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TOWARDS A REVISION OF THE MYRSINACEAE OF INDOCHINA (CONTINUED)

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Ardisia macrosepala var. ***schmidii*** C. M. Hu & J. E. Vidal, var. nov. (subg. *Tinus*). TYPE: Vietnam, Dar Lac: Bonn Kroa, in forest, alt. 500 m, 1 May, 1948, Schmid 1073. (holotype, P).

A var. *macrosepalae* planta ubique glabra differt.

Shrub c. 1 m high, glabrous throughout. Leaves alternate, narrowly elliptic to elliptic-lanceolate, 7－16×2－4 cm, base cuneate, apex acuminate, margin entire or obscurely crenate above middle, chartaceous, with scattered glandular dots near the edge; lateral nerves 8－10 pairs, plane above, raised beneath, departing at an angle about 50°, curved-ascending, not forming an intramarginal vein; veinlets slender, visible on lower surface. Petiole 2－8 mm, densely rusty pubescent. Inflorescence lateral on the upper part of branches. Peduncle 1.5－2.5 (－3) cm; rachis 10－16 mm, usually bearing 2－3 (－7) racemosely arranged flowers. Pedicel 1.2－1.5 cm. Calyx split nearly to base; lobes foliaceous, ovate-elliptic, 9×4 mm, enlarging to 13×6 mm in fruit, apex acute base slightly narrowed, midrib and veins conspicuous, sparsely punctate. Corolla deeply lobed; lobes oblong-ovate, c. 7 mm, ± acuminate, punctate. Anthers oblong-ovate, c. 5 mm, apiculate, punctate on back. Ovary ovoid; style c. 3 mm; ovules many, in 3－4 series on placenta. Fruit globose, 5－6 mm in diameter, with longitudinal glandular stripes.

Distribution and Ecology. Known only from the type material collected from Bonn Kroa, Prov. Dar Lac of S Vietnam, in thick forest, alt. 500 m. Flowering in May.

Ardisia merrillii var. ***rosea*** C. M. Hu & J. E. Vidal, var. nov. (subg. *Crispardisia*). TYPE:

1995－11－30 收稿; 1996－06－04 修回

Laos, Xieng Khouang, Tutom, in evergreen forest, alt. 2000 m, Kerr 20886 (holotype, P).

A var. *merrillii* Walker inflorescentia ferrugineo-puberula, floribus roseis differt.

Distribution. Known only from the type collection.

Remarks. This new variety is found further west than the type variety, which is endemic to the border region between S China and N Vietnam.

Ardisia nhatrangensis C. M. Hu & J. E. Vidal, sp. nov. (subg. *Crispardisia*). Type: Vietnam, Phu Kunh: Nhatrang, Evrard 507 (holotype, P).

Species inflorescentia laterali subsimilis *A. pedali* Walker, sed foliis glabris, margine grosse crenatis, nervis lateralibus plus quam 10-jugis, nervo intramarginali confluentibus differt.

var. ***nhatrangensis***

Shrub 0.3－1 m high. Stem usually not branched, glabrous, new growth sometimes with a few capitate short hairs. Leaves alternate or subopposite, oblong-oblanceolate, 8－14×2－4 cm, apex acuminate, base cuneate-attenuate, margin undulate-crenate, with thick marginal glands on crenatures, chartaceous, glabrous, dull green above, paler beneath; glandular dots many, scattered, ± raised on both surfaces when dry; lateral nerves 15－18 pairs, departing at an angle about 60°, curved-ascending and forming an intramarginal vein near the edge. Petiole 5－12 mm, initially ± puberulous. Inflorescence lateral, rusty puberulous. Peduncle 1.3－3 cm, terminating by a subumbellate cluster of 4－8 flowers. Pedicel 1－1.5 cm. Calyx c. 2 mm, spilt to near base; lobes ovate, acute, densely black-punctate, not ciliate. Corolla rosy, deeply lobed; tube c. 0.5 mm; lobes ovate, c. 5.5×3 mm, acute, black-punctate. Anthers lanceolate, c. 2.5 mm. Ovary glabrous; style c. 5 mm; ovules c. 5, in one series on placenta. Fruit glabose, c. 6 mm in diameter, black-punctate.

Distribution and Ecology. Endemic to central Vietnam. In evergreen forest, alt. 1000 m. Flowering in July.

Remarks. Among the species with lateral inflorescence in subgenus *Crispardisia*, the new species is allied to *A. pedalis* Walker, from which it differs by its leaves being glabrous and coarsely crenate and having more than 10 pairs of lateral nerves forming an intramarginal vein near the edge.

Paratype. Vietnam, Prov. Phu Kunh, C. B. Robinson 1486 (P).

var. ***glaucescens*** C. M. Hu & Vidal, var. nov. TYPE: Vietnam, Tay Ninh, Pierre 177 in 12/1865 (holotype, P).

A var. *nhatrangensi* foliis subcoriaceis, subtus glaucesentibus, epunctatis, nervis lateralibus paucioribus differt.

Leaves subcoriaceous, lower surface glaucescens, not punctate; lateral nerves 10－12 pairs, obscure on both surfaces. Inflorescence ± puberulous.

Distribution. Endemic to southern Vietnam.

Paratype. Vietnam, Prov. Dong Nai, Pierre 177 in 10/1866 (P).

var. ***neurophylla*** C. M. Hu & Vidal, var. nov. TYPE: Vietnam, Thuan Hai, Poilane 8748 (holotype, P).

A var. *nhatrangensi* foliis subcoriaceis, epunctatis, inflorescentia glabra differt.

Leaves subcoriaceous, not punctate; lateral nerves 10－12 pairs, raised beneath, forming a comparatively thick intramarginal vein near the edge; reticulation of veins conspicuous. Inflorescence glabrous.

Distribution and Ecology. Endemic to south-eastern Vietnam, growing in forest, alt. 600－800 m. Fruiting in November.

Paratype. Vietnam, Thuan Hai: Phan Rang, Poilane 8830 (P).

Ardisia obtusa Mez var. ***montana*** (Pitard) C. M. Hu & J. E. Vidal, comb. nov. (subg. *Akosmos*). Basionym: *Ardisia pseudopedunculosa* var. *montana* Pitard in Lecomte, Fl. Gen. I.-C. 3:821. 1930. TYPE: Vietnam, Prov. Quang Nam-Da Nam: Ba Na, near Tourane, alt. 700－800 m, Poilane 6918 (holotype, P).

It differs from the type variety by its leaves being oblong-lanceolate, 6.5－16 cm long and 1.5－2.5 cm broad, tapering to both ends. *A. pseudopedunculosa* is a synonym of *A. obtusa*.

Distribution and Ecology. Endemic to central Vietnam, growing in forest, alt. 700－1 500 m.

