

New and Noteworthy Malesian Myrsinaceae, VI. Revision of the Genus *Hymenandra* A.DC

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Abstract

Hymenandra A.DC, with eight species, is revised. Four new species are proposed and one species originally placed in *Ardisia* is transferred. The genus is subdivided into two subgenera, *Hymenandra* and *Lacrimopiia* subg. nov. (the first with 6, the second with 2 species). A key to the species, new descriptions, illustrations, and a list of *exsiccatae* examined are included.

Introduction

Hymenandra A.DC. (1841), first established as a section (Sectio 2) of *Ardisia* (De Candolle 1834) was based entirely on *Ardisia hymenandra* Wall., first described in 1824. The genus was monotypic and was accepted as such by Mez in his monograph (1902). It was not until 1958 that a second species was attributed to the genus when Furtado (1958) transferred *Ardisia iteophylla* Ridl. 1924 to it. In "1975" (1976) Nayar and Giri described another species from Burma. Subsequently there have been no further reviews of the genus.

Furtado (1958) described *Ardisia calcicola* from Kalimantan. After re-examination of the type material, this too is found to be a species of *Hymenandra*. The most significant character of the genus, emphasized by De Candolle, is the staminal tube in which the anthers are laterally connate by the thecal margins. Moreover, the inflorescence is lateral either on a short and much reduced branch with one or two small but otherwise normal leaves, or on a peduncle subtended by foliaceous bracts crowded so as to form almost an involucre. The flowers, and the individual floral organs, are often unusually slender and elongated.

The relationship of *Hymenandra* appears to be with *Ardisia*, and especially with subgenera *Pyrqus* and *Crispardisia*, at least in regard to the position and form of the inflorescence. It seems hypothetically possible that intermediate forms could form a transition between *Ardisia* and *Hymenandra*. The other generic character, more emphasized by Mez, is the ovular number, which in *Hymenandra* is "few" i.e. about 5-12. This too conforms with the situation in *Ardisia* subgenus *Crispardisia*, but not with subg. *Pyrqus*. The tendency to lateral inflorescences is accompanied in several species by the occurrence of papillae (suberect glandular trichomes) on the interior surface of the calyx-lobes, which is also quite noticeable in *Ardisia* subgenus *Crispardisia*.

The genus *Hymenandra* is divided here into two subgenera. Six species are retained in the typical subgenus, and these agree with *H wallichii*, the type species, in possessing mostly obovate to oblanceolate leaves with rather short broad petioles; stature with

the main stem simple or very sparsely branched; and most also have the inner surface of the calyx-lobes rather densely and minutely papillose. In addition, these species have mostly oval to distinctly oblong glands in the perianth and stamens.

In subgenus *Lacrimopila*, the habit is more ramified, with the branch bases ampliate (gusseted) as in *Ardisia*, and the plants may reach 3 m (10 ft.) height. The leaves are elliptic to ovate, and distinctly petiolate. The inner surface of the calyx-lobes is not papillose, but may be hirtellous. In one species, *H. iteophylla*, the inflorescence axes and calyx are lepidote with stelliform to flabellate somewhat stalked scales, but the anthers and ovary are glabrous. In the other species, *H. diamphidia*, the inflorescence axes and vegetative innovations, the calyx on both surfaces, the backs of the corolla-lobes, the anthers on both sides, and the ovary and style base, are all hirtellous with shortly stalked ferruginous hairs with twinned apical cells of a form resembling a teardrop (the subgeneric name being derived from this feature). In this species there are usually 8 or 9 ovules in two series.

It is apparent that the two species assigned to subgenus *Lacrimopila* are rather more different from each other than the species of subgenus *Hymenandra* are from one another. Moreover there is a geographic difference, with *H. iteophylla* known so far only from the Malay Peninsula, while *H. diamphidia* is only known from Sabah. Possibly these two species should be distinguished further by establishing another taxon for *H. iteophylla* alone.

As here construed *Hymenandra* should no longer be considered an exclusively mainland Asian genus but may be termed an Indo-Malesian genus, with its centre of diversity in Borneo. Five of the eight species are in fact confined to Borneo. *Hymenandra wallichii* remains as a Himalayan species known from Sikkim, Bangladesh, Assam, and northwestern Burma, while *H. iteophylla* is the least known and is restricted to the southernmost part of the Malay Peninsula. The most recently described species, *H. narayanaswamii* Nayar & Giri, is known so far only from Burma.

