

New species of *Diospyros* (Ebenaceae) from the Neotropics and additional information on *D. apeibacarpus*

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Abstract

In the course of a revision of New World Ebenaceae for "Flora Neotropica" and other regional floras, specimens from 75 herbaria have been studied. *Diospyros amabi*, *D. scottmorii*, *D. ubaita* (all from Bahia, Brazil), *D. dolmen* (from Loreto, Peru), *D. amanap* (from Panama and Colombia), *D. alisu* (from Mexico) and *D. relit* (from Jamaica) are here described as new to science. *Diospyros* (*Maba*) *hilairei*, *D. janeirensis* and *D. weddellii* are relegated into the synonymy of *D. apeibacarpus*.

Key words: Ebenaceae, *Diospyros alisu*, *D. amabi*, *D. amanap*, *D. apeibacarpus*, *D. dolmen*, *D. hilairei*, *D. janeirensis*, *D. relit*, *D. scottmorii*, *D. ubaita*, *D. weddellii*, taxonomy, new species, flora of South America, Brazil, Peru.

Zusammenfassung

Im Rahmen einer Revision der neuweltlichen Ebenaceae für "Flora Neotropica" und andere Regionalfloras, konnten Herbarbelege aus 75 Herbarien studiert werden. *Diospyros amabi*, *D. scottmorii*, *D. ubaita* (alle aus Bahia, Brasilien), *D. dolmen* (aus Loreto, Peru), *D. amanap* (aus Panama und Kolumbien), *D. alisu* (aus Mexiko) und *D. relit* (aus Jamaica) werden hier erstmals beschrieben. *Diospyros* (*Maba*) *hilairei*, *D. janeirensis* und *D. weddellii* werden als Synonyme zu *D. apeibacarpus* gestellt.

Introduction

In the Americas, the Ebenaceae are represented by the genera *Diospyros*, with about 100–130 species, and *Lissocarpa* with 8 species. In the course of an ongoing revision of Ebenaceae (WALLNÖFER 2001 a, 2001 b, 2004 a, 2004 b, 2004 c; WALLNÖFER & MORI 2002) for "Flora Neotropica", "Flora of Ecuador", "Flora of the Guianas", "Flora de Paraguay" and "Flora ilustrada de la Península de Yucatán" several new species have already been described (WALLNÖFER 1999, 2000, 2003). More new species will be presented here:

Diospyros alisu B. WALLN., sp.n.

Diagnosis: Arbor 15–20 m alta; rami, folia et fructus juveniles dense obtecti cum indumentum ferrugineo-fuscum; petioli 1–1.2 cm longi; laminae foliorum (8–) 12–20 cm longae et (3.5–) 5–7.8 cm latae, chartaceae; calyx accrescens in fructu, 4–5-partitus, 3.5–4 cm latus in statu juvenali, subtus nec carinatus inter sinus loborum calycis et pedicellos; fructus depresso globosus, usque ad circiter 2.5–3 cm diametens.

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Typus: Mexico, Oaxaca, Mpio. San Felipe Usila, Punto 29 de Cerro Peña Blanca, 940 m, [San Felipe Usila is located at: 17°54' N, 96°32' W]¹, bosque mesófilo, ecotonia con selva alta perennifolia, suelo amarillo con orcas arsenicas, lutitas y lomerios y cañadas, (fr)², 18 Jun. 1991, **J.I. Calzada, J. Múyica & A. Lorenzo 17014** [holotype: MEXU]³; "árbol de 15 - 20 m; fruto verde con cerola persistente".

Tree 15 - 20 m tall; seedling (the one mounted on the type sheet) with black hypocotyl and roots; cotyledons opposite, 6.7 cm long, 3.4 cm wide, ovate, nearly sessile, glabrous; first, alternate leaf appearing on the stem 1.5 cm above the cotyledons; stem of the seedling loosely, and buds densely covered with more or less appressed, slightly bent, light brown to ferruginous-brown hairs (at least some of them 2-armed, but the arm pointing downwards extremely short); mature trees: juvenile parts of twigs, shoot apices (including very young leaves) and young petioles densely covered with a ferruginous-brown indumentum (hairs appressed to moderately spreading, more or less bent, at least some of them twisted); twigs subterete, black, glabrescent with age, slightly shriveled longitudinally when dry; **leaves** alternate, with brochidodrome venation; petioles 1 - 1.2 cm long, ca. 2 mm thick, more or less glabrescent when mature, black and wrinkled when dry (one petiole adaxially covered with a dense layer of minute, white crystals), slightly winged distally, on adaxial sides with only a very faint longitudinal groove; leaf lamina broadly lanceolate to elliptic, (8 -) 12 - 20 cm long, (3.5 -) 5 - 7.8 cm wide, chartaceous, on adaxial side greenish-gray to dirty gray, slightly shiny and glabrous, on abaxial side loosely covered with a brown indumentum when young, more or less glabrescent, dark grayish-brown and dull when older and dry; flachnektarien (extrafloral nectaria) on abaxial leaf surfaces circular, black, very small, scattered along the proximal third of the midvein (but somewhat away from it), missing at the base and on distal parts of the lamina; leaf apex obtuse; base of the lamina shortly attenuate, tapering for a few millimeters into the petiole; leaf margins entire, flat or slightly revolute when dry, not thickened, glabrous; midvein on adaxial side slightly sunken (and in some places with an additional, raised central ridge) or more or less flat distally, on abaxial side markedly prominent and longitudinally shriveled when dry, proximally covered with a dense, more distally with a loose, ferruginous-brown indumentum; secondary veins ca. 11 per side, flat adaxially, abaxially prominent and glabrescent with age; intersecondary veins slightly thinner and much shorter than the secondary veins; tertiary and quaternary veins slightly prominent or more or less flat on both sides; **inflorescences** and **flowers** not yet known; **fruits** solitary in axils of leaves, on 5 mm long and 3 mm thick stalks; young fruits green when alive, black when dry, 2.5 - 3 cm wide when dry, soon losing (except on apical and basal parts) the dense, more or less appressed, ferruginous-brown indumentum; epidermis of the fruit wall tightly adhering and rugose; calyx on fruits accrescent, 3.5 - 4 cm wide, black when dry, on basal and central parts of the exterior densely, everywhere else more loosely covered with a ferruginous-brown indumentum, consisting of more or less appressed, curled hairs; on the inside densely covered with the same kind of (but patent) hairs; calyx lobes 4 or 5, broadly triangular in outline, 8 mm long, 1.8 mm wide, distally obtuse; entire (proximal) part of the calyx much longer than

¹ Coordinates given in brackets have been determined during this revision.

² Abbreviations: defl = deflorate; fl = flowering; flbuds = with flower buds; fr = fruiting; st = sterile; yfr = with young fruits; carp = fruit in the carpological collection.

³ Acronyms of herbaria according to HOLMGREN & HOLMGREN (2004); abbreviations: n.s. = not seen); 2× = 2 sheets.

the lobes (the former not accessible for measurements), lacking longitudinal ridges abaxially running down from the sinuses; sinuses between the calyx lobes neither enlarged, nor reflexed; margins of the sinuses and proximal parts of the calyx lobes more or less flat when dry; ripe fruits and seeds not available for study.

Etymology: The plant name has been coined arbitrarily (see: GREUTER et al. 2000: Art. 23.2).

Diospyros amabi B.WALLN., sp.n.