Ardisia paradoxa C. M. Hu & J. E. Vidal, sp. nov. (subg. *Crispardisia*). TYPE: Vietnam, Gia Lai-Cong Tum (Kontum), pres poste de konplou, Viville forest, alt. 1200 m, Poilane 32355 (holo-, P).

Species nova *A. mirabili* Pitard similis, sed ab ea foliis late ellipticis, rete venularum invisibili, glandulis pellucides destitutis differt.

Small shrub, 8－25 cm high. Stem stout, not branched, new growth puberulous with capitate short hairs, lower part ± tuberculose. Leaves ± crowded towards apex of stem; leaf blade elliptic to broadly elliptic, 10－20×5.5－8.5 cm, apex acute, tip blunt, base cuneate, margin remotely and obscurely crenate, thickly chartaceous, glabrous, with numerous tiny glandular dotes or sometimes in appearance of sunken pits on lower surface; lateral nerves 8－12 pairs, slightly prominent above, almost invisible beneath, departing at an angle about 65°, then arching upwards terminating to the marginal glands and meeting in an indistict intramarginal vein; veinlets invisible. Petiole 1－1.8 cm, glabrate, canaliculate above. Inflorescence lateral, in axils of reduced leaves near apex of stem, subumbellate, sparsely rusty puberulous with capitate short hairs. Peduncle 1－2 cm. Pedicel c. 14 mm. Flowers not

known. Calyx c. 3.5 mm in fruit, split almost to base, lobes ovate-elliptic ± obtuse, slightly puberulous, dotted with thick black glands, scarcely ciliate. Immature fruit globose, c. 6 mm in diameter, rusty scaly and dotted with thick glands.

Distribution and Ecology. Known only from the type collection, growing in forest, alt. 1200 m.

Remarks. This new species resembles *A. mirabilis* Pitard in habit, but can be distinguished by its broadly elliptic leaves not conspicuously reticulate and without pellucid gland in each areola.

Ardisia perpendicularis Walker var. ***balansana*** (Yang) C. M. Hu, comb. et stat. nov. (subg. *Bladhia*). — *Ardisia balansana* Yang in Taiwania **34**(2):245, fig. 47 (1989). TYPE: China, Yunnan, Lue-Chun Exped. 1702 (Holo, KUN). — *Ardisia velutina* Pitard in Lecomte, Fl. Gen. I.-C. **3**:813 (1930). p.p. quoad specim. Balansa 3945.

Differs from the type variety by its obliquely ascending lateral nerves, which is glabrescent or sparsely puberulous. Superficially it also resembles *A. botryosa,* but differs from that species by its larger acuminate leaves, and especially by the subumbellate-paniculate inflorescence (usually racemose in *A. botryosa*).

Distribution and Ecology. *Ardisia perpendicularis* var. *balansana* is distributed in south-western Yunnan of China and northern Vietnam, growing in mixed forest, alt. 800－1550 m.

Remark. The specimens of this plant were misidentified as *A. botryosa* by Prof. C. Chen, and because it is very close to *A. perpendicularis*, thus led Chen to reduce *A. botryosa* to *A. perpendicularis* as a synonym in volume 58 of Flora Reipublicae Popularis Sinicae. Yang (1989) treated it as a new species, but the distinctions are too slight for recognition as separate species.

Ardisia pitardii C. M. Hu & J. E. Vidal, sp. nov. (subg. *Akosmos*). TYPEs: Vietnam, Binh Tri Thien, massif de Dong Tri, alt. 800－1000 m, Poilane 10245 (holotype, P).

Species affinis *A. quinquegonae* Bl., sed floribus minoribus, foliis glandulis numerosis pellucidis punctatis differt.

Shrub or small tree to 6 m high; branchlets slightly angulate, apex densely rusty-furfuraceous lepidote, lower greyish, glabrous. Leaves alternate, narrowly elliptic to elliptic-oblanceolate, 4.5－9×1.3－2.6 cm, base cuneate, apex shortly acuminate, entire, firmly chartaceous, glabrous above, ± lepidote beneath, dotted with numerous pellucid glands; lateral nerves numerous, 1.5－3 mm apart, nearly all equal in thickness, meeting in an intramarginal vein near edge; veinlets conspicuous beneath. Petiole 4－9 mm, glabrous. Inflorescence sub-umbellate, simple or compound, lateral near apex of branches, sometimes appearing a flat-toped corymbose panicle, sparsely lepidote. Peduncle 1－2.5 cm, compressed, terminating a

cluster of 6－8 flowers and usually with 2－4 branches (4－15 mm) near apex, these each bearing a subumbellate cluster of 4－8 flowers. Pedicel 2－3 mm. Flowers whitish, c. 2 mm. Calyx c. 1 mm, split nearly to base; lobes ovate or ± obtuse, margin whitish, minutely and sparsely ciliolate. Corolla deeply lobed; lobes ovate, c. 1.75×1.2 mm, acute, with scattered light orange glandular dots. Anthers ovate, c. 1.2 mm, acute, not punctate. Ovary glabrous; style c. 1 mm; ovules many, in 3 series on placenta. Fruit globose, 4.5－5 mm in diameter.

Distribution and Ecology. Endemic to central Vietnam, in evergreen forest at altitude 800－1000 m. Flowering in May; fruiting in December.

Remarks. *Ardisia pitardii* may confused with *A. quinquegona* Bl. and its varieties, but is easily separated by the smaller flowers and particularly by the leaves dotted with numerous pellucid glands.

Paratype. Vietnam, Prov. Binh Tri Thien: Dent du Tigre, massif de Dong Tri, 800－1000 m, Poilane 10299 (P); Prov. Gia Lai-Cong Tum (Kontum), 1000 m, Poilane 35779 (P).

Ardisia prionata Walker var. ***linearifolia*** (Pitard) C. M. Hu & J. E. Vidal, comb. nov. (subg. *Akosmos*). Basionym: *Ardisia quinquegona* var. *linearifolia* Pitard in Lecomte, Gen. Fl. I.-C. 3:827. 1930. TYPE: Vietnam, Tonkin, entre pho-cam et le camp des Tigres, Balansa 1074 (holotype, P).

It differs from var. *prionata* by its linear leaves and shorter pedicels. Its similarity with *A. quinquegona* is superficial and can be easily separated from that species by the venation of leaves.

Distribution and Ecology. Known only from the type material, growing in forest.

Ardisia prolifera C. M. Hu & J. E. Vidal, sp. nov. (subg. *Crispardisia*). TYPE: Laos, Banac, alt. 1200 m, Poilane 15613 (holotype, P). Fig. 6.

Species nova *A. roseiflorae* Pitard similis, sed ab ea inflorescentia puberula, foliis oblongo-oblanceolatis, nervis lateralibus 16－25 paribus differt.

