; *bracts* of basal flowers 1.3-2 × 0.7-0.8 mm, ovate, acute; bracts of apical flowers 0.7-2 × 0.5 mm, narrowly triangular, very acute; *bracteoles* opposite, near the middle of the pedicel, 0.7-1.5 × 0.4-0.5 mm, triangular, acute. *Pedicels* 1-2 mm long at anthesis, 2-4 mm long at fruiting. *Flowers* 4-5 mm in diameter; *sepals* 0.8-1.5 × 0.5-0.7 mm, triangular, acute; *petals* 1-2 × 0.5-0.6 mm, ovate, obtuse; *stamens* 1.3-1.8 mm, filaments 0.8-1 mm, anthers 0.4- 1.6 mm long, elliptic, connective not extended; *ovary* 1.5-2 mm long, 0.7 mm in diameter, ovoid, style 0.5 mm long. *Fruits* 2-4 × 2-5 mm, spherical, depressed at both ends.

Phenology — Flowering material has been collected from March to November; fruiting material from January to May, in July, from September to October and in December.

Etymology — The epithet refers to the fact that this species has the biggest fruits among the Cuban species.

Distribution and habitat — Endemic to E Cuba, provinces Guantánamo, Holguín and Santiago de Cuba. In montane rainforest, humid pine woods, cloud forest, gallery woods and xerophytic scrub on serpentine. Altitude: 0-700 m. – Fig. 6.

Additional specimens examined — Guantánamo: Baracoa: Mina La Iberia, 3.5.1972, *Álvarez & Berazaín HFC 24185* (HAJB); orillas del Río Báez, 1.8. 1975, *Bisse & al. HFC 26842* (HAJB, JE); laguna grande de la Meseta de La Iberia, 15.4.1985, *Álvarez & al. HFC 55955* (B, HAJB, JE); Cajobabo, valle al suroeste del Alto de Cotilla, 400-500 m, 12.2.1976, *Áreces & al. HFC 30032* (B, HAJB, JE); charrascos en el valle del Río Maraví, 11.2.1972, *Bisse HFC 21519* (HAJB, JE); al noroeste de Baracoa, 2.1968, *Bisse & Köhler HFC 5453* (HAJB, JE), *HFC 5459* (HAJB, JE); Quibiján, Sierra Azul, 400-600 m, 2.1968, *Bisse & Köhler HFC 5489* (HAJB, JE); charrascales cerca de la desembocadura del arroyo Maguana, 2.1968, *Bisse & Köhler HFC 5643* (HAJB, JE); charrascos en el valle del Río Maraví, 2.1968, *Bisse & Köhler HFC 5789* (HAJB, JE); charrascos cerca de la loma de La Farola, 2.1968, *Bisse & Köhler HFC 5417* (HAJB, JE), 2.11.1968, *Bisse & Lippold HFC 10349* (HAJB, JE); Cayo Güín, charrascos y pinares del Río Maraví, 200-300 m, 8.2.1978, *Bisse & al. HFC 36627* (B, HAJB, JE); charrascal al oeste de Nibujón, 100 m, 4.1975, *Claro & Gutiérrez*

Fig. 5. *Cyrilla macrocarpa,* holotype specimen.

Fig. 6. *Cyrilla macrocarpa,* total known distribution.