Diagnosis: Arbor 5 - 12 m alta; petioli 1 - 2 cm longi; laminae foliorum (5 -) 10 - 18 cm longae et (2 -) 4 - 8 cm latae, coriaceae; flores 4-mera; alabastra florum femineorum ca. 12 mm longa; sepala alabastrorum florum femineorum 4 mm longa et 7 mm lata; staminodia 4; calyx accrescens in fructu, 4-partitus, ca. 5 mm altus et ca. 30 mm latus, subtus nec carinatus inter sinus loborum calycis et pedicellis; fructus depresso globosus, usque ad circiter 4 cm diametiens; exocarpium fructuum ca. 2 mm crassum.

Typus: Brasil, Bahia, Município de Una, Reserva Biológica do Mico-Leão (IBAMA [= Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis]), entrada no km 46 da Rod. BA-001 Ilhéus / Una, 15°09' S, 39°05' W, Região da Mata Higrófila Sul Baiana, (flbuds), 12 Feb. 1997, A.M. de Carvalho, A.M. Amorim, S.C. Sant'Ana, J.G. Jardim, P.B. Monteiro & E.R. de Castro 6316 [holotype: W, isotype: NY n.s.]; "arvore 12 m; folhas discolores com face inferior mais clara; botões florais verdes".

Tree 5 - 12 m tall; juvenile parts of twigs, petioles and veins of leaves often covered with a dense layer of minute, white crystals when dry; twigs subterete, blackish and longitudinally shriveled when dry, glabrous; buds usually densely covered with appressed, entire, straight, brown to ferruginous-brown hairs; leaves alternate, with brochidodrome venation; petioles 1 - 2 cm long, 1.8 - 3 mm thick, blackish and rugose when dry, slightly winged distally, on adaxial side with a deep and narrow longitudinal groove, glabrous when mature; leaf lamina more or less elliptic or slightly oblong, (5 -) 10 - 18 cm long, (2 -) 4 - 8 cm wide, stiffly-coriaceous, dull on both sides or slightly shining when dry, adaxially dull dark green when alive, olive-brown to blackish-brown when dry, abaxially light green or olive-colored when alive, olive-brown when dry, glabrous on both sides or with some remote hairs abaxially; flachnektarien (extrafloral nectaria) on abaxial leaf surfaces blackish, patelliform, scattered near the base of the lamina and along the proximal third of the midvein, missing on distal parts of the lamina; leaf apex obtuse or broadly acute; base of the lamina shortly attenuate, tapering for a few millimeters into the petiole; leaf margins entire, revolute in both alive and dry condition, not thickened, glabrous; midvein on adaxial side deeply sunken proximally, only slightly impressed distally, on abaxial side markedly prominent and longitudinally shriveled when dry, glabrous in mature leaves; secondary veins 12 - 15 per side, more or less prominent on both sides, in the proximal two thirds straight or only slightly curved; intersecondary veins only slightly shorter and thinner than the secondary veins; tertiary veins slightly prominent or more or less flat on both sides; quaternary veins usually not, or only hardly visible; male inflorescences and male flowers not yet known; female flowers 4-merous, not available at anthesis, green or olive-colored when immature and alive, solitary in axils of (sometimes already shed) leaves, or in axils of bracts on short, only scarcely developed shoots; pedicels of flower buds up to 2 mm long, and up to 2 mm thick dis-

tally; pedicels, bracts and bracteoles covered with appressed or slightly patent, straight or slightly curled, brown to ferruginous-brown hairs; bracts broadly rounded, 1 - 2 mm long, 2 mm wide; bracteoles ovate, ca. 3 mm long, 2.5 mm wide, obtuse distally; calyx on flower buds 10 mm long, externally covered with a loose to medium dense indumentum, similar to that of the pedicels (but hairs varying in length between 0.1 - 0.4 mm), adaxially (on the inside) densely covered with more or less patent and curled, ferruginous-brown hairs; calyx lobes on flower buds broadly triangular in outline, 3 - 4 mm long and 5 - 6 mm wide; sinuses between the calyx lobes moderately expanded and only slightly protruding to the outside; entire, proximal part of the calyx towards the sinuses 6 - 7 mm long; corolla in bud ca. 6 mm long; corolla tube ca. 2 mm long and 4 mm wide when dry, covered with the same sort of indumentum as the abaxial side of the calyx, but more or less glabrous proximally; corolla lobes contorted, abaxially glabrous, except along the midrib; staminodia 4 (only one flower bud from Mori 13254 dissected), equal in shape and size, their filaments adnate to the corolla over their whole length; aborted anthers flat, 1 mm long, free, attached to the corolla tube at 1 mm above its base; apical connective appendage narrowly conical, 0.5 mm long; connective glabrous or with a few, small hairs; ovary 3 mm wide and 2 mm high, densely covered with appressed, straight hairs, 8-locular; stylodia 4, ca. 1 mm long, partially glabrous; stalk of the **fruits** up to 4 mm long; immature fruits green or olive when alive, appanate-globose, broadest below the middle, ca. 3.5 cm long and 4 cm wide when dry (only half a fruit from Sant'Ana et al. 602 available for study), glabrous, brown to blackish; fruit wall hard, ca. 2 mm thick, with epidermis tightly adhering and rugose; calyx on fruits accrescent, ca. 5 mm high and ca. 30 mm wide, grayish or black when dry, more or less glabrescent externally; calyx lobes broadly triangular, ca. 9 mm long, 15 mm wide; entire (proximal) part of the calyx ca. 10 mm long, lacking longitudinal ridges running down from the sinuses abaxially; sinuses between the calyx lobes enlarged but not reflexed, adaxially (on the inside) still densely covered with hairs; margins of the sinuses and proximal parts of the calyx lobes flat (not involute) when dry; ripe fruits and seeds not available for study.

Etymology: The plant name has been coined arbitrarily (see: GREUTER et al. 2000: Art. 23.2).

Paratypes: Brasil, Bahia, Município de Una, estrada Olivença / Una, a 23 km ao S de Olivença, próximo ao nível do mar, [15°9' S, 39°1' W], restinga, (fl), 31 Dec. 1979, **S.A. Mori & F.P. Benton** 13254 [K, MG n.s., NY]; "arvore 5 m × 8 cm; fruto verde"; - Reserva Biologica de Una, Picada do Marimbondo, 15°10' S, 39°4' W, southern Bahian wet forest; light brown sandy clay, (yfr), 24 Nov. 1996, **W.W. Thomas, A.M. Amorim, J.G. Jardim & S.C. Sant'Ana** 11388 [NY]; "tree 8 m; leaves stiff-coriaceous, revolute, dull dark green above, olive beneath; fruit olive"; - Reserva Biológica do Mico-Leão (IBAMA), entrada no km 46 da Rod. BA-001 Ilhéus / Una, Picada da Bandeira, 15°09' S, 39°05' W, Região da Mata Higrófila Sul Baiana, (fr), 25 Jul. 1996, **S.C. de Sant'Ana, J.G. Jardim, H.S. Brito & J.A.L. dos Santos** 602 [NY]; "arvore ca. 12 m; folhas verdes, discolores; frutos imaturos esverdeado".

Diospyros amanap B.WALLN., sp.n.

Diagnosis: Arbores usque ad 8 - 12 m altae; petioli 4 - 6 (- 7) cm longi; laminae foliorum (3,5 -) 6,5 - 11 cm longae et (1,7 -) 3 - 4,5 cm latae, chartaceae, utrinque opacae; calyx accrescens in fructu, 3-partitus, usque ad ca. 3 cm latus; sepala patentia vel reflexa, acuta vel acuminata, usque ad 1,5 cm longa et 1 cm lata in fructu; fructus depressoglobosus, usque ad 2,5 (- 3?) cm diametens; exocarpium fructuum ca. 0,5 mm crassum; semina 5 (6) per fructum, 1,1 cm longa et 0,8 cm lata.