All the species are more or less poorly represented in collections. Several species are known only from single collections and the rest from a very few. However, *Hymenandra wallichii* is represented in cultivation in some botanic gardens (e.g. Edinburgh). Otherwise, further study will depend largely on the acquisition of newly collected materials.

Generic Distinctions

The tubular androecium is the chief feature on which the genus *Hymenandra* was founded. In fact, the filaments are free from just below the anthers to the point where each is adnate to the corolla-tube, so that the androecial tube is partly interrupted. The connation of the anthers is minimal and not very tenacious but is quite real; yet if the anthers were not connate, it would be difficult to distinguish these species from *Ardisia* on technical grounds. They do, however, have certain habit characters in common. The species in subgenus *Hymenandra* appear to form a coherent taxonomic group. Those in subg. *Lacrimopila* deserve renewed study and comparison when additional material is available. The strikingly different forms of indument of *H. diamphidia* and *H. iteophylla* comprise a very noticeable character and the tendency of the distal cells in the trichomes of the former species to be twinned (either adnate or slightly Separated) is noteworthy. Perhaps this is a character that may be regarded as comparable to, but less elaborate than, the stalked scales of *H. iteophylla*.

Hymenandra narayanaswamii Nayar & Giri differs from *H. wallichii* in its distinctly petiolate, elliptic leaves, apparent lack of conspicuous inflorescence bracts, and lack of papillosity inside the calyx. The authors regrettably failed to report the ovule number.

Hymenandra wallichii, the type species of the genus, has a unique foliar character; the crenate leaf margins. The crenation is here termed "double" because each lobe is

notched, and a veinlet ending terminates in this notch; while the lobes themselves are separated by a broad, shallowly scooped interval of the margin, without a comparable veinlet termination. The remainder of the species all appear to have entire leaf margins.

Clearly, *Hymenandra* depends for its taxonomic status heavily upon the single character of anther connation, and I find no other character which could supplant it.

Systematic Treatment

HYMENANDRA A.DC.

Ann. Sci. Nat. ser. 2, 2: 297. 1834; *ibid.* 16: 79. 1841; in DC Prod. 8: 91. 1844. Endlicher, Gen. 736. 1836-40. Lindley, Veg. Kingd. 648. 1847. Hooker fil. in Bentham & Hooker fil. Gen. Pl. 2: 647. 1876. Pax in Engler & Prantl, Die Pflanzenfamilien IV.1: 95. 1889. Baillon, Hist. Pl. 11: 332. 1892. Mez, in Engler, Das Pflanzenreich Heft 9 (IV.236): 155. 1902. Furtado, Gardens' Bull. Singapore 17: 306. 1958. Nayar & Giri, Journ. Bombay Nat. Hist. Soc. 72: 818-821. "1975" (actually 1976). - *Ardisia* sectio 2. *Hymenandra* A.DC., Trans. Linn. Soc. London 27: 126. 1834.

Type: Hymenandra wallichii A.DC. (= *Ardisia hymenandra* Wall, in Roxb. Fl. Ind. ed. Carey 2: 282. 1824). (Wallich's epithet cannot be used under *Hymenandra* because of tautology).

Revised description: Flowers hermaphrodite, 5-merous. Sepals quincuncial, spreading at anthesis, connate shortly at base, mostly papillose on interior surface (or hirtellous), often rather elongated, valvate or scarcely imbricate. Corolla with short tubular base adnate to tubular (filamentous) base of androecium, lobes slightly imbricate, ovate to narrowly ovate, glabrous or sparsely papillose within toward base. Internal glands in sepals, petals, and anthers roundish or oval or frequently elongated (oblong to sublinear). Stamens connate, in the lower part as a filament tube adnate to the base of the corolla tube, but the filament tips free between the base of the anther and the point of adnation to the corolla; anthers connate laterally by the thecal margins, narrowly ovate-acuminate or oblong-ovate and acuminate, dorsally glandular. Gynoeceium with ovoid ovary and slender, elongated style; stigma punctiform. Placenta ovoid to turbinate, with 5-12 ovules in 1 or 2 series. Fruit 1-seeded, globular, sometimes obovate, exocarp glandular, (sometimes?) subtended by the persistent calyx.