HFC 25892 (HAJB); Sierra de La Iberia, Taco-bay, 11.4.1960, *López Figueiras UO 615* (HAC, HAJB); pinares cerca de Palma Clara, 400 m, 14.2.1976, *Manitz HFC 30163* (HAJB, JE); at 5 km from Sabanilla, 500 m, 1.4.1956, *Morton & Alaín 9072* (US 2285176); between Sabanilla and Cajobabo at 7 km from Sabanilla, 600 m, 14.1.1956, *Morton & Acuña 9095* (US 2285198). – YATERAS: Cerca de Cayo Fortuna, dirección Piedra La Vela, 750-800 m, 24.7.1953, *Alaín LS 3311* (HAC); near Cayo Fortuna, Sierra de Moa, 800 m, 24.7.1953, *Alaín LS 3311* (GH); Cumbre del Pico Galano, Sierra del Frijol, La Alegría, Toa, 1200 m, 1.1.1954, *Alaín LS 3749* (HAC); woods Pico Galano, 1200 m, 1.1.1954, *Alaín LS 3749* (GH); Cuchillas del Toa, Sierra del Magüey, 700 m, 4.1970, *Bisse HFC 16802* (HAJB, JE); Cuchillas del Toa, Pinares de Piedra La Vela, 4.1970, *Bisse HFC 16882* (HAJB, JE); Cuchillas del Toa, Cayo Fortuna, en el trillo de Riíto a Piloto, 4.1973, *Bisse & Berazaín HFC 21978* (HAJB, JE); Cayo Fortuna, charrascales de la Loma del Yarey, 22.3.1972, *Bisse & Berazaín HFC 22173* (HAJB, JE); Cuchillas del Toa, Cayo Fortuna, pluviosilva cerca del Arroyo Manajú, 30.3.1972, *Bisse & Berazaín HFC 22738* (HAJB, JE); palenque suroeste del Pico Galano, 400-700 m, 5.1968, *Bisse & Köhler HFC 9195* (JE); Cuchillas del Toa, Cayo Fortuna, camino hacia Pinar de la Ceiba, 21.3. 1972, *Bisse & al. HFC 22123* (HAJB, JE); Cuchillas de Toa, Sierra del Magüey, 700 m, 24.3.1972, *Bisse & al. HFC 22671* (HAJB, JE); Palenque, Sierra del Frijol al noroeste de Cayo Fortuna, 700-800 m, 20.5.1983, *Arias & al. HFC 49888* (B, HAJB, JE); Campamento de los Rusos, cabezadas del Río Yarey, 12.3.1987, *Pérez-Asso SV 37574* (HAC). — HOLGUÍN: FRANK PAÍS: Falda norte de la Sierra Cristal, 10.4.1987, *Bässler & al. HFC 60889* (B, HAJB, JE). – MAYARÍ: En el camino a La Zanja, 29.4.1985, *Álvarez & al. HFC 57045* (B, HAJB, JE); entre La Zanja y el entronque de Batista Oro, 2.5.1985, *Álvarez & al. HFC 57347* (B, HAJB, JE); Sierra Cristal, Valle del Río Levisa desde Mandinga hacia arriba, 4.1968, *Bisse & Köhler HFC 7384* (HAJB, JE); orilla Río Jimbambay, Cayo Rey, 3.9.1942, *Clemente NSC 2486* (GH, HAC, MT); cabezadas del Arroyo Guaro, Sra. de Nipe, 7.1940, *León LS 19171* (HAJB, HAC, MT); márgenes del Río Bío, Cayo Rey. 31.1. 1955, *López Figueiras 1850* (HAJB); márgenes del Arroyo Jimbambay, Cayo Rey, 19.2.1955, *López Figueiras LS 1902* (HAC, HAJB). – MOA: Pinares, 16.4. 1945, *Acuña 8662* (HAC-Roig), *Acuña SV 12523* (HAC, US 1881097); Arroyón, Monte La Breña, 5.11.1945, *Acuña SV 13174* (HAC); Mina Delta, 7.1949, *Alaín & Clemente 932* (GH, US 2288022); km 8-10 del camino a La Melba, 100 m, 1.5.1980, *Álvarez & al. HFC 42570* (B, HAJB, JE); camino viejo al campismo de Cayo Guam, 14.3.2000, *Baró & al. 41373* (HAC); camino Mina Merceditas, 17.3.2000, *Baró & al. 41384* (HAC); alrededores del entronque de la Mina Potosí, 50-100 m, 30.4.2003, *Bécquer & al. HFC 81122* (HAJB); subida a La Melba, km 2, 30.3.1995, *Berazaín & al. HFC 71581* (HAJB), Los Farallones, sur de la Sierra de Moa, 300 m, 31.3.1972, *Bisse & Berazaín HFC 22600-A* (HAJB), *HFC 22815* (HAJB, JE); orillas del Río Yagrumaje, 3.1968, *Bisse & Köhler HFC 6031* (HAJB, JE); pinares cerca de la desembocadura del Río Yagrumaje, 3.1968, *Bisse & Köhler HFC 6235* (HAJB, JE); La Melba, 400-500 m, 22.12.1968, *Bisse & Lippold HFC 11402* (HAJB, JE); La Melba, 500 m, 27.12. 1968, *Bisse & Lippold HFC 11652, 11966, 12028* (HAJB, JE); pinares del Cayo loco, 200-300 m, 13.8. 1970, *Bisse & Lippold HFC 17646* (HAJB, JE); orillas del Río Yagrumaje cerca del puente del camino Moa-Baracoa, 12.8.1970, *Bisse & Lippold HFC 17772* (HAJB, JE); charrascales al este de Yamaniguey, 15.8. 1970, *Bisse & Lippold HFC 17817* (HAJB, JE); La Veguita, pinares cerca del Río Yagrumaje, 8.1970, *Bisse & Lippold HFC s.n.* (HAJB); charrascales al este de Yamanigüey, 6.1967, *Bisse & Rojas HFC 3206* (HAJB, JE); Monte La Breña, 13.4.1981, *Álvarez & al. HFC 44045* (B, HAJB, JE); alrededores del aserrío La Melba, 450-500 m, 28.4. 1980, *Álvarez & al. HFC 42230* (B, HAJB, JE); km 18 de la carretera de La Melba, 400-500 m, 6.5.1980, *Álvarez & al. HFC 42872* (B, HAJB, JE); cabezadas del Río Jiguaní, 400 m,

15.5.1983, *Arias & al. HFC 49528* (B, HAJB, JE); Río Yagrumaje, Punta Gorda, 18.7. 1944, *Clemente & Alain LS 3864* (GH, US 2288570); camino de la Mina Delta, en el charrascal, 7.1949, *Clemente & al. NSC 6832* (HAC); La Breña, 7.1947, *León & Clemente LS 23303* (GH, HAC); Monte Breña, 8.1945, *León & al. LS 4693* (HAC); El Coco, 8.1945, *León & al. NSC 4737* (HAC); Pinares de Moa, 26.3. 1942, *León & al. LS 20753* (HAC, MT); pinares cerca de Punta Gorda, 30.3.1942, *León & al. LS 20831* (GH, HAC, MT), *LS 20832* (HAC, MT); bosques de La Breña, 1.8.1945, *León & al. LS 22545* (GH, HAC, US 2289876); Charrascal del Coco, 8.1945, *León & al. LS 22620* (GH, HAC, US 2289886); plateau entre le Río Cabañas et le Río Moa, 27.-31.5.1953, *Marie Victorin & Clemente LS 21780* (GH, HAC, MT); Rio Yamaniguey to Camp Toa, 22.-26.2.1910, *Shafer 4181* (GH, MT, NY); 35 km (airline) E of Sagua de Tánamo, 19.7.1951, *Webster 3852* (GH, NY, US 2284050). — Santiago de Cuba: Segundo Frente: Mayarí, River Leviza, 10.1943, *van Hermann 82* (HAC-Roig 8015); Río Leviza, Sierra Cristal, 10.1943, *van Hermann SV 11790* (HAC, HAJB).