Typus: Panama, Darién, along El Cupe river ca. 20 km SSW of Boca de Cupe, 7°58' N, 77°40' W, 160 - 200 m, (fr), 29 Apr. 1990, **G. McPherson 14983** [holotype: MO, isotypes: BM, FHO (the latter seen some time back, but not available now, for preparing this description)]; "tree 8 m; calyx green; fruit purple".

Tree up to 8 - 12 m tall; twigs subterete, brown when dry, moderately dense covered with minute, stiff, patent, grayish bristles and more or less weathered hairs (same as on buds); older twigs glabrescent, brown to gray-brown; buds without bristles, densely covered with appressed, straight or slightly bent, grayish, up to 0.5 mm long hairs; **leaves** alternate, with brochidodrome venation; petioles 4 - 6 (- 7) mm long, 1 mm thick, dark brown, usually not rugose, with a wide, flattened, longitudinal groove adaxially, slightly winged (especially on distal part); abaxial sides of petioles with scattered, appressed, long hairs arising laterally from brown or black, slightly lengthened emergences (hairs pointing towards the base of the petiole); adaxial sides of petioles with more or less patent, short bristles; older petioles glabrescent; leaf lamina broadly lanceolate, (3.5 -) 6.5 - 11 cm long, (1.7 -) 3 - 4.5 cm wide, chartaceous, dull and greenish-gray-brown on both surfaces when dry, on adaxial sides glabrous and with minute, dot-like emergences, on abaxial sides with some remote, more or less appressed, straight hairs (like those on buds); flachnektarien (extrafloral nectaria) on abaxial leaf surfaces brownish to black, patelliform, scattered along, but several mm distant from the midvein (and usually missing near the base and the apex of the lamina); leaf apex acute to acuminate; base of lamina shortly attenuate; leaf margins entire, flat or slightly revolute in dry condition, not thickened, glabrous; midvein on adaxial side sunken in the proximal half, flat distally, moderately dense covered with more or less weathered, patent hairs and smaller bristles, but glabrescent distally; midvein on abaxial side prominent, with the same kind of emergences and hairs as on abaxial sides of petioles; secondary veins 7 - 8 per side, in the center of leaves 10 - 19 mm distant from each other, slightly sunken adaxially, prominent and with some remote hairs abaxially; intersecondary veins shorter and markedly thinner than secondary veins, faintly prominent on both sides; tertiary veins flat on both sides, often hardly visible adaxially; quaternary veins not, or only hardly visible; **inflorescences** and **flowers** not yet known; **fruits** solitary in axils of (in part already shed) leaves, on 1 - 2 mm long and thick stalks, more or less globose (all fruits damaged during the process of drying), ca. 2.5 (- 3?) cm in diameter, green or purple when alive, blackish-brown or black when dry; surface of fruits smooth, covered near the base and the apex with moderately dense or only scattered up to 1 mm long, more or less straight and appressed, light brown hairs, elsewhere glabrous or glabrescent; fruit wall less than 0.5 mm thick, with the epidermis not exfoliating; calyx on fruits accrescent, up to 3 cm wide, green when alive, dirty brown when dry, externally loosely covered with remnants of the indumentum or glabrescent; entire (proximal) part of the calyx 5 mm long, lacking longitudinal ridges running down from the sinuses on the abaxial side; sinuses between the calyx lobes inconspicuous (not enlarged); calyx lobes 3, patent or apparently also reflexed, acute to acuminate, ovate, up to 1.5 cm long and 1 cm wide, longitudinally leaf-like veined, with flat margins, abaxially (on the outside) glabrescent, adaxially (on the inside) the distal parts moderately, the proximal parts densely covered with straight, patent or more or less inclined, up to 0.5 mm long, light brown hairs; seeds black, finely rugulose on their surface, 1.1 cm long, 0.8 cm wide, and 0.7 cm thick (one fruit of McPherson 14983 contained 5 seeds, the ovary seems therefore to be 6-locular).

Etymology: The plant name has been coined arbitrarily (see: GREUTER et al. 2000: Art. 23.2). It has a very exciting, agreeable sound!

Paratype: Colombia, Antioquia, Mun. de Turbo, corregimiento de Lomas Aisladas, 50 m, [7°50' N, 76°58' W], (fr), 4 Feb. 1985, E. Renteria, J. Brand & A. Cogollo 3482 [MO ex JAUM]; "árbol 12 m; fruto verde, con 3 bracteas verdes".

***Diospyros apeibacarpus* RADDI, Quar. piant. nuov. Bras. 12 - 13 (1820)**

Preprint from: Mem. Mat. Fis. Soc. ital. Sci. Modena [according to IPNI = Mem. Mat. Fis. Soc. Ital. Sci. Modena, Pt. Mem. Fis.] 18 (2), (1821) [publication not seen; details as stated in STAFLEU & COWAN (1983)]. According to Index Kewensis, the description of the species begins on page 391 of this journal.

Typus: Brasil, Rio de Janeiro, "montagne [mountains] d'Estrella", [ca. 22°35' S, 43°15' W], (fr), Apr. 1818, G. Raddi s.n. [holotype: PI (except for one leaf in the capsule)]; Fig. 1.

Note 1: Except for the species name and the number "VIII." [?], no further information is given on the label of the herbarium specimen. The locality and the month of collection are stated in the protologue. According to IRMSCHER (1957) and FRANCINI CORTI (1977), Raddi arrived in Rio de Janeiro on November 5th, 1817, departing again on June 1st, 1818. The place of collection is not easy to locate: according to SMITH & SMITH (1967: 493) a "Pôrto de Estrella" ("by mouth of Rio Estrella or Inhomerim") is situated at 22°44' S and 43°14' W; the exact location of the "summit of Serra d'Estrella (Alto da Serra? Inhomerim?)" remains obscure.

Note 2: The holotype only consists of a mounted, small, leafless twig, with 4 leaves and several parts of a broken fruit kept in the capsule (Fig. 1). That plant material has already been described in detail by SANDWICH (1950: 485 - 487), who finally stated: "It seems very likely that the true affinity of *D. apeibacarpus* will prove to be with *D. gaultheriifolia*". A re-examination of the holotype now brought to light that only three of the leaves are conspecific, a fact missed by SANDWICH. The fourth leaf (called by SANDWICH the "fourth" or "oldest leaf" [see Fig. 1, inserts c and d]) does not belong to *Diospyros* at all! It differs from the other leaves, among other things, in its venation and indumentum. The secondary (and also some tertiary) veins are very well visible on the adaxial side of this leaf, but are not, or only scarcely so, on the other three leaves. The indumentum on the abaxial surface of this leaf is much denser and consists of longer hairs, as is not the case on the other leaves. Astonishingly, SANDWICH did not recognize (maybe he was not willing to do so) that his *D. janeirensis*, described in the same paper (see below), is indeed conspecific with *D. apeibacarpus*, which, on the other hand, has nothing to do with *D. gaultheriaefolia*.

= *Diospyros weddellii* HIERN, Trans. Cambridge Philos. Soc. 12 (1): 253 - 254 (1873) [as "*weddellii*"].

Typus: Brasil, Rio de Janeiro, "environs de Rio-Janeiro", [ca. 22°30' S, 43°30' W], (fr), 1843, H.A. Weddell 577 [holotype: P (photo F 38614 at F, GH, US); isotypes: F (fragm. ex P), G].