Shrub 0.5－3.5 m high, young parts and inflorescence ± puberulous. Branches slender 12－30 cm long, ± angulate, delated at base. Leaves alternate, confined to near apex of stem and upper half of branches; leaf blade oblong to oblong-lanceolate, 6.5－13×1.8－3.4 cm, apex shortly acuminate, base cuneate to

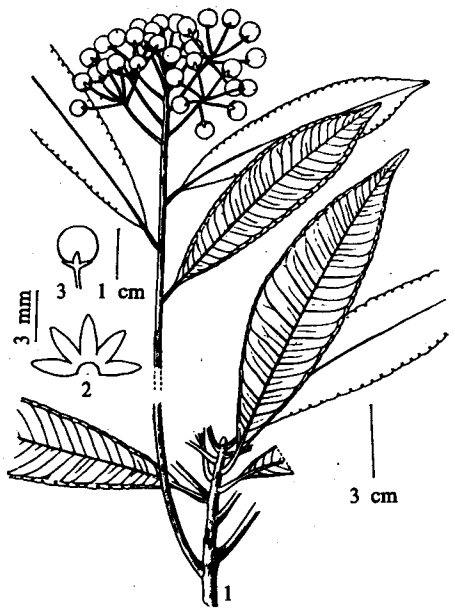

Fig. 6 *Ardisia prolifera* C. M. Hu & J. E. Vidal
1. Flowering branch; 2. Calyx opened up; 3. Fruit (Poilane 15613)

broadly cuneate, margin ± recurved, crenulate, with 16－25 marginal glands on each side, subcoriaceous, glabrous, minutely lepidote on lower surface; lateral nerves 15－25 pairs, raised on both surfaces, departing at an angle about 60°, with branches ending in the marginal glands, meeting in an interrupted intramarginal vein; reticulation of veins prominent on both surfaces. Petiole 5－10 mm, with narrow crisped wings. Inflorescence compound-corymbose, terminal on branches. Peduncle c. 5 mm; rachis 4－5 cm; branches 2－3 cm, each bearing 6－13 flowers. Pedicle 1.4－1.8 cm. Calyx glabrous, split almost to base; lobes oblong, 1.5－2 mm, obtuse, scarcely punctate. Corolla c. 5 mm, deeply lobed; lobes oblong-ovate, obtuse, sparsely dotted with reddish glands. Anthers ovate, c. 3 mm, not punctate. Fruit globose, c. 6 mm in diameter, reddish, black-punctate.

Distribution and Ecology. Endemic to southern Laos, In thick forest, alt. c. 1100－1200 m. Flowering November.

Remarks. The new species is closely related to *A. roseiflora* Pitard, but can be recognized by its puberulous inflorescence, the oblong or oblong-oblanceolate leaves with more than 15 marginal glands on each side.

Paratypes. Laos, Plateau des Boloneu, alt. 1100 m, Poilane 28490 (P, IBSC); Prov. Sedone, in thick forest, J. E. Vidal 1026b (P).

Ardisia prunifolia C. M. Hu & J. E. Vidal, sp. nov. (subg. *Crispardisia*). TYPE: Vietnam, Lamdong: Dalat, Ravin de la Banque de l'Indochine, Evrard 2116 (holotype, P).

Species nova *A. virenti* Kurz similis, sed ab ea floribus minoribus, foliis densissime et minutissime punctatis, nervis lateralis foliorum paucioribus, venulis invisibilibus differt.

Shrub to 2 m high, glabrous throughout. Branchlets subterete, with black glandular striations. Leaves alternate, oblong-lanceolate, 6－10.5×2－2.5 cm, apex acuminate, base cuneate, margin obscurely undulate-crenate, with 10－18 thick marginal glands on each side, chartaceous, dull green above, paler beneath, with numerous minute black glandular dots on both surfaces; lateral nerves slender, 8－12 pairs, departing at an angle about 60°, meeting in an intramarginal vein near the edge; veinlets invisible. Petiole 8－13 mm. Inflorescence corymbose-subumbellate, terminal on flowering branches; these 25－32 cm long, with 8－10 leaves evenly distributed on the upper 2/3. Peduncle c. 1 cm; rachis c. 2 cm, terminating by an umbel of 4－6 flowers, with 6－7 branches below it; branches 1.5－2 cm, each bearing a subumbellate cluster of 3－5 flowers. Bract elliptic, c. 3－4 mm, black-punctate. Pedicel c. 1.5 cm, lengthening to 2cm in fruit. Calyx split to near base; lobes oblong, 2－2.5×1.5－1.8 mm, apex rounded, densely black-punctate. Corolla c. 6 mm, deeply lobed; lobes ovate, 5－5.5×2.5－3 mm, with black glandular dots and stripes. Anthers lanceolate, c. 4 mm, apiculate, punctate on back. Ovary glabrous, black-punctate; style c. 5 mm; ovules c. 6, in one series on placenta. Fruit globose, 6.5－7 mm in diameter, red when

mature, copiously black-punctate with glandular dots and stripes.

Distribution and Ecology. Known only from the type material collected from Prov. Lamdong (Dalat) of S Vietnam, in thicket. Flowering in December.

Remarks. *A. prunifolia* appears to be most closely related to *A. virens*, but can be distinguished by its smaller flowers and the leaves being densely dotted with minute black glands and having few pairs of lateral nerves.

Ardisia quangnamensis C. M. Hu & J. E. Vidal, sp. nov. (subg. *Akosmos*). TYPE: Vietnam, Quang Nam-Da Nam, 25 Feb., 1941, Poilane 31741 (holotype, P; isotype, IBSC). Fig. 7.

Species affinis *A. evrardii* Pitard, sed foliis maioribus, ramulis inflorescentiisque dense lepidotis differt.

Tree up to 15 m high and the trunk c. 1.5 m in girth; branchlets ± angulate, wrinkled with longitudinal lines when dry, young parts and inflorescence densely fulvous tomentose by appressed scaly short hairs. Leaves alternate, oblong-elliptic, 22－30 × 6.5－9 cm, base attenuate, apex acute or ± acuminate, margin faintly crenuate, subcoriaceous, upper surface glabrous, lower surface ± minutely puberulous on midrib and lateral nerves; lateral nerves 26－30 pairs, with thinner and shorter intercalated pairs, impressed above, strongly raised beneath, departing at an angle about 60°, curved-ascending and anastomosing near the edge, not forming an uniform intramarginal vein; reticulation of veinlets prominent on both surfaces. Petiole 1－2 cm, ± puberulous. Inflorescence axillary, paniculate, 1－6 cm, with 1－4 racemosely arranged branches, these 5－20 mm long, each bearing a subumbellate cluster of 4－6 flowers. Pedicel 3－5 mm. Calyx c. 2 mm, split nearly to base; lobes ovate-triangular, puberulous, obscurely punctate and minutely ciliolate. Corolla deeply lobed; lobes ovate, c. 4×2.8 mm, obtuse, sparsely dotted with orange glands. Anthers ovate, c. 2.5 mm, apiculate, scarcely punctate on back. Ovary glabrous; style c. 3 mm; ovules many, irregularly in 3 series on placenta. Fruit not known.