Cyrilla megaphylla Berazaín, **sp. nov.**
Holotype: Cuba, Holguín, Moa, barranco del Arroyo Jaragua, cerca de la loma Jaragua, 200 m, 3.5.1980, *A. Álvarez, J. Bisse, J. Gutiérrez, F. K. Meyer HFC 42657* (HAJB; isotypes: B, HAJB, JE). – Fig. 7.

Ab aliis speciebus hujus generis foliis ellipticis cunctarum maximis, basi sicut apice rotundatis vel obtusis, nec non venis supra reticulum conspicuum formantibus differt.

Tree or shrub, 2-3 tall, shoots reddish. *Leaves* green; *petiole* (7-)13.5(-15) mm long, reddish in young leaves; *blade* (4.2-)8(-12) × (1.8-)3.6(-5.2) cm, elliptic (rarely obovate), rounded (rarely obtuse), emarginate, base obtuse, coriaceous, margin slightly revolute or plane; venation on adaxial surface: central vein not prominent, secondary veins prominent, tertiary veins prominule, both forming a large conspicuous reticule; venation on abaxial surface: central vein very prominent, secondary veins prominent, tertiary veins prominule, both forming a large reticule; adaxial surface slighty bright; both surfaces of the same colour in dry material, frequently with wax layers. *Racemes* (6-)9(-10.8) cm long, *bracts* of basal flowers 1.5-2 × 0.3-0.4 mm, ovate, obtuse; bracts of apical flowers 1.5-1.7 × 0.2-0.3 mm, lanceolate to linear, very acute; *bracteoles* subopposite in the upper third of the pedicel, 0.4-0.7 × 0.1 mm, linear to lanceolate, very acute. *Pedicels* 0.8-1.8 mm long at anthesis, 2-2.5 mm long at fruiting. *Flowers* 4 mm in diameter; *sepals* 0.8-1 × 0.5-0.8 mm, triangular, acute; *petals* 1.9-2.3 × 0.7-1.1 mm, ovate, acute; *stamens* 1.8-2 mm, filaments 1.4-1.5 mm, anthers 0.5-0.7 mm long, elliptic, connective not extended; *ovary* 1-1.6 mm long, 0.6-1 mm in diameter, ovoid, style 0.3-0.7 mm long. *Fruits* 2-2.8 × 2-2.8 mm; spherical or ovoid.

Phenology — Flowering material has been collected from April to May, and in July and October; fruiting material in August and from October to December.

Etymology — The epithet refers to the fact that the species has the largest leaves in the genus.

Distribution and habitat — Endemic to E Cuba, provinces Guantánamo and Holguín. Principally on banks of rivers and streams, in pine forest, submontane and montane rainforest. Altitude: 30-400 m. – Fig. 8.

Additional specimens examined — Guantánamo: Baracoa: Reserva Cupeyales, 6.1965, *Alonso Olivé SV 25820* (HAC); Aserrío Nuevo Mundo, 200 m, 4.1975, *Álvarez & Claro HFC 25861* (HAJB); Las Cuevas de Cayo Güin, 12.4.1985, *Álvarez & al. HFC 55711* (B, HAJB, JE); orillas de la desembocadura del Río Navas, 11.4.1986, *Arias & al. HFC 58456* (B, HAJB, JE); charrascos en el valle del Río Maraví, 4.1975, *Bisse HFC 16976* (HAJB, JE); lomas al oeste del Río Duaba, 2.1968, *Bisse & Köhler HFC 5035* (HAJB, JE); Loma del Yunque, 300-400 m, 2.1968, *Bisse & Köhler HFC 5601* (HAJB, JE), 6.1967, *Bisse & Rojas HFC 2645, 2676* (HAJB, JE); orillas del Río Báez, cerca del campamento "Los Naranjos", 1.-3.8. 1975, *Bisse & al. HFC 26888* (HAC, HAJB, JE), 21.1.1977, *Álvarez &* al. *HFC 33851* (B, HAJB, JE); Quibiján, cima occidental de Sierra Azul, 530 m, 17.2. 1978, *Hernández & Macías HFC 36985A* (HAJB). – Imías: Sierra de Imías, falda oeste de la Loma de Majagua Hueca, 600 m, 16.4. 1954, *Arias & al. HFC 53132* (B, HAJB, JE). — Holguín: Moa: Río Arroyón, La Breña, 5.11.1945, *Acuña SV 13172* (HAC), *SV 13173* (HAC, HAJB); pinares, vicinity of Moa, 15.4. 1945, *Acuña SV 12524* (HAC, US 1881098), *SV 12525* (HAC, US 1881099); valley of Cayogu'an River, 7.1949, *Alain & Clemente 894* (GH, HAC, HAJB, MT); Aguada, pinares de la Sierra de Moa, 750-800 m, 25.7.1953, *Alain LS 3350* (HAC); charrascales al oeste de la Universidad de Moa, 50 m, 28.4.2003, *Bécquer & al. HFC 81091* (HAJB), *HFC 84188* (HAJB), *HFC 84192* (HAJB); orillas del Río Yagrumaje, cerca del puente en el camino Moa-Baracoa, 12.1969, *Bisse HFC 15266* (HAJB, JE); orilla del Río Jiguaní, Mina Yarey, 4.4.1972, *Bisse & Berazaín HFC 22479* (HAJB, JE); La Melba, 500 m, 27.12. 1968, *Bisse & Lippold HFC 11547* (HAJB, JE); La Melba, 400-500 m, 22.12.1968, *Bisse & Lippold HFC 11568* (HAJB, JE), 6.1967, *Bisse & Rojas HFC 3262* (JE); Monte de La Breña, 300-500 m, 12.8.1970, *Bisse & Lippold HFC 17804, 17809* (HAJB, JE); orillas del Río Yagrumaje cerca del Puente, 6.1967, *Bisse & Rojas HFC 3173* (HAJB, JE); Monte La Breña, alrededores

Fig. 7. *Cyrilla megaphylla,* holotype specimen.