Key to the Species

- 1a. Inflorescence condensed umbelliform or compactly cymose, at first conspicuously bracteate. Calyx, corolla and anther connective with oval or oblong-lirtear immersed glands. Calyx lobes papillose on inner surface. Filaments short, less than half as long as anther. Leaves obovate, petioles short and rather complanate, margins entire to slightly crenulate. Main stem short suberect or ?decumbent, not or few-branched subgenus *Hymenandra*
- 2a. Ovary tomentellous; leaves larger, to over 30 cm long, obovate, gradually narrowed to base, the broad petiole 5 mm long; lateral veins numerous; margins of blade distally crenulate, each lobe notched with a veinlet termination in it; ovules biseriate; sepals c. 3-4 mm long. Distrib. Sikkim, Assam, Burma (1) *H. wallichii*
- 2b. Ovary glabrous; leaf margin entire.
 - 3a. Leaves as in *H. wallichii*, large obovate, to 40 cm long and 10 cm wide, subsessile with broad, short petioles; sepals over 6 mm long, ovate-oblong and acute; ovules uniseriate. Distrib. Borneo. (2) *H. lilacina*
 - 3b. Leaves smaller, sometimes to 35 cm long, but often narrower, obovate or oblanceolate; petioles rather distinct; sepals narrowly ovate or ovate, less than 6 mm long; Ovules uni- or biseriate.
 - 4a. Lateral fertile branch very short, c. 1 cm long; leaves elliptic-lanceolate; anthers 3 mm long; placenta with 5 uniseriate ovules. Distrib. Borneo. (3) *H. rosea*

- 4b. Lateral fertile branch longer, usually 9-12 cm long; leaves oblanceolate to obovate; anthers 3-4.5 mm long; placenta with 8-10 uniseriate ovules.
- 5a. Leaves obovate, at base obtuse to almost subcordate, at apex obtuse, 12-18 cm long, 7-9 cm wide; petioles 5-6 mm long; flowers 8 mm long; sepals ovate-subrhombic, c. 5.5 mm long. Distrib. Borneo. (4) *H. beamanii*
- 5b. Leaves oblanceolate, 30-35 cm long, 4-5 cm wide; petioles 1-2 cm long; flowers 5-6 mm long; sepals elliptic ovate, 4.5 mm long. Distrib. Borneo. (5) *H. calcicola*
- lb. Inflorescence compact or open, up to 3 times pinnate, paniculate, axes somewhat to considerably elongated; bracts caducous; calyx-lobes marginally hirtellous and their interior surfaces not papillose, but either hirtellous or glabrous; taller, more ramified plants.
- 6a. Inflorescence condensed, axillary and terminal, the peduncles 10-15 mm long.
- 7a. Calyx lobes triangular-ovate, 15 mm long; calyx and pedicels with scattered substelliform or flabellate scales; filaments elongate, about 1.6 mm (c. one-half as long as the anther); anther glabrous; ovary glabrous. Distrib. Malaya (8) *H. iteophylla*
- 7b. Calyx lobes and pedicels densely puberulous; filaments short, c. 1 mm long, much shorter than the anther; anther glabrous; ovary glabrous; style 8-10 mm long. Distrib. Burma (6) *H. narayanaswamii*
- 6b. Inflorescence open, racemose-paniculate, tripinnate, the peduncles to 20 mm long; calyx lobes narrowly ovate, c. 3.5 mm long; calyx and pedicels, dorsal midline of corolla lobes, anthers (both faces) and ovary all hirtellous with ferruginous-tipped glandular hairs; filaments very short, c. 0.5 mm long; ovary and lower part of style hirtellous. Distrib. Borneo . . . (7) *H. diamphidia*

Subgenus *Hymenandra*

1. *H. wallichii* A.DC.

Fig. 1.