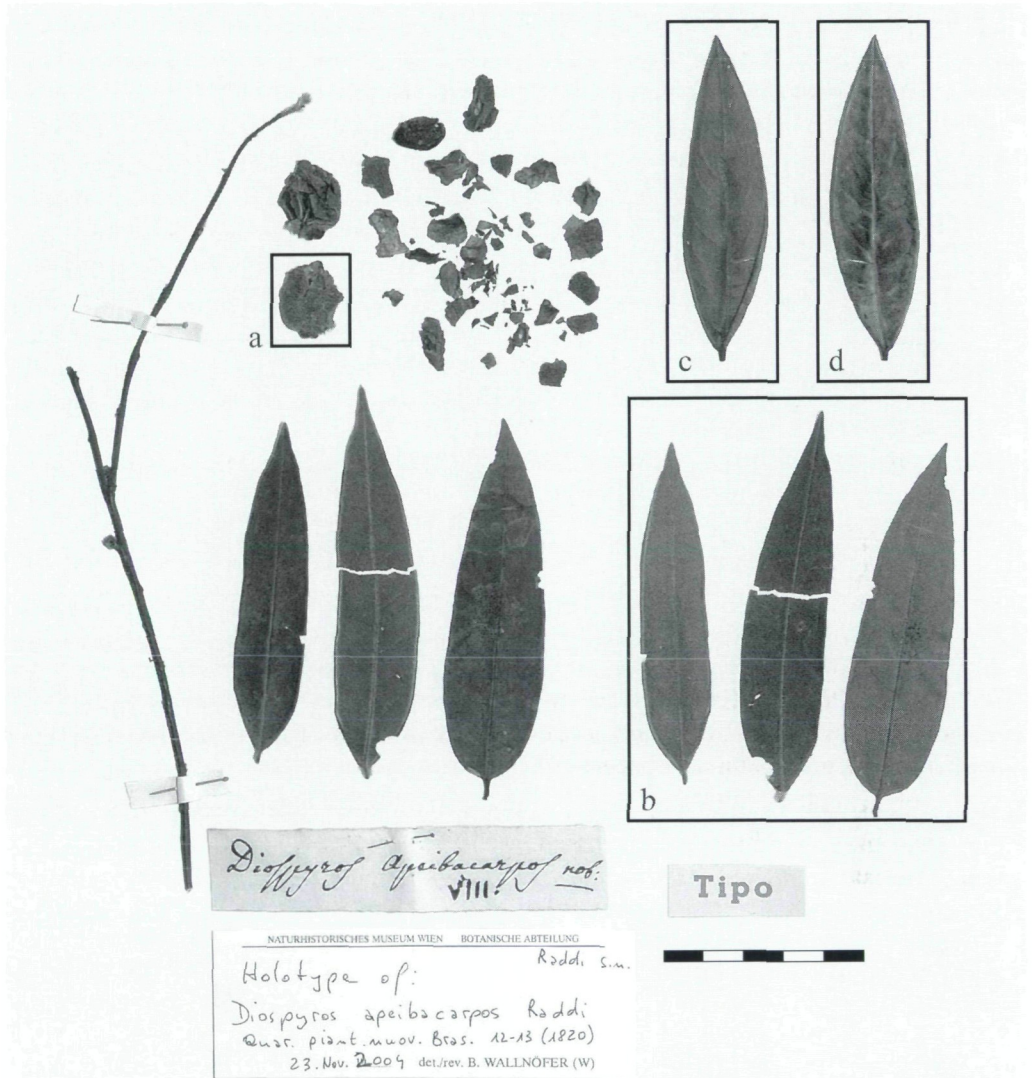


Fig. 1: Holotype of *Diospyros apeibacarpus* RADDI; inserts **a** and **b**: largest fragment of the fruit, respectively the leaves, as seen from the verso; inserts **c** and **d**: "fourth" leaf (not of *Diospyros*), as seen from both sides; bar = 5 cm.

Note: The holotype of *D. weddellii* is not annotated by Hiern (using a pencil, he usually marked with his initials "W. P. H." the sheets studied by him). Most probably, Hiern decided to describe and name his new species at a time, when he no longer had the specimen at his disposal. The species name and the author seem to have been added later by E. Spach. The printed label of the holotype erroneously indicates the collector as "Weddel", a fact which obviously lead Hiern to mis-spell the epithet. It was probably F. White who wrote on this label "? Holotype" with red ink. Currently, the holotype is in a very bad condition of preservation, as compared with the photo made several decades ago.

= *Maba hilairei* HIERN, Trans. Cambridge Philos. Soc. 12 (1): 143 (1873).

≡ *Diospyros hilairei* (HIERN) CAVALCANTE, Bol. Mus. Paraense Emilio Goeldi, N. S., Bot., 21: 10 (1963).

Typus: Brasil, Espirito Santo, "Province de Espir. Santo", [area along the lower Rio Doce, near Linhares, ca. 19°23' S, 40°05' W, see note below], (fl, female), Oct. 1818 [according to URBAN 1906], **A.F.C.P. de Saint-Hilaire "Catal. B 375"** [lectotype (here selected): P (photo F 38611 at F, GH, US); isotypes: F (fragm. ex P), P 2×].

Note: According to his field books, kept in the library at P, Saint-Hilaire collected plants along the shores of the lower Rio Doce (compare also URBAN 1906; HERTER 1947; HERTER & RAMBO 1953; DWYER 1955). Unfortunately, the site where he gathered the collection numbered 375 is not stated. Number 374 was collected on the "Bords du R. D. [Rio Doce]" and number 376 on the "bords du lac de Juparanán" [= "Lagoa Juparanã"]. Although SAINT-HILAIRE (1833, vol. 2: 335, 343) visited two lakes named "lac de Juparanán", he most likely collected the species in the vicinity of the city of Linhares. – The three type specimens of *Maba hilairei* at P are lacking any annotations made by Hiern. Here, exactly the same situation seems to have occurred as noted under *D. weddellii* (see above). CAVALCANTE (1963) did not see the type specimens ("não vimos estas especie").

= *Diospyros janeirensis* SANDWICH, Kew Bull. 1949 (4): 487 - 488 (1950).

Typus: Brasil, Rio de Janeiro, ad urbem loco Mundo Novo, [ca. 22°57' S, 43°11' W], (male fl, fr), 10 Nov. 1920, **J.G. Kuhlmann 507** [holotype: K (except for the twig on the left side of the sheet, and a flower bud in the capsule) (+ carp.); isotypes: F (fragm. ex B), G, MG n.s., P, S, U]; "arbor parva".

Note: As already identified and annotated ("cf. *Xylopi*a") by Sandwith, the twig on the left side of the holotype-sheet is a *Xylopi*a (Annonaceae). The plant material on one of the two Kuhlmann 507-sheets at P also belongs to *Xylopi*a! Kuhlmann (or someone in his entourage?) obviously assigned one and the same collection number to different collections of this species: the labels of four specimens deposited at RB are also numbered 507 but differ in data: "Mundo Novo" + "13 Oct. 1920" (st), "Mundo Novo, Botafogo" + "11 Nov. 1921" (st), and two further sheets with: "Mundo Novo, Botafogo" + "21 Dec. 1920" (fl, yfr). Another specimen at NY (ex US), also numbered 507, is dated "11 Nov. 1920" and a fruit in the carpological collection at U is dated "1921". None of these collections represent isotypes. CAVALCANTE (1963) cited the type as: "Guanabara, Mundo Nôvo, Botafogo" and LOPES (1998) as: "Município de Rio de Janeiro, Morro Mundo Novo, Botafogo".

Diospyros dolmen B.WALLN., sp.n.