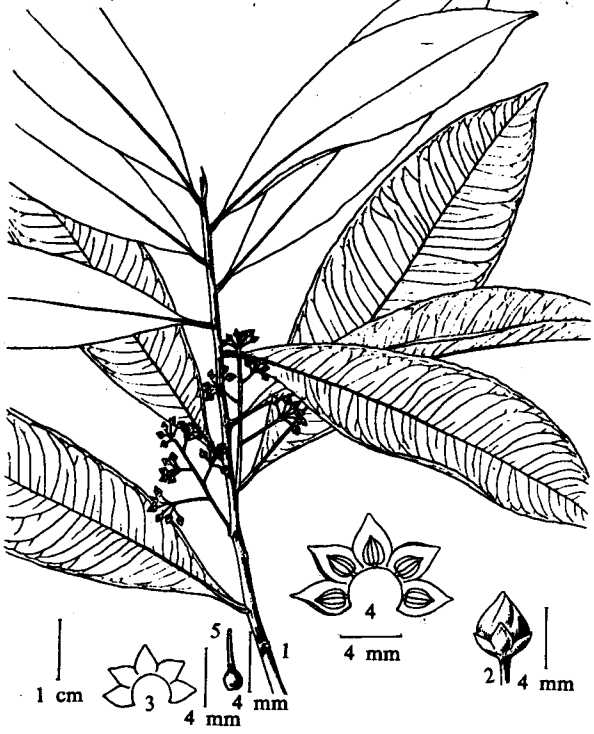

Fig. 7 *Ardisia quangnamensis* C. M. Hu & J. E. Vidal
1. Flowering branch; 2. Flower bud; 3. Calyx opened up; 4. Corolla opened up, showing stamens; 5. Pistil. (Poilane 31741)

Distribution and Ecology. Known only from the type material collected from Quang

Nam-Da Nang of Vietnam, in evergreen forest. Flowering in February.

Remarks. *Ardisia quangnamensis* is closely related to *A. evrardii* Pitard, but can be easily recognized by the appressed tomentum on branchlets and inflorescence, and by the much larger leaves with lateral nerves impressed on adaxial surface.

Ardisia quinquegona Bl. var. ***salicifolia*** (Walker) C. M. Hu & J. E. Vidal, comb. et stat. nov. (subg. *Akosmos*). Basionym: *Ardisia salicifolia* Walker in Bull. Fan Mem. Inst. Biol. **9**: 156. 1939. TYPE: China, Yunnan, Mengtze, Henry 11032 (holotype, US). Synonym: *Ardisia hypargyrea* C. Y. Wu & C. Chen in Fl. Yunnan. 1:340. 1977. TYPE: based on *A. salicifolia* Walker.

Distribution and Ecology. This variety is confined to southern Yunnan and Guangxi of China and northern Vietnam, growing in evergreen forest and shade places near water, alt. 700－1600 m.

Remarks. As noted by E. H. Walker that *Ardisia salicifolia* is most closely related to *A. quinquegona* Bl. The differences that existed in the glands of sepals and indumentum of inflorescence are too trifle, and the range of the width of leaves found made it impracticable to maintain *A. salicifolia* as a separate species.

Ardisia rapaneifolia C. M. Hu & J. E. Vidal, sp. nov. (subg. *Akosmos*). TYPE: Vietnam, Tonkin, massif du Tam Dao, alt. 1000 m, Dec., 1930, Petelot 4296(holotype, P; isotype, IBSC). Fig. 8.

Species nova *A. waitakii* C. M. Hu similis, a qua imprimis differt calycis lobis ovato-lanceolatis, membranaceis, haud imbricatis.

Shrub to 2.5 m high; branchlets terete, glabrous, ± angulate and sparsely rusty-lepidote when young. Leaves narrowly elliptic to elliptic-lanceolate, 7.5－17 ×2.8－5 cm, base cuneate-attenuate, apex acuminate, sometimes slightly falcate, margin entire, firmly chartaceous, glabrous, with scattered pellucid orange glandular dots; lateral nerves 22－30 pairs, parallel, with shorter and thinner intercalated pairs, departing at almost a right angle, meeting in an intramarginal vein near edge; veinlets visible on both surfaces. Petiole 6－10 mm, glabrous. Inflorescence subumbellate, in axils of reduced leaves near apex of branches. Bracts lanceolate, 3－5 mm, ± rusty-lepidote. Peduncle 1.5－3.5 cm, glabrous; primary branches 0.8－1.8 cm, each bearing a umbel of 2－4 flowers;

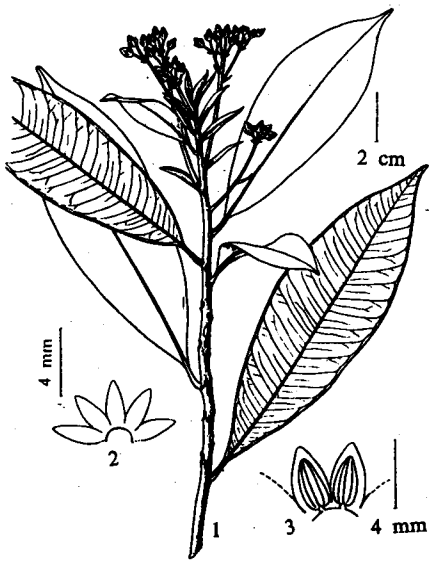

Fig. 8 *Ardisia rapaneifolia* C. M. Hu & J. E. Vidal
1. Flowering branch; 2.Calyx opened up; 3. A part of corolla opened up, showing stamens. (Petelot 4296)

pedicel 4－6 mm, glabrous. Flowers rosy, c. 5 mm. Calyx split near to base; lobes ovate-lanceolate, c. 3 mm, obtuse, membranous, minutely ciliate, obscurely punctate. Corolla deeply lobed; lobes ovate, 3.5×2－2.5 mm, acute, not punctate or with a few orange glandular dots. Anthers ovate, c. 3 mm, apiculate, not punctate. Ovary glabrous; style c. 4 mm; ovules many in 2 series on placenta. Fruit not known.

Distribution and Ecology. Known only from the type material collected from N Vietnam (Vinh Phu, massif du Tam Dao). In forest at altitude c. 1000m. Flowering in December.

Remarks. *Ardisia rapaneifolia* is probably related to *A. waitakii* C. M. Hu, but can be easily distinguished by its ovate-lanceolate, membranous and not imbricate calyx-lobes. From *A. rhodochroa* C. M. Hu & J. E. Vidal, it differs by its much larger flowers and longer pedicels.

Ardisia ravida C. M. Hu & J. E. Vidal, sp. nov. (subg. *Akosmos*). TYPE: Vietnam, Lamdong, north of Dalab, alt. 1800 m, Schmid A3 (holotype, P).