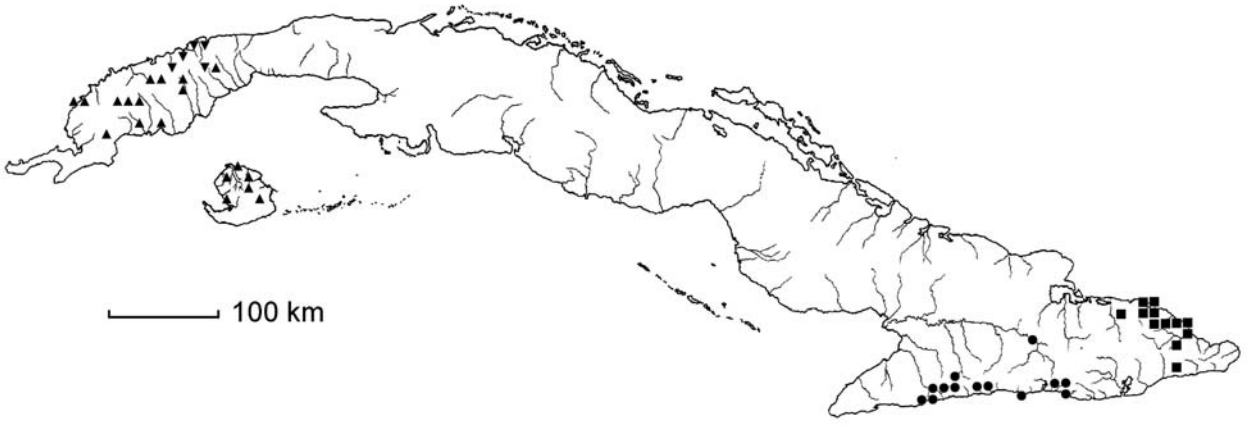

Fig. 8. *Cyrilla megaphylla* (■), *C. microareolata* subsp. *microareolata* (▲), subsp. *macrophylla* (▼), and *C. silvae* (●): total known distributions.

del campamento Los Carboneros, 300 m, 13.4.1981, *Bisse & al. HFC 44003* (B, HAJB, JE); charrascos cerca del aserrío La Melba, 25.4.1981, *Arnold & al. HFC 44949* (B, HAJB, JE); on the way Cayo Chiquito, 18.5.1944, *Clemente 3643* (GH, HAC, MT); 5.1944, *Clemente NSC 3645* (GH, HAC, HAJB, MT); chemin de Cayo La Breña, 26.6. 1945, *Clemente NSC 4428* (GH, HAC); Río Yagrumaje, 18.7.1944, *Clemente & Alain NSC 3829* (GH, HAC, MT), *Clemente & Alain LS 3872* (HAC, MT), *Clemente & Alaín LS 3850* (HAC, GH, MT), *Clemente & Alain 3884* (HAC); banks of Cayoguán River, 21.7.1944, *Clemente & Alaín 4000* (GH, HAC, HAJB, US 2288592), *Clemente & Alaín LS 4002* (GH, HAC, HAJB, US 2288593); Vega Cayoguán, 20.7. 1944, *Clemente & al. NSC 3951* (GH, HAC, US 2288585); La Breña, Los Carboneros, 300-400 m, 2.5.1985, *Dietrich & al. HFC 45476* (B, HAJB, JE); valley of Cayoguan River, 1.1943, *León LS 21342* (GH); Río Cayo Guán, Pta. Gorda, 7.1947, *León & Clemente LS 23099* (GH, HAC); sendero Río Cayoguán, Puente Delta, 16.7.1947, *León & al. NSC 5441* (HAC); La Breña, 1.8. 1945, *León & al. LS 22580* (GH, HAC, HAJB, US 2289880); pinares cerca de la costa de Punta Gorda 2.2.1969, *Lippold HFC 12335* (JE); bosques del Centeno, 27.-31.5.1943, *Marie Victorin & al. LS 21782, 21783, 21784* (HAC, MT); arroyo de Centeno, 4.1943, *Marie Victorin & al. LS 21497* (HAC); Río Cayo Guan, alrededores de la base de Campismo, 1.4. 1990, *Oviedo & al. HFC 68991* (HAJB).

Cyrilla microareolata Berazaín, **sp. nov.**
Holotype: Cuba, Pinar del Río, Mantua, Camarones, Barranco del arroyo Calenturas, 100 m, 18.5.1984, *A. Álvarez, J. Bisse, K.-F. Günther, F. K. Meyer, C. Panfet, R. Rankin, C. Sánchez HFC 54623* (HAJB; isotypes: B, HAJB, JE). – Fig. 9.

Ab aliis speciebus hujus generis foliis mucronulatis, saepe cera indutis vel aciculis ceraceis obtectis, nervis areolas diminutas efformantibus, connectivo antherarum argute appendiculato, nec non racemis cunctarum longissimis, 14 cm attingentibus differt.