Diagnosis: Arbor 2 - 6 m alta; diameter in altitudine thoracis usque ad 5 cm; petioli 0,5 - 1 cm longi; laminae foliorum (2,5 -) 10 - 18 cm longae et (1,1 -) 4 - 7 cm latae, chartaceae, subtus dense papillis minutis instructis; flores 5-mera; alabastra florum masculorum 7 mm longa; sepala florum masculorum ca. 6 mm longa et 1,5 mm lata; stamina 60; calyx accrescens in fructu, 5-partitus, usque ad ca. 20 mm longus; fructus depresso-globosus, usque ad circiter 2 cm diametens.

Typus: Perú, Loreto, Prov. Loreto, Nauta, Carretera Nauta-Iquitos, km 5, 200 m, 4°29' S, 73°35' W [correct is: ca. 4°30' S, 73°45' W], bosque primario-Colinas medias, (fr), 28 Mar. 1987, **R. Vásquez & N. Arevalo 8963** [holotype: W, isotype: MO (seen some time back, but not available now, for preparing this description)]; "arbusto 4 m; frutos verdes".

Treelet or tree 2 - 6 m tall, dbh to 5 cm; twigs subterete, dark brown and smooth when dry, more or less densely covered with patent, up to 1.5 mm long, straight or slightly bent, brown hairs, and only on very young parts with an additional dense layer of minute, brown to slightly ferruginous, thick and strongly curved hairs; buds with the same indumentum as young twigs; **leaves** alternate, with brochidodrome venation; petioles 0.5 - 1 cm long, 2 mm thick, dark brown to blackish and somewhat rugose when dry, covered with long, patent hairs (same as on twigs), slightly winged distally, grooved adaxially; leaf lamina usually elliptic, sometimes broadly lanceolate, widest near the middle (on one specimen somewhat below the middle), (2.5 -) 10 - 18 cm long, (1.1 -) 4 - 7 cm wide, chartaceous, adaxially glabrous or with few remote, long hairs, dark, dirty brown and dull when dry, abaxially brownish gray when dry, covered with a dense layer of minute, grayish-white papillae (giving the leaf surface a grayish appearance), and scattered, patent, ca. 1 mm long hairs; flachnektarien (extrafloral nectaria) on abaxial leaf surfaces blackish, patelliform, ca. 0.1 mm in diameter, scattered, usually missing near the base of the lamina and near the margins; leaf apex acuminate; base of the lamina rounded or shortly attenuate; leaf margins entire, nearly flat when dry, not thickened, with long hairs when young; midvein adaxially slightly sunken and covered with remnants of the indumentum, abaxially markedly prominent, somewhat longitudinally shriveled when dry, quite densely covered with long, patent hairs; secondary veins ca. 10 per side, slightly curved, impressed and glabrous adaxially, prominent and quite densely covered with long, patent hairs abaxially; intersecondary veins markedly shorter and much thinner than the secondary veins; tertiary veins glabrous, flat or slightly impressed adaxially, hairy and slightly prominent abaxially; quaternary veins not visible on either side; **inflorescences** not available for study (the only collection with flowers, Gentry et al. 27664, is heavily damaged by mould and all organs are detached); **male flowers** 5-merous, not available in anthetic state, the longest buds 7 mm long; calyx lobes on flower buds narrowly triangular, acute, ca. 6 mm long 1.5 mm wide at base, on both sides loosely covered with stiff, straight or bent, patent, ferruginous-brown hairs varying in length (the longest up to 1 mm); entire (proximal) part of the calyx ca. 1.5 mm long; corolla in bud 6 mm long; petals apparently united only proximally, on the proximal half of the abaxial side with a tuft of stiff, straight, appressed, long hairs near the margins, on other parts glabrous, contorted; stamens 60 (only one bud dissected), attached to the slightly funnel-shaped receptacle, markedly varying in length, the shortest (outer) 1.2 mm long, the longest (inner) up to 3.5 mm long, all together nearly forming a sphere; filaments up to 0.4 mm long, nearly missing on short stamens; anthers 0.7 - 2 mm long, 0.3 mm wide; distal connective appendage conical, ca. 0.5 mm long; filaments and lower third of the connectives adaxially covered with 0.6 - 1.9 mm long, straight, stiff, appressed hairs, glabrous abaxially; receptacle lacking a rudiment of the ovary; female flowers not yet known; **fruits** solitary in leaf-axils, green when alive, brown to blackish when dry, globose to slightly ellipsoidal, broadest near the middle, up to 2.5 cm long and 2 cm wide when dry, narrowing into a short obconical apex; surface of the fruit densely covered with tubercles; the latter densely covered with minute hairs varying

in length and each possessing distally a single, stiff, patent, ca. 3.5 - 4 mm long, golden brown to ferruginous hair; calyx lobes on fruits accrescent, narrowly triangular, 20 mm long and 5 - 6 mm wide at the base (the only fruit on Vásquez & Soto 11858 is glued to the sheet and can, therefore, not be studied in detail: the calyx lobes seem to be a little shorter and only about 2 mm wide), with flat margins, black when dry, loosely covered on both sides with long and short, stiff, patent hairs (similar to those on fruit surface); entire (proximal) part of the calyx 2 - 3 mm long, lacking longitudinal ridges running down from the sinuses abaxially; sinuses between the calyx lobes not enlarged, inconspicuous; ripe fruits and seeds not available for study.

Etymology: The plant name has been coined arbitrarily (see: GREUTER et al. 2000: Art. 23.2).

Paratypes: Perú, Loreto, Prov. Maynas, Quebrada Sucusari, Llachapa camp of Explorama [correct is: Explornapo], N side of Río Napo below Mazán, 140 m, [3°11' S, 72°53' W], forest on sandy laterite, (fl), 7 Nov. 1979, **A.H. Gentry, C. Díaz, J. Aronson & N. Jaramillo 27664** [FHO, MO (+ 3× unmounted), W]; "tree 6 m; buds white"; - Constanza, Quebrada Tamshiyacu, 160 m, 4°15' S, 72°45' W, upland forest on white clay; thick root mat, (st), 29 Mar. 1992, **A.H. Gentry, R. Ortíz, C. Grandez & N. Jaramillo 76407** [FHO, MO]; "tree 5 cm DBH, sterile; transect 1"; - Prov. Requena, Río Ucayali, Jenaro Herrera, 4°55' S, 73°45' W, upland forest on well-drained soil, (st), 24 Feb. 1987, **A.H. Gentry, R. Vásquez, N. Jaramillo & F. Watson 56547** [HEA n.s., MO, W]; "treelet 1" dbh; sterile; transect 7"; - Sapuena, Jenaro Herrera, (CDJH), 130 m, 4°55' S, 73°45' W, bosque primario, (fr), 11 Mar. 1989, **R. Vásquez & T. Soto 11858** [MO]; "arbusto 2m; frutos verdes".

Diospyros relit B.WALLN., sp.n.

Diagnosis: Arbores usque ad 6 m altae; petioli 0,4 - 0,9 cm longi; laminae foliorum (3 -) 6 - 11 cm longae et (1,7 -) 3 - 5 cm latae, chartaceae, utrinque opacae; calyx accrescens in fructu, 4-partitus, 2 - 3 cm latus; sepala patentia vel reflexa, usque ad 1 cm longa et 0,7 cm lata in fructu; fructus depresso-globosus, usque ad 2 - 3 cm diametens; exocarpium fructuum 1 mm crassum; semina 6 per fructum, ca. 1 cm longa et 0,6 cm lata.

Typus: Jamaica, Trelawny, 5.3 miles by road N of Quick Step P.A., 1250 - 1500 ft., [18°20' N, 77°43' W], wooded rocky limestone hillside, (fr), 26 Sept. 1975, **G.R. Proctor 35326** [holotype: F]; "small slender tree; fruit olive-green".