Species affinis *A. viburnifoliae* Pitard, sed foliis chartaceis, ellipticis vel elliptico-lanceolatis, ad medium latissimis, innoventionibus furfuraceis nec pubescentibus differt.

Small tree to 10 m high and the trunk 50 cm in diameter, branchlets greyish, wrinkled with longitudiunal lines when dry, delated at insertion, new growth densely rusty-furfuraceous. Leaves alternate, ± crowded towards apex of branchlets, elliptic to elliptic-lanceolate, 3.5－9.5×1.5－3.5 cm, broadest at middle, base cuneate, apex acuminate to acutish, entire, chartaceous, covered with minute greyish scales on upper surface and rusty appressed scales on lower surface; glandular dots many, scattered, ± raised on lower surface; lateral nerves 10－14 pairs, departing at an angle about 70°, arching upwards halfway from the edge, not forming an intramarginal vein; veinlets ± visible on both surfaces. Petiole 5－8 mm, rusty-furfuraceous. Inflorescence lateral, compound-subumbellate, (2－) 4－8 crowded towards apex of branchlets, appearing a terminal corymbose-panicle due to reduction of upper leaves to caducous bracteate structure, densely rusty-furfuraceous. Peduncle 6－15 (－20) mm; branches 5－8 mm, each bearing a subumbellate cluster of 3－5 flowers. Bract linear-lanceolate, furfuraceous, Pedicel 3－4(－5) mm. Calyx c. 1 mm, split to near base; lobes triangular-ovate, acute, ciliolate. Corolla 2－2.3 mm, deeply lobed; lobes ovate, acute, not punctate. Anthers ovate, c. 1.5 mm, apiculate, not punctate. Ovary glabrous; style c. 3 mm, exserted before anthesis; ovules many, in 3 series on placenta. Fruit depressed globose, c. 3×5 mm, with scattered glandular dots.

Distribution and Ecology. Endemic to S Vietnam, growing in forest, alt. 1600－2000 m. Flowering May－June; fruiting in October.

Remarks. At first glance *A. ravida* looks very similar to *A. viburnifolia*. However, in *A. ravida* the leaves are chartaceous, elliptic to elliptic-lanceolate, broadest at middle, in

contrast to the subcoriaceous, ± obovate (broadest above middle) leaves of that species; the indumentum on new growth is also different.

Paratypes. Vietnam, Prov. Lamdong: Long Bian, Poilane 18712 (P), Haut Donai, Poilane 30937 (P); Tuyen Duc, Schmid s. n. (P).

Ardisia rhodochroa C. M. Hu & J. E. Vidal, sp. nov. (subg. *Akosmos*). TYPE: Vietnam, Phu Khanh, Nui Bach Ma station, alt. 145 m, 14 April, 1939, Poilane 29646 (holotype, P).

Species nova *A. nervosae* Fletcher similis, sed ab ea inflorescentiis glabris, floribus maioribus, lobis calycis acutis differt.

Shrub to 4 m high; branchlets subterete, initially dark brown and ± lepidote, becoming grey and ± fissured in age; terminal bud densely lepidote. Leaves elliptic to elliptic-obovate, 7−14×2.5−4.5 cm, base cuneate-attenuate, apex shortly acuminate, entire, firmly chartaceous, glabrous, ± lepidote beneath; lateral nerves numerous, 1.5−3 mm apart, subparallel and nearly all equaling in thickness, meeting in an intramarginal vein near the edge; veinlets obscure. Petiole 5−10 mm. Inflorescence in axils of reduced leaves near apex of branches, subumbellate, usually simple, 3−5-flowered, glabrous; peduncle 8−25 cm; pedicel 5−7 mm. Flowers rosy, c. 4 mm. Calyx c. 1 mm, split near to base; lobes ovate-triangular, acute, minutely ciliate. Corolla deeply lobed; lobes ovate, 3.5×2 mm, acute, not punctate. Anthers ovate, c. 1.75 mm, acute. Ovary glabrous; style c. 3 mm; ovules c. 15, in 3 series on placenta. Fruit not known.

Distribution and Ecology. Endemic to SE Vietnam, growing in forest at altitude 1400−1500 m. Flowering in April.

Remarks. *Ardisia rhodochroa* is closely related to *A. nervosa* Fletcher of Thailand, but can be easily recognized by the glabrous inflorescence, the larger flowers and the acute calyx-lobes.

Paratypes. Vietnam, Phu Khanh, Nui Bach Ma station near Hue, Poilane 27626, 27628, 29695 (P).

Ardisia rubescens Pitard var. ***oblongifolia*** C. M. Hu & J. E. Vidal, var. nov. (subg. *Crispardisia*). TYPE: Vietnam, Prov. Lamdong, Blao, alt. 900m, Poilane 22345 (holotype, P).

A var. *rubescenti* inflorescentia puberula, foliis oblongo-lanceolatis, glandulis marginalibus plurioribus, utrinsecus 15−20 differt.

Leaves oblong-lanceolate, 6−11×1.2−2.8 cm, apex shortly acuminate, base subrounded, rarely obtuse, margin subentire, narrowly recurved, rusty scaly on lower surface, not punctate; lateral nerves 15−18(−20) pairs, ending in marginal glands. Inflorescence compound-corymbose, puberulous, 6−13 cm including the peduncle; branches 2.5−5 cm, divaricate, almost in right angle to the rachis, each bearing 10−15 flowers.

Distribution and Ecology. Endemic to southern Vietnam, growing in forest, alt. 900m.

Paratypes. Vietnam, Lamdong: Haut Donnai, alt. 900 m, Poilane 20996 (P); ibidem, P. Tixiter 5/1/60 in 1960 (P); ibidem, Schmid 160 (P).

Ardisia rubescens Pitard var. ***puberula*** C. M. Hu & J. E. Vidal, var. nov. (subg. *Crispardisia*). TYPE: Vietnam, Prov. Ha Nam Ninh, d'Alleizzeitte s. n. (holotype, P).

A var. *rubescenti* inflorescentia ferrugineo-puberula, foliis subtus atro-punctatis differt.

Leaves elliptic, 5－8×2－3 cm, apex shortly acuminate, base cuneate, margin subentire, ± recurved; lateral nerves 8－15(－18) pairs, ending in marginal glands. Inflorescence compound corymbose, rusty puberulous, 3－10 cm including the peduncle; branches 1.5－3.5 cm, divaricate, each bearing 5－12 flowers.

Distribution and Ecology. Endemic to southern Vietnam, growing in forest. Flowering April－May.

Paratypes. Vietnam, Prov. Lam Dong: Dalat, Evrard 1986 (P); ibidem, P. Tixiter 20/4/57 -10 (P), M. Schmid 1066 (P).

Ardisia silvestris var. ***appressa*** C. M. Hu & J. E. Vidal, var. nov. (subg. *Bladhia*). TYPE: Vietnam, Binh Tri Thien, Eberhardt 3095 (holotype, P).