Small tree up to 5(-10 m) tall; branched; shoots green. *Leaves* reddish; *petiole* (3-)7(-14) mm long, green in young leaves, sometimes with wax layers; *blade* (2.6-)6.2(-9.5) × (0.7-)1.7(-2.9) cm, elliptic to obovate, narrowly oblanceolate or lanceolate, retuse, acute to obtuse, mucronulate, base cuneate to acute, slightly coriaceous, margin revolute; venation on adaxial surface: central vein depressed, secondary and tertiary veins obscure, prominule or prominent, branching into a fine network of diminute areoles; venation on abaxial surface: central vein prominent to highly prominent, secondary and tertiary veins visible to prominent, branching into a fine network of diminute areoles; the adaxial surface bright; frequently with white wax needles or layers. *Racemes* (5.6-)9.6(-14) cm long; *bracts* of basal flowers 2.8-3 × 0.5 mm, oblong, acute to obtuse; bracts of apical flowers 1.6-1.8 × 0.3 mm, narrowly triangular, very acute; *bracteoles* subopposite near or above the middle of the pedicel, 0.7-0.8 × 0.3-0.4 mm, narrowly triangular, very acute. *Pedicels* 2 mm long at anthesis, 2-2.5 mm long at fruiting. *Flowers* 4 mm in diameter; *sepals* 0.7-0.8 × 0.5-0.7 mm, triangular, acute; *petals* 2-2.5 × 0.8-1 mm, ovate, acute; *stamens* 1.3-1.8 mm, filaments 1-1.8 mm, anthers 0.6-0.8 mm, kidney-shaped, connective extended with a sharp point; *ovary* 1 mm long, 0.6 mm in diameter, ovoid, style 0.5 mm long. *Fruits* 2-2.5 × 1.2-2 mm, ovoid.

Phenology — Flowering material has been collected from January to May, July to August and in October and December; fruiting material from February to November.

Common names — Barril, clavellina, llorona, yanilla, palo de jutía.

Fig. 9. *Cyrilla microareolata,* holotype specimen.

Etymology — The epithet refers to the fact that the species has a very finely reticulate tertiary venation, forming a regular network of minute areoles.

Distribution and habitat — Endemic to W Cuba, provinces of Pinar del Río and Isla de la Juventud. In pine woods and savannah, sometimes mixed *Quercus* woodland, gallery woods, always on acid soil (slates, white sands). Altitude: 0-700 m. – Fig. 8.

(a) *Cyrilla microareolata* subsp. ***microareolata***

Leaves with *petiole* (3-)5(-7) mm long and *blade* (2.6-)4(-5.9) × (0.7-)1.1(-1.6) cm, obovate, narrowly oblanceolate or lanceolate, acute, base narrowly cuneate; secondary and tertiary veins on the adaxial surface obscure to prominent, surface slightly bright. *Racemes* (6-)8.9(-11.5) cm long.

Distribution and habitat — Endemic to W Cuba, provinces of Pinar del Río (Consolación del Sur, Guane, Los Palacios, Mantua, Minas de Matahambre, Pinar del Río, San Cristóbal, San Juan y Martínez, Viñales) and on Isla de la Juventud. – Fig. 8.

Additional specimens examined — Pinar del Río: Consolación del Sur: Vicinity of Herradura, along stream, 26.-30.9.1910, *Britton & al. 6490* (NY); Herradura, 30.4.1903, *Shafer 436* (GH, HAC, NY). – Guane: Guillén, Lomas Contadores, 100-300 m, 15.5. 1984, *Álvarez & al. HFC 54329* (B, HAJB, JE); Guane, 21.11.1915, *Roig SV 6294* (HAC), *1060* (HAC-Roig). – Los Palacios: San Diego de los Baños, 7.1968, *Bisse HFC 9536* (HAJB, JE); San Diego de Los Baños, pinares al norte del arroyo Catalina 5.12.1976, *Álvarez & al. HFC 33576* (B, HAC, HAJB, JE); Alturas de Galalón, 6.1965, *Yero JBPI 618* (HAC). – Mantua: Playa Las Canas, al oeste del Arroyo Camarones, 5.12. 1979, *Bisse & al. HFC 41307* (B, HAJB, JE). – Minas de Matahambre: Luis Lazo, 5.7.1909, *Baker SV 5294* (HAC); Loma Cayo Malo, Sumidero, 12.12. 1978, *Bisse & al. HFC 38564* (B, HAJB, JE); Valle de Isaben [Isabel] María 5.1935, *Bruner & Acuña SV 24131* (HAC); Sumidero, 8.1912, *Shafer & León LS 13627* (= *Shafer 3259*) (GH, HAC, MO 707424, P, NY, US 757429); Luis Lazo, 5.7.1905, *Zarragoitía SV 5294* (F 187200, HAJB, NY, US 429477). – Pinar del Río: Cerro de Cabras, 300-400 m, 8.1969, *Bisse & Rojas HFC 4458* (JE, HAJB); vicinity of La Coloma, 6.9. 1910, *Britton & al. 7039* (NY); Sierra de Cabras on Guane road, 9.-11.9.1910, *Britton & al. 7211* (NY, US 696927); Sierra de Cabras, arroyo, 6.3.1911, *Britton & al. 9813* (NY). – San Cristóbal: Cerca de Cinco Pesos, 500 m, 22°46'25"N, 83°07'40"W, 8.11.2001, *Greuter & al. 25805* (HAJB). – San Juan y Martínez: Lagunillas on Río San Sebastián (near San Juan y Martínez), 11.5. 1922, *Ekman 13811* (S). – Viñales: Viñales, pinares al sur del pueblo, 11.1968, *Bisse & Lippold HFC 10869* (HAJB, JE); Viñales, pinar al suroeste de Moncada 180-200 m, 18.1.1983, *Bisse & al. HFC 48730* (HAJB); road to San Vicente 21 km north of Pinar del Río, 18.7.1955, *Harvard 15* (GH, NY); Viñales, 6.4.1930, *León LS 14339* (GH, HAC, MT), *LS 16963* (HAC, MT); Viñales, 20.5. 1978, *Lippold HFC 17214* (HAJB, JE). — Isla de la Juventud: Reserva Ecológica "Los Indios", 0-5 m, 31.3.2008, *Bécquer & al. HFC 85046* (HAJB), *HFC 85047* (HAJB); sabana arenosa 3 km al este de Siguanea, 25.12.1966, *Bisse HFC 772* (HAJB, JE); arroyo sin nombre, 2 km al este de Siguanea, 3.3.1967, *Bisse HFC 1667* (HAJB, JE); near Nueva Gerona, 5.9.1910, *Curtiss* 490 (F-165397, GH, HAC, MO-1713820, NY, US 522100); Santa Bárbara, 5.12.1901, *Earle s.n.* (NY); Nueva Gerona, banks of Río Las Casas. 31.4.1920, *Ekman 12011* (S), *Ekman 12012* (F 1476687, US 2113618); jungle along Río del Indio, 20.5.1910, *Jenning 436* (GH, NY, US 1045912); savannah of the center of the island, 11.5. 1940, *León & Marie-Victorin LS 17825* (GH, HAC, MT); savannes de Los Indios, 1.-4.5.1944, *Marie-Victorin & Alain LS 93* (GH, MT); Nueva Gerona, 8.7. 1900, *Palmer & Riley 1044* (NY, US 373182); Corte de Cardona, Hda. San Juan, 14.8.1919, *Roig & Cremata 7219* (HAC-Roig), *Roig & Cremata 1814* (NY).