Small tree up to 6 m tall; twigs subterete, gray, gray-brown or blackish when dry, soon glabrescent; the youngest parts loosely covered with grayish to light brown hairs; buds and leaf primordia densely covered with straight or slightly bent, appressed, light brown, up to 0.3 mm long hairs; **leaves** alternate, with brochidodrome venation; petioles 4 - 9 mm long, 1 - 1.5 mm thick, greenish-gray to brown and longitudinally wrinkled when dry, glabrous or with scattered remnants of an indumentum, markedly winged distally, with a longitudinal, wide groove and undulated edges adaxially; leaf lamina broadly lanceolate to elliptic, (3 -) 6 - 11 cm long, (1.7 -) 3 - 5 cm wide, chartaceous, on both sides dull, usually glabrous (scattered remnants of the indumentum present abaxially on some leaves), greenish-gray to brown when dry, obviously slightly plicate proximally; flachnektarien (extrafloral nectaria) on abaxial leaf surfaces minute, brownish to blackish, usually flat or slightly sunken, solitary or scattered on the central part of the proximal third of the lamina (not far away from the midvein); leaf apex usually acute, sometimes rounded; base of lamina attenuate, tapering for some millimeters into the petiole; leaf margins entire, revolute in dry condition, not thickened, glabrous; midvein adaxially

slightly sunken, flat distally, abaxially prominent and longitudinally shriveled when dry; secondary veins 6 - 8 per side, in the proximal half straight or only slightly curved, slightly prominent on both sides; intersecondary veins only slightly shorter and thinner than secondary veins; tertiary veins only slightly prominent on both sides; quaternary veins usually hardly or not visible at all (but well visible on some older leaves, e.g., in Proctor 28636); **inflorescences** and **flowers** not available; **fruits** solitary on a 4 - 8 (- 13) mm long, 1.5 - 2 mm thick stalk, more or less globose (all fruits damaged during process of drying), 1.5 - 2.5 cm in diameter, green or olive-green when alive, brown or dark brown when dry, smooth, covered with a loose, or towards the apex medium dense indumentum composed of straight or only slightly bent, appressed, light brown hairs; fruit wall ca. 1 mm thick, with the epidermis not exfoliating; calyx on fruits accrescent, up to 2 - 3 cm wide, grayish-brown to brownish-black when dry, with scattered hairs externally, the part closely adhering to the fruit (on the inside of the calyx) densely covered with appressed, centrifugally (parallel) orientated, light brown hairs; calyx lobes 4, patent or reflexed, acute, more or less triangular, up to 1 cm long and 0.7 cm wide, loosely covered with the remnants of the indumentum or glabrescent; margins of the calyx lobes flat, or on their proximal part somewhat bent towards the outside (ab-axial side); sinuses between the calyx lobes not enlarged, and ridges running down to the base of the calyx missing; seeds 6 per fruit (according to Proctor 28636), ca. 1 cm long and 0.6 cm wide (but probably still unripe).

Etymology: The plant name has been coined arbitrarily (see: GREUTER et al. 2000: Art. 23.2).

Paratypes: Jamaica, Trelawny, "Miss Laura's Hill", Wilson Valley District, ca. 1 mile N of Warsop, 2000 - 2200 ft, [18°17' N, 77°35' W], wooded rocky limestone hilltop, (fr), 23 Nov. 1974, **G.R. Proctor 34325** [BM]; "small tree 5 m tall; fruits green"; - Hanover, summit area of Dolphin Head, ca. 1700 ft. alt., [18°22' N, 78°10' W], wooded limestone hilltop, (fr), 23 Apr. 1968, **G.R. Proctor 28636** [BM, FHO, LL, P]; "small tree 6 m tall; fruits green, 6-seeded".

Diospyros scottmorii B.WALLN., sp.n.

Diagnosis: Arbor 4,6 - 22 m alta; diameter in altitudine thoracis usque ad 18 cm; petioli (0,7 -) 1 - 1,5 (- 2) cm longi; laminae foliorum (5,5 -) 15 - 22 (- 32) cm longae et (2 -) 4,5 - 7 (- 10) cm latae, chartaceae; flores 4-mera; flores feminei 13 mm longi per antesin; sepala florum femineorum 8 - 9 mm longa et 12 - 13 mm lata; stamina 16; staminodia 8; calyx accrescens in fructu, 4-partitus, ca. 7 mm altus et 35 mm latus, subtus carinatus inter sinus lorum calycis et pedicellis; fructus depresso globosus, usque ad circiter 3,5 - 5 cm diametens; exocarpium fructuum 2 - 3 mm crassum.

Typus: Brasil, Bahia, Município de Uruçuca, nova estrada que liga Uruçuca á Serra Grande, a 28 - 30 km de Uruçuca, [14°30' S, 39°3' W], Região de Mata Higrofila Sul Baiana, (fl, fr), 1 May 1979, **S.A. Mori 11766** [holotype: W (fr, + 2 fruits in the carpological collection), isotypes: FHO, NY n.s., W (flbuds female)]; "arvore 22 m × 18 cm; frutos verdes, 8-locular; calice e corola verdes; sementes com muito endosperma".

Tree 4.6 - 22 m tall; dbh to 18 cm; twigs subterete, the younger ones greenish-brown to amber-colored and longitudinally shriveled when dry, bearing scattered, straight, appressed hairs, the older twigs brown to dark brown and glabrescent; twig apices and buds densely covered with appressed, entire, straight, grayish to light brown hairs;

leaves alternate, with brochidodrome venation; petioles (0.7 -) 1 - 1.5 (- 2) cm long, 1.5 - 3 mm thick, light brown to dark brown and shriveled when dry, slightly winged distally, with a deep and narrow, longitudinal groove adaxially, and with scattered hairs (similar to those at the twig apices) especially on the adaxial surface; leaf lamina broadly lanceolate to oblong, or sometimes slightly obovate, (5.5 -) 15 - 22 (- 32) cm long, (2 -) 4.5 - 7 (- 10) cm wide, chartaceous, adaxially olive-brown to grayish yellow-brown and shiny when dry, abaxially grayish brown to brown and dull or, only slightly shiny when dry, glabrous adaxially, with remote hairs (see above) and soon glabrescent abaxially; flachnektarien (extrafloral nectaria) on abaxial leaf surfaces brown to blackish, patelliform, often with a thickened, raised margin, clustered or scattered near base of lamina, scattered or missing near apex of lamina, rarely also in between, near the midvein; leaf apex shortly acute, rarely obtuse; base of lamina usually rounded, tapering for a few millimeters into the petiole; leaf margins entire, slightly revolute, not thickened, glabrous; midvein adaxially with some remote, appressed hairs or glabrescent and sunken for most of its length, flat distally; abaxial side of midvein markedly prominent, longitudinally shriveled when dry, with scattered, appressed hairs; secondary veins 12 - 17 per side, prominent on both sides, straight or only slightly curved in the proximal two thirds; intersecondary veins only slightly shorter and thinner than secondary veins; tertiary veins prominent on both sides; quaternary veins hardly visible; **inflorescences** with 2 - 3 flowers on male, and solitary flowers on female plants; inflorescence axes ca. 1 - 2 mm long, densely hairy; **flowers** 4-merous, greenish when alive; pedicels 2.5 - 4 (- 5) mm long, 1.5 - 2 mm (on female flowers basally 2 mm, distally up to 3.5 mm) thick; pedicels, bracts and bracteoles covered with the same type of hairs as twig apices (see above); bracts triangular, 3 mm long, 2 mm wide, acute, soon shed; bracteoles up to 2 mm long and up to 1.5 mm wide, acute; calyx of both sexes externally (on abaxial side) covered with a loose to medium dense indumentum consisting of appressed, straight, grayish hairs varying in length (0.05 - 0.3 mm long), and adaxially (on the inside) with a dense indumentum of straight or slightly curved, grayish, appressed or (on exposed parts) slightly patent, up to 0.4 mm long hairs; **male flowers** (specimen Jesus 389 with flower buds ca. 1 cm long): calyx lobes 4 mm long and 5 mm wide, semicircular in outline, abruptly tapering into a short tip; sinuses between the calyx lobes moderately expanded and protruding towards the outside; entire, proximal part of the calyx towards the sinuses 3 mm long; tube of the corolla (only available in bud) covered, especially on its distal half, with the same sort of indumentum as the calyx on its abaxial side; lobes of the corolla glabrous abaxially, except along the midrib; stamens 16 (only one flower bud dissected), all attached to the receptacle and at the base of the corolla, 1.5 - 3 mm long, markedly differing in size (some of the inner ones shorter); filaments very short, up to 0.5 mm long, glabrous; anthers ca. 2 mm long, ca. 0.5 mm wide; apical connective appendage conical, ca. 0.5 mm long; connective densely covered with appressed hairs abaxially, glabrous or only with small tufts of hairs adaxially; rudiment of the ovary consisting of a hairy lump of tissue; **female flowers** (Mori 11766, Curran 30, Santos 3803) solitary in axils of leaves; calyx 10 mm long; calyx lobes 8 - 9 mm long and 12 - 13 mm wide, broadly triangular to semicircular in outline; sinuses between the calyx lobes strongly expanded (inflated), reflexed and combined spreading star-like; entire, proximal part of the calyx towards the sinuses 5 - 7 mm long; corolla (Santos 3803 and Curran 30, both with only one flower at anthesis) 12 mm long; corolla tube ca. 10 mm long and 9 mm wide when dry, broadest above the middle, bearing the same sort