A var. *silvestri* foliis subtus ad nervos appresso-hirsutis, nervis lateralis foliorum paucioribus differt.

Leaves 17－40×5－11.5 cm; lateral nerves (17－30 pairs) and veinlets appressedhirsute on lower surface. Inflorescence pubescent with ± appressed hairs; branches 2－4 mm.

Distribution and Ecology. Central and northern Vietnam; Hainan island of southern China, growing in forest, alt. 300－1200 m.

Paratype. Vietnam, Binh Tri Thien, Poilane 10401, 11283 (P); ibidem, Bana, near Tourane, Poilane 6986, 7012 (P); ibidem, Nui Bach Ma station, near Hue, Poilane 29946 (P); Laokay, Poilane 25219 (P). China, Hainan, L. Teng 2596, 3611 (IBSC), ibidem, F. C. How 72037 (IBSC).

Ardisia subopposititifolia C. M. Hu & J. E. Vidal, sp. nov. (subg. *Akosmos*). TYPE: Vietnam, Ha Bac, 6 Jan., 1941, Petelot 7161 (holotype, US). Fig. 9.

Ab omnibus speciebus subgeneris inflorescentis ex axillis bractearum parvarum ortis, pedunculo apice foliis parvis duabus instructo recedens.

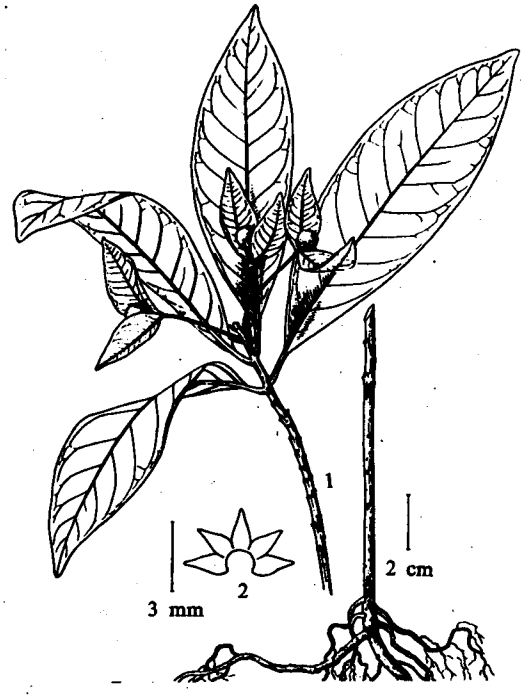

Fig. 9 *Ardisia subopposititifolia* C. M. Hu & J. E. Vidal
1. Plant; 2. Calyx opened up. (Petelot 7161)

Shrub c. 35 cm high; stems unbranched, upper part sulcate, with many raised, subrounded leaf-scars. Leaves subopposite on the upper part of stem, narrowly elliptic 7－14×3.2－4.5 cm, apex acute, base cuneate-attenuate, entire, chartaceous, upper surface glabrous, lower surface ± glandular pulverulent on midrid and nerves; lateral nerves 10－－18 pairs, prominent on lower surface, departing at an angle about 45°, anastomosing near the edge; veins prominent on both surfaces. Petiole 4－8 mm, glabrous. Inflorescence umbellate, puberulous, in axils of small bracts near apex of stem. Bract lanceolate, 3－6 mm. Peduncle slender, c. 3 cm, with two opposite sessile small leaves (2.5－3.5×1－1.4 cm) at apex. Pedicel c. 6 mm in fruit. Calyx c. 2.5 mm, split almost to base; lobes ovate-lanceolate, puberulous and obscurely punctate, glandular-ciliolate. Fruit globose, c. 6 mm in diameter, with a few black glandular stripes.

Distribution and Ecology. Known only from the type material collected from Ha Bac (Bac Giang) of Vietnam, growing in forest.

Remarks. This new species is unique among the species in the subgenus *Akosmos* in having inflorescence arising from axils of small bracts on the upper part of stem, peduncle with two opposite sessile small leaves at apex.

Ardisia vidalii C. M. Hu, sp. nov. (subg. *Crispardisia*). TYPE: Vietnam, Phu Khanh, Giang Ly, in forest, alt. 1100－2000 m, Poilane 3597 (holotype, P).

A. aciphyllae Pitard primo aspectu persimilis, sed floribus minoribus, foliis utrinque densissime atro-punctatis differt.

var. ***vidalii***

Shrub 0.7－1 m high; branchlets terete, glabrous, with glandular black lines. Leaves alternate; leaf blade lanceolate or elliptic-lanceolate, 4－7×1－2 cm, apex slightly acuminate, base cuneate, margin coarsely crenate and slightly recurved, with marginal gland in each sinus, chartaceous or subcoriaceous, glabrous, densely black-punctate on both surfaces; lateral nerves 10－12 pairs, sometimes inconspicuous, curved-ascending, meeting in an intramarginal vein. Petiole 3－5(－7) mm. Inflorescence subumbellate, simple, 2－4-flowered, terminal on special flowering branches, these 8－15 cm long, foliate on the upper half. Pedicel 5－6 mm, glabrous, lengthening to 10－13 mm in fruit. Calyx glabrous, split almost to base; lobes ovate, c. 2.5 mm, obtuse, densely black-punctate. Corolla deeply lobed; lobes ovate, ± obtuse, densely black-punctate. Anthers c. 3 mm, punctate on back. Fruit globose, c. 6.5 mm in diameter, copiously black-punctate.

Distribution and Ecology. Endemic to southern Vietnam, growing in evergreen forest, alt. 1100－2000 m. Flowering in May.

Remarks. At first sight this new species is similar to *A. aciphylla* Pitard, but can be easily distinguished by its smaller flowers and by the densely black-punctate leaves.

Paratypes. Vietnam, Prov. Thuan Hai, in forest, alt. 1100－2000 m, Poilane 3506, 3609 (P).

var. ***orbicularis*** C. M. Hu, var. nov. TYPE: Vietnam, Phu Khanh, Mt. Mere et l'Enfant, alt. 1100 m, 4 Nov., 1922, Poilane 5057 (holotype, P).

A var. *vidalii* foliis ellipticis, maioribus, 8.5－14 cm longis et 3－4 cm latis, sepalis suborbicularis vel late ovatis, 3－3.5 mm diam., imbricatis differt.

Leaves elliptic, 8.5－14×3－4 cm, petiole 1－2.5 cm; lateral nerves 12－15 pairs, raised on both surfaces. Calyx lobes suborbicularis or broadly ovate, 3－3.5 mm long, overlapping at base.

Distribution and Ecology. Known only from the type material collected from Mt. l'Enfant, Prov. Phu Khanh of southern Vietnam. In forest, alt. 1100 m.

Ardisia vietnamensis C. M. Hu & J. E. Vidal, sp. nov. (subg. *Crispardisia*). TYPE: Vietnam, Binh Tri Thien, Mt. Bani, 25 km from Tourane, alt. 500 m, 29 June, 1924, Poilane 11098 (holotype, P).