(b) *Cyrilla microareolata* subsp. ***macrophylla*** Berazaín, **subsp. nov.**

Holotype: Cuba, Pinar del Río, San Cristóbal, Pinar del Rangel, 2 km al noroeste del batey del Rangel (22°45'52"N, 83°10'33"W), 280-300 m, 26.4.2008, *Z. Acosta HFC 85364, E. Bécquer, L. González-Oliva, R. Morejón, A. Novo, C. Sánchez, A. Urquiola, J. C. Veloso* (HAJB; isotypes: B, HAJB, JE). – Fig. 10.

Foliorum petiolus (7-)10.1(-14) mm longus, lamina (6.6-)7.4(-9.5) cm longa, (1.4-)2.1(-2.9) cm lata, obtusa, basi acutata, supra nitida, nervis secundi et tertii ordinis inconspicuis vel prominulis; racemi (5.6-)10.3(-14) cm longi.

Etymology — The epithet refers to the fact that the leaves are bigger than those of the typical subspecies.

Distribution and habitat — Endemic to W Cuba, province of Pinar del Río (Bahia Honda, La Palma, San Cristóbal). – Fig. 8.

Additional specimens examined — S. loc.: *La Sagra 151, 154* (GOET). — Pinar del Río: Bahía Honda: Pande Guajaibón, 400-600 m, 8.5.2004, *Bécquer & Abbott HFC 82428* (HAJB); orillas del Río San Marcos, Mil Cumbres, 5.2.1986, *Berazaín HFC 58292* (HAJB); arroyo cerca de San Juan de Sagua, 4.4.1976, *Bisse & al. HFC 30983* (HAJB, JE); Consolación del Norte, Pan de Guajaibón, 14.10.1976, *Álvarez & al. HFC 32506* (B, HAJB, JE); Las Pozas, 11.5.1982, *Bässler & al. HFC*

Fig. 10. *Cyrilla microareolata* subsp. *macrophylla,* holotype specimen.

48243 (B, HAJB, JE); Pan de Guajaibón, 26.3.1989, *Méndez & Verdecia 8415* (HIPC); Pan de Guajaibón, Bahía Honda, 1.4.1989, *Méndez & Verdecia 1121* (HMC); Sabanita entre Las Pozas y Bahía Honda, 4.1938, *León LS 17088* (HAC); Bahia Honda, 4.1938, *León LS 17088* (MT). – La Palma: Loma de la Cajálbana, 1.10.1949, *Acuña & Alain SV 24130* (HAC, HAJB); La Cajálbana, 8.3.1951, *Acuña & Roig SV 16770* (HAC); La Cajálbana, 1.10.1949, *Alain & Acuña LS 1130* (GH, HAC, US 2288076), *LS 1142* (GH, HAC, HAJB, US 2288077); orilla de ríos, falda este de la Loma de Cajálbana, 15.7.1950, *Alain & Clemente LS 1460* (GH, HAC, HAJB), *Alain & Clemente LS 1461* (HAC, HAJB, US 2288102); Loma Peluda de Cajálbana, 15.9.1970, *Bisse & Lippold HFC 18286* (HAJB, JE); Loma de Cajálbana, 4.1967, *Bisse & Rojas HFC 1916* (JE); falda sur de la Loma Peluda, 15.10.1976, *Álvarez & al. HFC 32607* (B, HAC, HAJB, JE); Cajálbana, 24.11.1969, *Borhidi & al. SV 45/8* (HAC), Cajálbana, 15.7.1950, *Clemente & Alain 1461* (GH), *Clemente & Alain NSC 7328* (HAC); Loma Pelud, Cajálbana, 22.7.1985, *Fernández & al. 29156* (HAC); S of Cajálbana, 5.4. 1915, *León 4931* (GH, MT); at the foot of Cajálbana Mt, 7.1938, *León LS 18470* (GH, HAC, MT); orillas del Río de las Vueltas, pie de la Cajálbana, 4.4.1915, *León & Charles LS 4931* (HAC, NY). – San Cristóbal: Rangel, Taco-Taco, 28.8.1927, *Acuña & Roig SV 14325* (HAC, HAJB); arroyos al pie de la Zambumbia, Rangel, Sierra del Rosario, 4.1942, *Alain LS 66* (HAC); Pinar del Rangel, Sierra del Rosario, 27.-29.12.1945, *Alain & Ponce de León LS 103* (HAC), 4.1946, *Alain LS 506* (GH, HAC); Rangel (Pinar del Río) Loma Pelada, 29.10.1925, *León LS 12534* (MT).