Ann. Sci. Nat. ser. 2, 16: 79. 1841; in DC Prod. 8: 91. 1844. Clarke, in Hook, fil., Fl. Brit. Ind. 3: 532. 1882. Mez, Myrsinaceae, in Engler, Pflanzenr. Heft 9 (IV.236): 155, fig. 24. 1902. Kanjilal & Das, Flora of Assam 3: 186. 1939. Nayar & Giri, Journ. Bombay Nat. Hist. Soc. 72: 819. "1975" (1976).

Ardisia hymenandra Wall, in Roxb. Fl. Ind. ed. Carey 2: 282. 1824; PL Asiat. Rar. 2: 57, t. 175. 1831. A. DC, TVars. Linn. Soc. Lond. 27: 126. 1834; Ann. Sci. Nat. ser. 2, 2: 12. 1834.

Leaves c. 30 cm long, to 11 cm wide; petiole 5-12 mm long, broad, complanate. Leaf margins along distal half double-crenulate, each crenation-lobe notched, with a veinlet termination in the notch. Blade with rather numerous (about 25) pairs of lateral veins. Inflorescence terminal on short lateral fertile branch, compact, overall c. 10 cm long, at first with pseudowhorled conspicuous bracts, decurved. Flowers c. 10 mm long, calyx-lobes about 2 mm long, narrowly ovate, gland-dotted, the margins finely ciliate; corolla-lobes narrowly long-ovate, the margins subacuminate, distinctly papillose within; staminal tube elongate, the filaments very short, anthers much elongated, 7.5 mm long, slenderly acuminate, laterally connate but the tips free, the connectives dorsally set with oblong glands. Ovary tomentellous, 1 mm high, the style slender, 6.75 mm long; stigma small, punctiform-truncate. Placenta about 0.5 mm high, with about 10 to 12 ovules in two rows.

Type: Wallich Cat. 2226 (from Sylhet, mountains of Juntiyapoor, now in Bangladesh), K! holotype; CAL isotype.

Specimens examined: ASSAM: Khasia, Griffith 3596 (K!). (Two sheets, here designated 3596a and 3596b; the former bears a label with the annotation "*Frutex humilis, foliis subcarnosis; inflorescentia carnea nutans sub hemisphaerica*"; towards Beesale Collicae; this sheet possesses old flowers, the second has fruits.) Cachar, "shrub of shade, with nearly simple stem and reddish flowers borne in shortly pedunculate cluster close to the somewhat succulent stem"; Gopal teetah B. masa, 5 June 1873, coll. Memang Sirdar for Keenan (K!). Meghalaya, 1,000 m alt., June 1876, coll. ignot. 312 (CAL, not seen, cited by Nayar & Giri). Naga hills, May 1899, Prain's collector 100021 (CAL, cited