Ardisia aciphylla Pitard in Lecomte, Gen. Fl. I.-C. 3:862. 1930, p. p. quoad specim. Poilane 11098.

Planta foliis subcoriaceis, nervis venulisque utrinque elevatis reticulatis simillima *A. merrillii* Walker, a qua imprimis differt inflorescentiis simplicibus, sepalis ovato-triangularibus, petalis punctatis.

Shrub 0.8－2 m high; branchlets terete; new growth, petiole and lower surface of leaves sparsely covered with rusty capitate glandular hairs. Leaves alternate; leaf blade elliptic-lanceolate, 9－16×2－3.5 cm, apex shortly acuminate, base cuneate-attenuate, margin coarsely undulate-crenate, with marginal glands in each sinuses, firmly chartaceous, glabrous above; lateral nerves 10－15 pairs, departing at an angle about 70°, then curved-ascending, ending in the elongate marginal glands and uniting in an interrupted intramarginal vein near the edge; veinlets like the lateral nerves raised on both surfaces. Petiole 4－10 mm. Inflorescence simple, subumbellate, 4－10-flowered, terminal on special flowering branches, these bearing 1－2 leaves near apex. Pedicel c. 5 mm, glabrous, lengthening to 10－15 mm in fruit. Calyx split almost to base; lobes narrowly triangular, 1.5－2 mm, black-punctate. Corolla deeply lobed; lobes oblong-ovate, c. 5.5－6×2－2.5 mm, acute, sparsely black-punctate. Anthers linear, c. 5.5 mm, punctate on back. Ovary glabrous; style c. 5 mm; ovules c. 5, in 1 series on placenta. Fruit globose, 6.5－7 mm in diameter, bright red when mature, with black glandular dots.

Distribution and Ecology. Endemic to central Vietnam, growing in forest, alt. 500－1500 m. Flowering in June.

Remarks. *Ardisia vietnamensis* is closely related to *A. merrillii* Walker owing to the

subcoreaceous leaves with prominent reticulate lateral nerves and veins on both surfaces. However, the simple umbellate inflorescence, the ovate-triangular sepals and the punctate petals allow for immediate recognition.

Paratypes. Vietnam, Prov. Binh Tri Thien: near Tourane, alt. 1 000－1 500 m, Poilane 6987, 8070, 29047, 29086 (P); ibidem, J. & M. S. Clemens 3915 (P).

Embelia N. Burman

The genus *Embelia* includes about 140 species distributed in pacific islands, southern Asia, and Africa tropical and subtropical regions. Of the 11 native species in Indochina, only this new species is endemic.

Embelia cuneata C. M. Hu & J. E. Vidal, sp. nov. (sect. Heterembelia). TYPE: Vietnam, Lamdong, massif du Braian, alt. 1500－1600 m, Poilane 24091 (holotype, P). Fig. 10.

Species nova *E. nutanti* Wall. similis, sed ab ea foliis basi cuneatis, nervis lateralibus foliorum paucioribus, venulis utrinque elevatis differt.

Scandent shrub or climber, to 20 m long; branchlets terete, sparsely rusty pubescent; old branches brown, copiously lenticellate. Leaves alternate; leaf blade oblong-elliptic 4.5－7×1.5－2.8 cm, apex acute, tip blunt, base cuneate, margin entire, firmly chartaceous, glabrous above, sparsely rusty lepidote on lower surface; lateral nerves 8－12 pairs, strongly raised beneath, departing at an angle about 60°, curved-ascending, anastomosing near the edge; reticulation of veins prominent on both surfaces. Petiole 7－10 mm initially rusty pubescent, with narrow crisped wings. Inflorescence axillary racemose 10－13 cm, rusty pubescent, 8－12-flowered. Bracts lanceolate, c. 1 mm. Pedicel (2－)3－4 mm. Flowers whitish, 5-merous. Calyx c. 1 mm, split a little below middle; lobes ovate, obtuse, sparsely punctate and puberulous, minutely glandular ciliate. Corolla-lobes almost free, oblong, c. 3×0.8 mm,

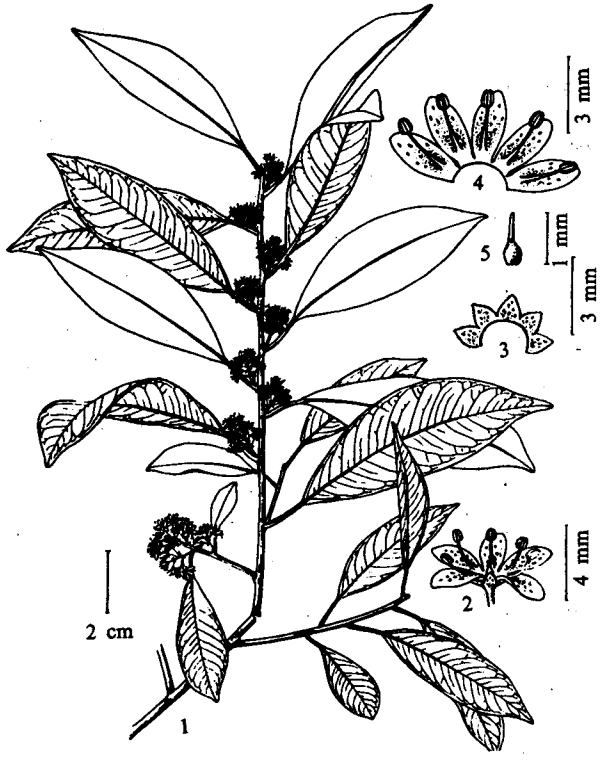

Fig. 10 *Embelia cuneata* C. M. Hu & J. E. Vidal
1. Flowering branch; 2. Flower; 3. Calyx opened up; 4. Corolla opened up, showing stamens; 5. Pistil. (Poilane 24091)

obtuse, punctate, densely papillose within. Stamens in male flowers inserted just below middle of corolla-lobes; filaments c. 1.75 mm; anthers ovoid, c. 0.6 mm, obtuse. Pistillate flowers not known.

Distribution and Ecology. Known only from the type material collected from massif du Braian, Prov. Lamdong of southern Vietnam, growing in forest, alt. 1500－1600 m.

Remarks. *Embelia cuneata* is most closely related to *E. nutans* Wall., but can be easily recognized by the leaves being cuneate at base, havingfew pairs of lateral nerves and veinlets raised on both surfaces. From *E. scandens* (Lour.) Mez, it differs by its rusty-pubescent branchlets and shorter inflorescence.

Maesa Forsskal

The genus *Maesa* has about 200 species distributed in paleotropical regions. It is represcented in Indochina by 18 species, of which six are endemic.

Maesa cambodiana C. M. Hu & J. E. Vidal, sp. nov. (sect. Maesa). TYPE: Cambodia, Koh Kong, alt. 350 m, M. A. Martin 300 (P).