of indumentum as the calyx abaxially; corolla lobes contorted, glabrous except along the midrib abaxially, glabrous adaxially, semiorbicular, 3.5 mm long and 4.5 mm wide when dry; staminodia 8 (only one flower bud from Mori 11766 dissected), differing in shape and size (the slightly longer ones alternating with the shorter ones - the latter with much smaller, aborted anthers), their filaments adnate to the corolla over their whole length; aborted anthers flat, 0.4 - 0.8 mm long, free, all attached to the corolla tube at ca. 2 mm above its base; apical connective appendage conical, less than ca. 0.5 mm long; ovary 4 mm wide and 2.5 mm high, densely covered with appressed, straight hairs, 8-locular; stylodia 4, ca. 1 mm long, partially glabrous; **fruits** (present only on Mori 11766 and Curran 30) solitary in axils of (in part already shed) leaves, green when unripe; stalk of the fruit up to 5 mm long and 3 mm thick; fruits applanate-globose, broadest near or above the middle, 4 - 5 cm long, 3.5 - 5 cm wide when dry, with or without a conical apex (enlarged base of the style), glabrous, brown or black when dry; fruit wall hard, 2 - 3 mm thick, with epidermis tightly adhering and shriveled or peeling off; calyx on fruits markedly accrescent, ca. 7 mm high and 35 mm wide, brownish-black when dry, glabrous externally (on abaxial side), inside (on adaxial side) covered with the remnants of a more or less dense indumentum; calyx lobes broadly triangular, obtuse or rounded distally, ca. 6 mm long, 20 - 22 mm wide; entire (proximal) part of the calyx 10 - 13 mm long, on abaxial side with prominent longitudinal ridges running down from the sinuses; sinuses between the calyx lobes strongly expanded (inflated) and protruding to the outside; margins of the sinuses and proximal parts of the calyx lobes strongly involute when dry; seeds (Curran 30) 17 mm long, 8 mm wide and 6 mm thick, flattened laterally (similar to segments of an orange), smooth to finely rugulose, with a longitudinal vein along the dorsal side.

Etymology: This species is dedicated to Scott A. Mori (NY), who collected the type specimen. He is a specialist of (among others) neotropical Lecythidaceae and Vochysiaceae, and has made very important collections in various areas of South America, e.g., in Bahia and French Guiana.

Paratypes: Brasil, Bahia, Rio Grongogy [= Gongogi] Basin, 100 - 500 m, [ca. 14°30' S, 39°59' W], forest, (fl female, fr), 1 Oct. - 30 Nov. 1915, **H.M. Curran 30** [GH n.s., US 2×, WIS (MAD)]; "tree 15 ft. × 3 in." - Município de Ilhéus, Área do CEPEC (Centro de Pesquisas do Cacau), km 22 da Rodovia Ilhéus / Itabuna (BR 415), "Quadra D", 50 m, [14°47' S, 39°12' W], Região de Mata Higrófila Sul Baiana, (st), 6 Feb. 1992, **S.C. de Sant'Ana, T.S. dos Santos & J.M.O. Pimentel 186** [NY]; "arvore 8 m × 10 cm; estéril; amostra de madeira"; - same locality: (fl female), 27 Sept. 1982, **T.S. dos Santos 3803** [U]; "arvore de 8 m por 10 cm de diam.; flores esverdeadas; frutos imaturos verdes"; - same locality: (fl male), 11 Mar. 1969, **J.A. de Jesus 389** [FHO, MG]; "arvore 12 m × 15 cm diam.; flores em botões esverdeados".

Diospyros ubaita B.WALLN., sp.n.

Diagnosis: Arbor 20 m alta; petioli 3 - 6 mm longi; laminae foliorum (2 -) 5 - 11 cm longae et 1,5 - 3,8 cm latae, cartaceae vel leviter coriaceae; flores (4-) 5 (6)-mera; alabastra florum femineorum ca. 9 mm longa; sepala alabastrorum florum femineorum 5 mm longa et 3 mm lata; staminodia 0 (1?); calyx accrescens in fructu, 6-partitus, 27 mm latus, subtus nec carinatus inter sinus loborum calycis et pedicellis.

Typus: Brasil, Bahia, Município de Itacaré, estrada que liga a torre de Embratel com a estrada BR 101 / Itacaré, a 5,8 km da estrada, ca. 25 km SE de Ubaitaba, ca. 200 - 300 m, [14°20' S, 39°6' W], (flbuds female), 21 Oct. 1979, **S.A. Mori & F. Benton 12859**

[holotype: NY, isotypes: K (seen some time back, but not available now, for preparing this description), MG n.s., MO]; "arvore 20 m de altura; frutos pilosos, perdidos no ato de coletar os galhos; em botão".