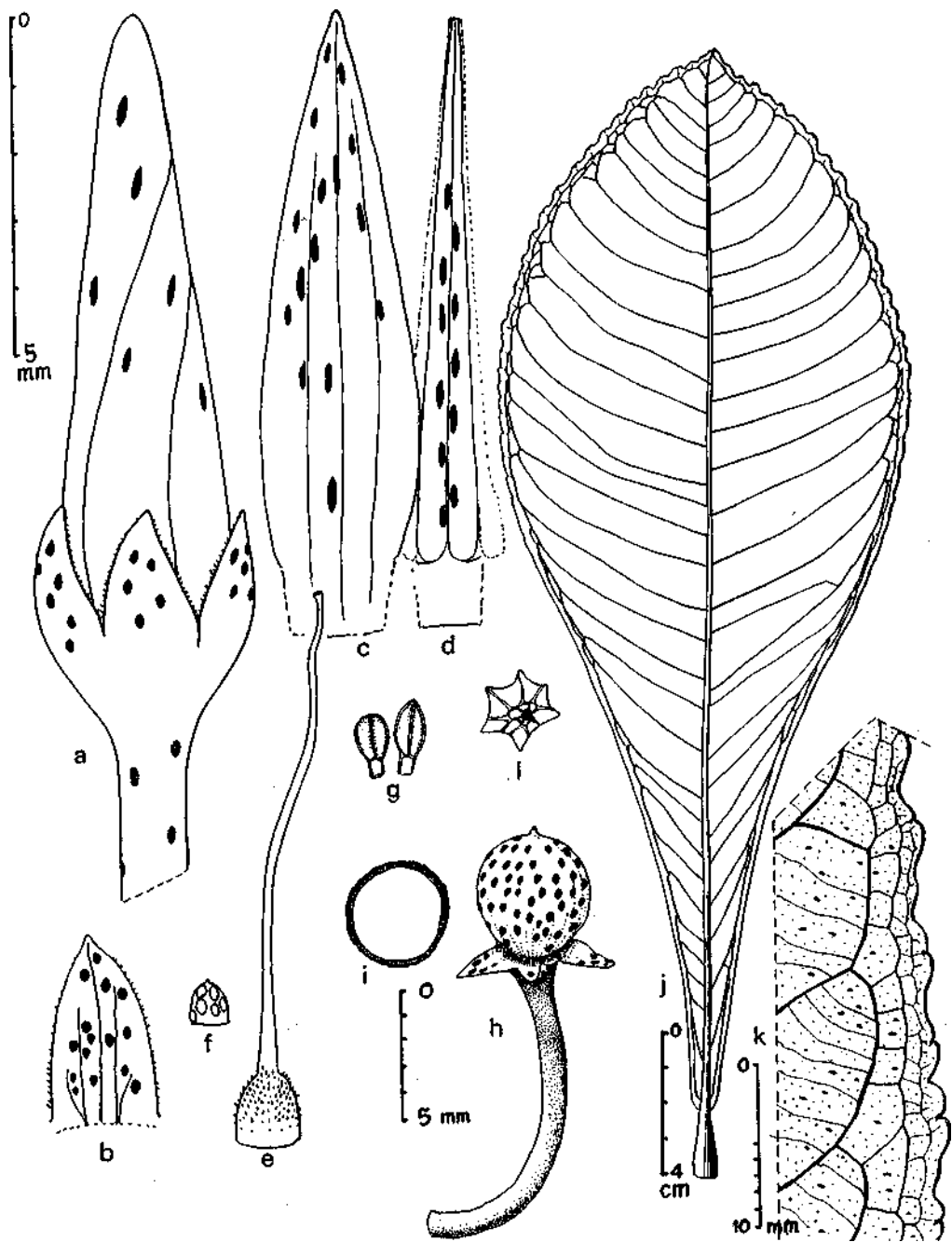


Fig. 1. *Hymenandra wallichii* A.DC. a. Flower in profile, b. Calyx-lobe. c. Corolla-lobe. d. Detached stamen, dorsal view. e. Ovary and style, f. Placenta, with 12 ovules, g. Capitata glandular trichomes from ovary, h. Fruit, i. Fruit in transverse section (dried, the seed omitted), j. Leaf undersurface. k. Portion of leaf margin, showing double crenulation. l. Peltate scale from leaf undersurface. (a-i, from *De Silva*, Wallich list no. 2266, type collection; j-l, from *Keenan*.)

by Nayar & Giri). BANGLADESH: Sillet (Sylhet), in mountains of Juntiyapoor, flowering in March, coll. *De Silvafor Wallich*, Wall. List 2266 (K!), holotype, isotype CAL. Cultivated in some botanic gardens/greenhouses (ref. Edinburgh).

2. *Hymenandra lilacina* B.C. Stone, *sp. nov.*

Fig. 2.