Cyrilla silvae Berazaín, **sp. nov.**
Holotype: Cuba, Santiago de Cuba, Guamá, entre La Alcarraza y Punta de Lanza, 30.5.1988, *A. Álvarez*, *C. Beurton*, *J. Gutiérrez*, *K.-F. Günther*, *D. Mai*, *F. K. Meyer, C. Panfet, R. Rankin, C. Sánchez, H. Schirarend HFC 65624* (HAJB; isotypes: B, HAJB, JE). – Fig. 11.

Arbor alta montium summorum incola, quae ab aliis speciebus hujus generis foliis supra subnitidis, subtus nervis secundi et tertii ordinis aeque crassis, reticulatis differt.

Tree, up to 20-30 m tall; shoots reddish. *Leaves* green when young; *petiole* (3-)7.6(-16) mm long, reddish in young leaves; *blade* (2.3-)4.2(-6.7) × (0.9-)1.5 (-2.6) cm, elliptic (rarely obovate), acute, slightly emarginate, base acute, slight coriaceous, margin revolute; venation on adaxial surface: central vein slightly depressed, secondary and tertiary veins prominule, branching into a large network; venation on abaxial surface: central vein prominent, secondary and tertiary veins prominule, branching into a large network; adaxial surface not bright; sometimes with wax layers. *Racemes* (5.5-)7.6 (-11.3) cm long; *bracts* of basal flowers 1.8-2.2 × 0.5-0.6 mm, narrowly triangular, very acute; bracts of apical flowers 0.8-1 × 0.3 mm, narrowly triangular, very acute; *bracteoles* at the base of the calyx, 0.7-1 × 0.3-0.4 mm, triangular, acute. *Pedicels* 1.7-2.5 mm long at anthesis. *Sepals* 0.8-1.1 × 0.6-0.7 mm, triangular, acute. *Petals* 1.9-2.8 × 0.7-1 mm, ovate or oblong, acute. *Stamens* 2-2.2 mm long, filament 1.7-1.8 mm long, anther 0.8 mm long, elliptic, connective not extended. *Ovary* 1-1.5 mm long, 0.7-0.8 mm in diameter, cylindrical, style 0.5-0.6 mm long. *Fruit* immature ovoid.

Phenology — Flowering material has been collected from April to August; fruiting in January and from July to October.

Common name — Barril.

Etymology — The epithet commemorates Idelfonso Silva Pérez, a self-taught botanist, who had a profound knowledge of Cuban nature and field botany.

Distribution and habitat — Endemic to E Cuba, provinces of Granma and Santiago de Cuba. In montane rainforest, cloud forest and pine woods. Altitude: 900-1970 m. – Fig. 8.

Additional specimen examined — Granma: Buey Arriba: Alrededores del poblado Barrio Nuevo, 1400 m, 10.5.1988, *Álvarez & al. HFC 63681, 63817* (B, HAJB, JE); Sierra Maestra, Pino del Agua, 900-1400 m, 30.11.1978, *Borhidi & Herrera B. 15331* (HAC). – Guisa: Sierra Maestra, falda norte del Pico Bayamesa, 900-1200 m, 5.1968, *Bisse & Duek HFC 9438* (HAJB, JE); Sierra Maestra, La Bayamesa, inter Río Oro et Río Yao, 110-1400 m, 3.5.1916, *Ekman 7091* (F-1470695, S, US 2113617); Sierra Maestra, "La Bayamesa", 1725 m, 4.5.1916, *Ekman 7158* (S); on or near crest Sierra Maestra, Pico de la Bayamesa, 4900-5200 feet, 16.-19.7.1955, *Harvard Course Tropical Botany 571* (GH, HAJB); Sierra Maestra Pico Bayamesa, 20.3.1970, *Lippold HFC 16202* (JE); ibid., 80-1100 m, 19.3.1970, *Lippold HFO 16059* (HAJB, JE); near summit of La Bayamesa, 1600-1800 m, 22.1. 1956, *Morton 9348a* (US 2285367); Alto de La Valenzuela, Sierra Maestra, 4000-4500 pies, 10.8. 1955, *López Figueiras LS 2256* (HAC, HAJB, US 2227125); Sierra Maestra, Pico La Bayamesa, 1300-1500 m, 25.5.2002, *Sánchez & Bécquer HFC 80051* (HAJB). — Santiago de Cuba: Guamá: Summit of Pico Turquino, Sierra Maestra, 5960 feet, 1.-2.8.1935, *Acuña SV 6752* (HAC-Roig, NY), *Acuña SV 9610* (HAC), 1.8.1935, *Acuña LS 13830* (HAC); Loma del Gato, Sierra del Cobre, 25.9.-5.10.1935, *Acuña SV 9834* (HAC); Loma del Gato, Sierra Maestra, 8.1944 *Alain LS 253* (HAC); entre El Caldero y Pico Cuba, 1600-1750 m, 23.7.1984, *Álvarez*

Fig. 11. *Cyrilla silvae,* holotype specimen.