Tree 20 m tall; twigs subterete, dark brown to blackish when dry, loosely covered with a light brown indumentum composed of two sorts of hairs: straight or somewhat bent, patent, 0.5 - 2 mm long, and minute, irregularly thickened and curled, ca. 0.05 - 0.3 mm long hairs; older twigs glabrescent, blackish, irregularly cracking up by longitudinal fissures; wood of twigs with only slightly visible radial rays; buds densely covered with slightly spreading, slightly bent, light brown to grayish hairs; **leaves** alternate, with brochidodrome venation; petioles 3 - 6 mm long, 1.2 - 1.8 mm thick, blackish and rugose when dry, covered with an indumentum similar to that of twigs (but longer hairs more curled adaxially), slightly winged distally, with a shallow and wide, longitudinal groove adaxially; leaf lamina narrowly ovate to ovate (the basal leaves of new shoots more elliptic), (2 -) 5 - 11 cm long, 1.5 - 3.8 cm wide, chartaceous to slightly coriaceous, adaxially glabrous (except on veins), dull and dirty dark brownish when dry, abaxially brownish gray when dry, covered with a dense layer of minute, grayish-white papillae (giving the leaf surface a grayish appearance) and scattered, straight or somewhat bent, patent, long hairs (like those on twigs); flachnektarien (extrafloral nectaria) on abaxial leaf surfaces minute, brownish to blackish, patelliform, hardly visible among the papillae, scattered near the base and the apex of the lamina and along the midvein; leaf apex acute to acuminate; base of lamina shortly attenuate, tapering for a few millimeters into the petiole; leaf margins entire, revolute in dry condition, not thickened, hairy; midvein adaxially sunken, hairy, abaxially markedly prominent and longitudinally shriveled when dry, with an indumentum like that of twigs; secondary veins 10 - 12 per side, in the proximal two thirds straight or only slightly curved, slightly sunken and with scattered hairs adaxially, prominent and hairy abaxially; intersecondary veins only slightly shorter and thinner than secondary veins, slightly sunken adaxially; tertiary veins not visible adaxially, slightly prominent or flat abaxially; quaternary veins not visible; male **inflorescences** and male flowers not yet known; female **flowers** (4) 5 (6)-merous, not available in anthetic state, solitary or paired in axils of leaves; pedicels of flower buds up to 1 mm long, and up to 1.5 mm thick; pedicels, bracts and bracteoles covered with a dense, light brown indumentum composed of appressed or slightly patent, more or less bent, up to 1 mm long hairs and minute, irregularly thickened and curled, up to 0.3 mm long hairs; bracts ca. 5 mm long, ca. 4 mm wide, obtuse to broadly rounded distally; bracteoles ca. 3 mm long, ca. 1 - 2 mm wide, obtuse distally, sometimes attached very close to the base of the calyx; calyx on flower buds 8 mm long; calyx lobes valvate, triangular in outline, 5 mm long and 3 mm wide, adaxially covered with the same kind of indumentum as that of bracts, abaxially covered with a more homogenous indumentum, glabrous proximally; sinuses between the calyx lobes not expanded; entire, proximal part of the calyx towards the sinuses ca. 2 mm long; corolla in bud ca. 5 mm long (only one flower bud dissected); corolla tube less than 0.5 mm long; corolla lobes contorted, ovate, 4.5 mm long and 3.5 mm wide, adaxially covered with an indumentum of minute hairs, but glabrous on parts covered by the other lobes, along the midrib densely covered with long, straight, more or less appressed hairs, abaxially glabrous; staminodia none, but one very much reduced lobule (staminodium?), 0.8 mm in length (with hairs 1.5 mm long), present at the base of the ovary; ovary 3.5 mm wide and including stylodia 2.5

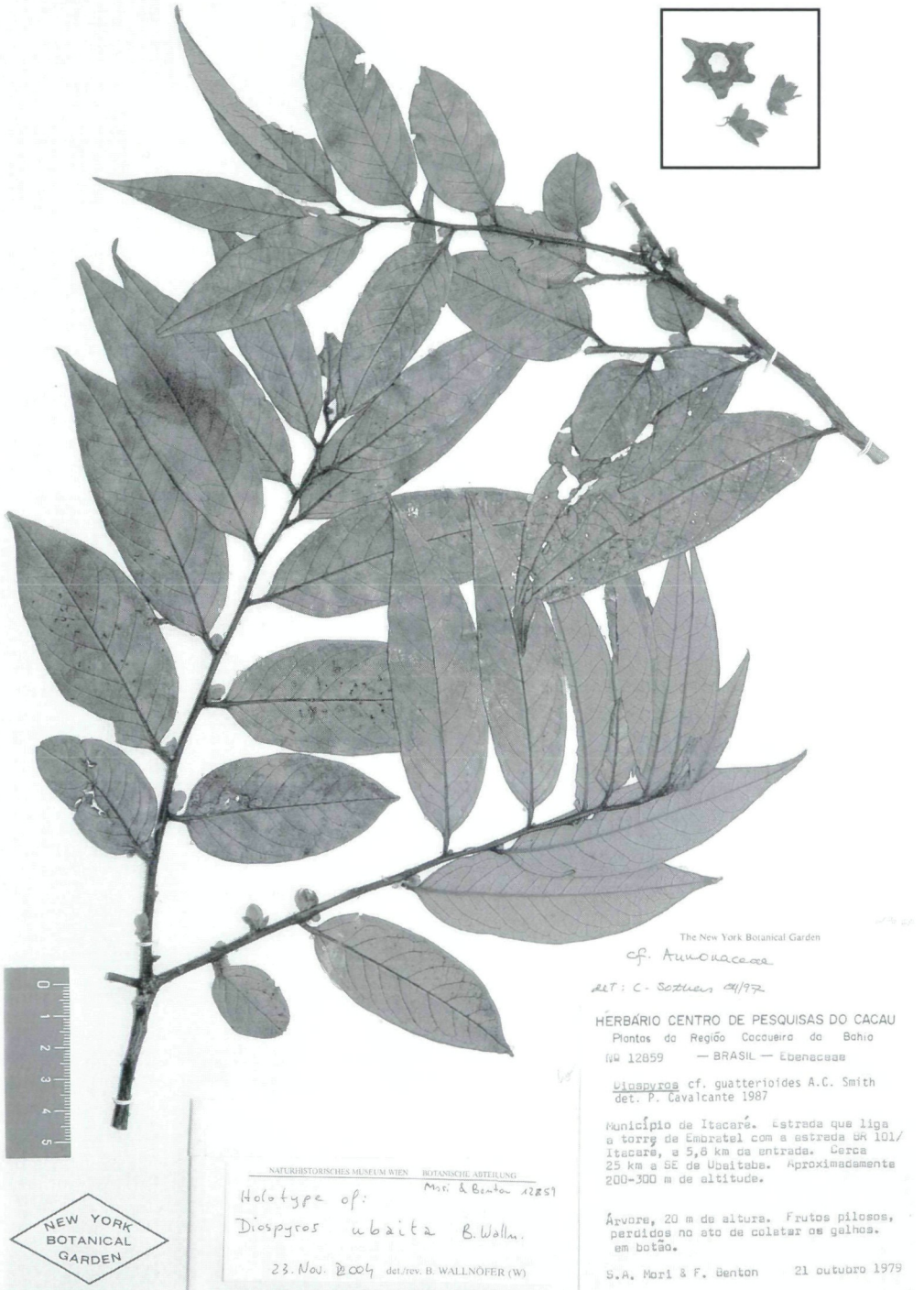


Fig. 2: Holotype of *Diospyros ubaita* B.WALLN. (insert: calyx and flower buds from the isotype at MO).

mm high, very densely covered with appressed, straight hairs; stylodia 5, ca. 1 mm long, partially glabrous; stalk of the **fruit** 5 mm long and 6 mm thick (only present on the MO-sheet); **fruits** lost, but said to be pilose; calyx (only a detached one, with 6 lobes, is present in the capsule of the MO-sheet) on fruits accrescent, 2.7 cm wide, more or less flat, brownish-black when dry, glabrescent externally, adaxially (on the inside) covered with the remnants of the indumentum; calyx lobes spreading star-like, 8 mm long and 7 mm wide, triangular, acute, with revolute margins; entire (proximal) part of the calyx 3 mm long, lacking longitudinal ridges running down from the sinuses on the abaxial side; sinuses between the calyx lobes not enlarged, inconspicuous.

Etymology: The plant name has been coined arbitrarily (see: GREUTER et al. 2000: Art. 23.2).

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