Species similis *M. laevi* C. M. Hu & J. E. Vidal, a qua imprimis differt corollis ultra medium connatis, lobis striis glandulosis destitutis.

Shrub, 1－3 m high, glabrous throughout; young branches ± angulate, dark brown, soon becoming subterete, sparsely lenticellate. Leaves alternate; leaf blade elliptic to ovate-elliptic, 4－12×3.5－7 cm, base broadly cuneate to subrounded, apex shortly acuminate or broadly obtuse, with a short acumen, margin obscurely undulate-crenate, the teeth with a projected callose tip, chartaceous, dark green above, olive-green beneath, with nervilliform glandular lines; lateral nerves 5－7 pairs, curved-ascending, with branches ending in teeth; veins slender, obscure. Petiole 1－1.5(－1.8) cm, narrowly canaliculate above. Inflorescence axillary, paniculate, 2－8 cm, 1×branched; branches slender, 1－4 cm, bearing many racemosely arranged flowers. Bract subulate-lanceolate, c. 0.8 mm. Pedicel c. 1 mm, with 2 bracteoles near apex. Calyx c. 1.2 mm, split to middle; lobes suborbicular, base ± auriculate, apex rounded, with transparent glandular lines. Corolla white, 1.8－2 mm; tube 1－1.2 mm, longer than the lobes; lobes broadly ovate to suborbicular, apex rounded, without coloured glandular lines. Stamens included; anthers ovoid, c. 0.3 mm, equaling the free part of filament. Ovary conical; style 0.3－0.4 mm; stigma capitate. Fruit subglobose, c. 2.5 mm in diameter.

Distribution and Ecology. Southeast Cambodia and southern Vietnam, in thickets and thin forest, alt. 350－800 m. Flowering February－March; fruiting April－May.

Remarks. *Maesa cambodiana* closely related to *M. laevis* and *M. membranacea*, from these it differs particularly by the structure of the corolla, which unite beyond middle and the lobes lack glandular striations.

Paratypes. Cambodia, Koh Kong: alt. 350 m, M. A. Martin 300 (P), alt. 800 m, M. A. Martin 1708 (P); Vietnam: Lam Dong: Chevalier 40302 (P); Tay Ninh: Poilane 707, 711 (P).

Maesa kerrii C. M. Hu & J. E. Vidal, sp. nov. (sect. Maesa). TYPE: Laos, Xieng Khouang, in bamboo forest, alt. 2000 m, flowers white, Kerr 20833 (holotype, P).

Species nova *M. linealatae* Fletcher similis, sed tota planta glaberrima, inflorescentiis longioribus, foliis margine obscure undulato-dentatis differt.

Shrub, c. 2 m high, glabrous throughout; branchlets ± angulate, smooth, light brown; branches of previous year's growth teret, wrinkled with longitudinal lines when dry, sparsely lenticellate. Leaves alternate; leaf blade oblong-lanceolate, 7−13×3.5−5.5 cm, apex ± acuminate, base broadly cuneate to subrounded, margin remotely and obscurely undulate-dentate, thinly chartaceous, with nervilliform glandular lines on both surfaces; lateral nerves 6−7 pairs, slender, ± prominent above, raised beneath, curved-ascending near the edge and ending in teeth; veins invisible. Petiole 6−10 mm, canaliculate above. Inflorescence axillary, 6−12 mm, racemose or with 1−2(−3) branches at base; branches (if present) 3−6 mm, bearing 3−10 flowers. Bract narrowly ovate, c. 0.2 mm. Pedicel 1−1.5 mm. Calyx c. 1 mm, lobed to middle; lobes broadly ovate, obtuse or subrounded, with minute orange glandular dots, minutely and obscurely ciliate. Corolla white, c. 1.6 mm, lobed to middle; lobes broadly ovate, rounded at apex, with longitudinal orange glandular stripes. Stamens inserted at middle of corolla-tube, included; anthers ovoid, ± equaling filament. Ovary conical; style ± equaling calyx-lobes; stigma capitate, ± lobed. Fruit not known.

Distribution and Ecology. Known only from the type material collected from Xieng Khouang of northern Laos. In bamboo forest, alt. 2000 m. Flowering in May.

Remarks. *Maesa kerrii* is superficially similar to *M. linealata* Fletcher from Thailand but with the inflorescence much longer, the leaves obscurely undulate-dentate, and particularly differs by the plant being glabrous throughout.

Maesa laevis C. M. Hu & J. E. Vidal, sp. nov. (sect. Maesa). TYPE: Vietnam, Phu Khanh, 11−26 March, 1911, C. B. Robinson 1242 (holotype, P).

Maesa subdentata auct. non A. DC.: Pitard in Lecomte, Fl. Gen. I.−C. 3:785 (1930).

Species nova *M. membranaceae* A. DC. similis, sed ab ea inflorescentiis axillaribus, pedicelis brevioribus, foliis subtus lineis nervillifomibus vix manifestis differt.

Shrub 1−3 m high, glabrous throughout; branchlets terete, date-coloured or blackish, verruculose with numerous raised lenticels; new growth ± angulate, sparsely lenticellate. Leaves alternate; leaf blade elliptic to broadly elliptic, 5.5−10(−13)×(2.5−)3−6(−8.5) cm, base broadly cuneate to subrounded, sometimes slightly asymmetrical, apex acute or ± acuminate, undulate-dentate on upper 2/3, rarely subentire, firmly chartaceous, dark green

above, paler beneath, nervilliform glandular lines obscure; lateral nerves 4－6 pairs, obliquely ascending; veins very obscure or invisible. Petiole 1－2 (2.8) cm, canaliculate above. Inflorescence axillary, 3－7 cm, paniculate, 1－2 × branched; branches 5－25 mm, bearing many racemosely arranged flowers. Bracts ovate-lanceolate, c. 1 mm. Pedicel c. 1 mm in flowering time, lengthening to 2 mm in fruit, with a pair of bracteoles near apex. Calyx 1－1.2 mm, split hardly to middle; lobes ovate, obtuse or acute, with longitudinal glandular lines. Corolla white; tube short; lobes ovate, apex rounded. Stamens adnate to corolla tube; anthers ovate; filaments short. Ovary conical; stigma capitate. Fruit ellipsoid, c. 3 × 25 mm, with longitudinal glandular lines.

Distribution and Ecology. Endemic to central and southern Vietnam. In thickets, alt. 600－800 m. Flowering in March.

Remarks. *Maesa laevis* is closely related to *M. membranacea*, but can be distinguished by its axillary inflorescence, shorter pedicels and by the nervilliform lines, which are very obscure on the lower surface of leaves.

Paratypes. Vietnam, 20 km to Ninh Hoa, Poilane 6840, 8181, 8449 (P); Thuan Hai, Bana, Poilane 8700, 12409 (P); Dac Lac, Schmid 1074, 1075 (P).

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