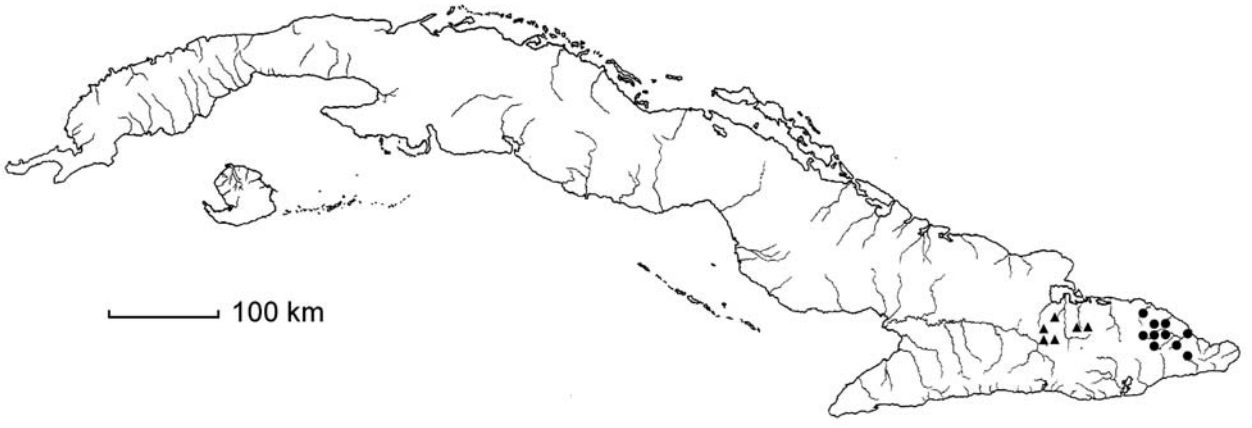

Fig. 12. *Cyrilla cubensis* (●) and *C. nipensis* (▲): total known distributions.

& al. HFC 54862 (HAJB); Sierra Maestra, Pico Cuba, 1800 m, 11.5.1971, *Lippold & L. González HFC 18855* (HAJB, JE), 12.5.1971, *Bisse & Lippold HFC 19047* (JE); Lomas de Joaquín y Regino, 20.4.1979, *Bisse & al. HFC 40540* (B, HAJB, JE); Pico Cuba, macizo del Turquino, 1700 m, 17.8.1990, *Brull & Verdecia 3829* (HMC); Sierra Maestra, Pico Turquino. 13./14.10.1924, *G. C. Bucher & Roig 4887* (HAC-Roig), *Bucher 82* (NY); Loma del Gato, Sierra Maestra, 12.1927, *Clemente LS 2000* (HAC, JE, MT); Sierra Maestra in summit monte Turquino, 18.4.1915, *Ekman 5507* (S); inter P. de Palmamocha et Loma Joaquín, 1200 m, 19.4.1915, *Ekman 5564* (S); Sierra Maestra, Loma del Gato in fangales, 1600 m, 29.3.1916, *Ekman 7009* (S); Sierra Maestra, Alto del Comején, 5.7.1918, *Ekman 9353* (NY, S); Sierra Maestra, trail to Pico Turquino, 76°52'W, 22°1'N, 1100-1250 m, 11.7.1985, *Gentry & Lavin 50967* (MO 3305489, MO 3714825); Loma del Gato, 7.1926, *Hioram LS 6631* (HAC, MT); Loma del Gato, Sierra Maestra, 7.1921, *León LS 9860* (GH, HAC, MT); Sierra Maestra en la zona de "El Gato", 6.4.1954, *López Figueiras 1497* (HAJB); La Cueva del Aura, Pico Turquino, 900 m, 20.-21.7.1940. *Seifriz 1051* (US 1781842); Pico Turquino, 19.3.1952, *Smith SV 388* (HAC). – Mella: SO of Paso Estancia, Ote, 12.5.1909, *Shafer 1737* (GH, NY, US 629904). – Santiago de Cuba: Gran Piedra, 1000-1100 m, 6.1967, *Bisse & Rojas HFC 3788* (HAJB, JE); on the way to Gran Piedra, 3.8.1950, *Clemente NSC 7346* (GH, HAC, US 2288998), *NSC 7352* (GH, HAC, US 2288999); Gran Piedra, 11.6.1982, *Dietrich & al. HFC 50842* (HAJB), 26.4.1989, *Dietrich & al. HFC 67445* (B, HAJB, JE); La Gran Piedra, 1200 m, 28.-29.6.1914, *Ekman 1661* (S); Sierra Maestra, supra Firmeza, 950 m, 9.11.1917, *Ekman 8766* (S); cercanías de La Gran Piedra, 1.10. 1954, *López Figueiras 1051* (HAJB); Cordillera de la Gran Piedra, 1.7.1956, *López Figueiras 2766* (HAC, HAJB, US 2227863); Jiguarito Mt Sierra Maestra, 3400 feet, 18.9.1906, *Taylor 502* (NY); La Gran Piedra, 8.8.1988, *Verdecia 3668* (HMC). – Tercer Frente: Sierra Maestra, La Meseta, 800 m, 5.1967, *Bisse HFC 3834* (HAJB, JE). – Without province: Sierra Maestra, Corojo in sylva ("monte frío") ad Treinta Pinos, 1000 m, 29.3.1915, *Ekman 5183* (F 1470694, NY, S); S'Yago de Cuba, Sierra Maestra, 1844, *Linden 2029* (G, MO 1606218, NY, P); Aserradero de Fresneda, Sierra Maestra, 2.10.1951, *Smith SV 256* (HAC); Cuba orientali, 1856-61, *Wright 1320* (HAC, MO 1713821, MO 1915826).

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