Suffrutex glaber, stipite brevi, crasso, suberecto ad 20-30 cm alto, ad 10 mm diametro, cortice 2 mm crasso; foliis spiraliter dispositis, magnis, obovato-oblancoelatis, usque ad 40 cm longis et 10 cm latis, coriaceis, integris, acutis vel obtuse acuminatis, basi longe angustatis decurrentibus demum abrupte subtruncatis vel subrotundatis, petiolo breve, lato, 5-10 mm longo et 4-6 mm lato, dorso rotundato, infra subcanaliculato; costa supra leviter et infra valde elevato; venis lateralibus numerosis (c. 10-12-paribus), venis secundariis et tertiariis distinctis prominulentibus; pagina infra in sicco brunneo. Ramus fertilis lateralis angustis c. 15 cm longis, 1.5-2 mm diametro, nudo termini excepto dein 1-2-foliati, foliis valde reductis, ad 10 cm longis, subsessilibus. Inflorescentia bisumbellata, compacta bracteis lanceolatis pseudo-involucello formantibus; pedunculis 5 (postea -9) mm longis; pedicellis 3-5 mm longis. Flos c. 7 mm longus, calycis lobis anguste ovato-oblongis, copiose glandulosis (glandulis oblongo-sublineatis), 5-venosis, glabris sed margine minute ciliatis; pagina intus copiose et ubique papilloso (papillis subcapitatis); corolla in parte basali qualerni tubulosi, in toto 7 mm longo, lobis oralis acuminatis, in basi subauriculatis, integris, copiose glandulosis, utrinque glabris vel intus basaliter persparse papulosis; tubo staminorum 5 mm longo antheris 4.5 mm longis apiculatis, dorso bilineatim glandulosis (glandulis c. 12-15 nigris); ovario conico glabra, pustulato-glanduloso, 1 mm alto, stylo erecto 4.5 mm longo gracillimo (glandulis internalibus evidentibus), stigma albo subtruncato; placenta 0.75 mm alto, ovulis 8 vel 9 uniseriatis. Fructus globosus apiculatus 6 mm longus, 5.5 mm latus, glandulosis, monospermus, lobis calyci persistentibus.

Type: BORNEO: East Kalimantan, Berouw, Mapulu, foot of Mount Has Mapulu, sandstone, 300 m alt., locally common, subshrub c. 30 cm high, flowers pale purple, fruit red, 19 September 1957, *A.J.G.H. Kostermans 13951* (K! holotype; 2 sheets; isotypes CANB, L).

A striking plant with considerable horticultural potential, similar in gross appearance to *H. wallichii*, but with entire leaf margins, somewhat shorter flowers, more briefly apiculate anthers, glabrous ovary, and uniseriate ovules.

3. *Hymenandra rosea* B.C. Stone, *sp. nov.*

Fig. 3.

Fruticulus 30 cm altus, stipite suberecto-decumbente, ad 4 mm diametro, cortice atro, ubique glabro lobis calycis ciliatis excepto. Folia pauca, subconferta. Folia petiolis 12-16 mm longis, laminis lanceolato-ellipticis, ad 13 cm longis, 3.4 cm latis, acutis non-acuminatis, basi angustatis, marginibus integris vel perobscure crenulatis apicem versus, glabris; costa media infra prominente; venis lateralibus gracilibus, subobscuris, c. 10-12-paribus, venis tertiariis vix manifestis; pagina infra pallidiora, lineis brevibus oblique et perdisse dispersis atris evidentibus; glandulis perminutis. Inflorescentia terminalis in ramulo laterale brevissimo c. 1 cm longo, 1-2-foliato (foliis valde reductis) situata; bracteis lanceolatis 3-5 mm longis atroglandulosis; umbello composito umbellis secundariis 1 vel 2 involucellatis, pedicellis 5-6 mm longis. Flos c. 7 mm longus, calyce profunde lobato, lobis ovato-ellipticis subacutis, 4.5 mm longis, 2 mm latis, margine ciliatis (trichomiis anguste clavatis 0.05 mm longis), 5-venatis, glandulis ovalibus vel oblongis atris; corolla profunde lobato, lobis late ovatis acutis, 6 mm longis, 3.5 mm latis, integris, 7-venatis, glandulosis; filamentis distinctis 1 mm longis glabris; antheris angustis subacuminatis 3 mm longis, dorso ad connectivo glanduloso; ovario glabro subconico glanduloso, c. 1 mm alto, stylo gracile 4.5 mm longo stigma truncato; placenta conico acuminoido substipitato 0.75 mm alto, ovulis 5 uniseriatis.

Type: BORNEO: SABAH: Sandakan district, Gomantong Hill, primary forest, black soil, flowers pink, 27 June 1963, *J. Ah Wing (Awing) SAN38111* (K! holotype, isotype SAN).

It is not clear if the anthers are all united in this species. The flowers studied had apparently free anthers, but they may have separated in the drying or boiling process. The overall habit and general floral features of this plant are highly concordant with *Hymenandra*.

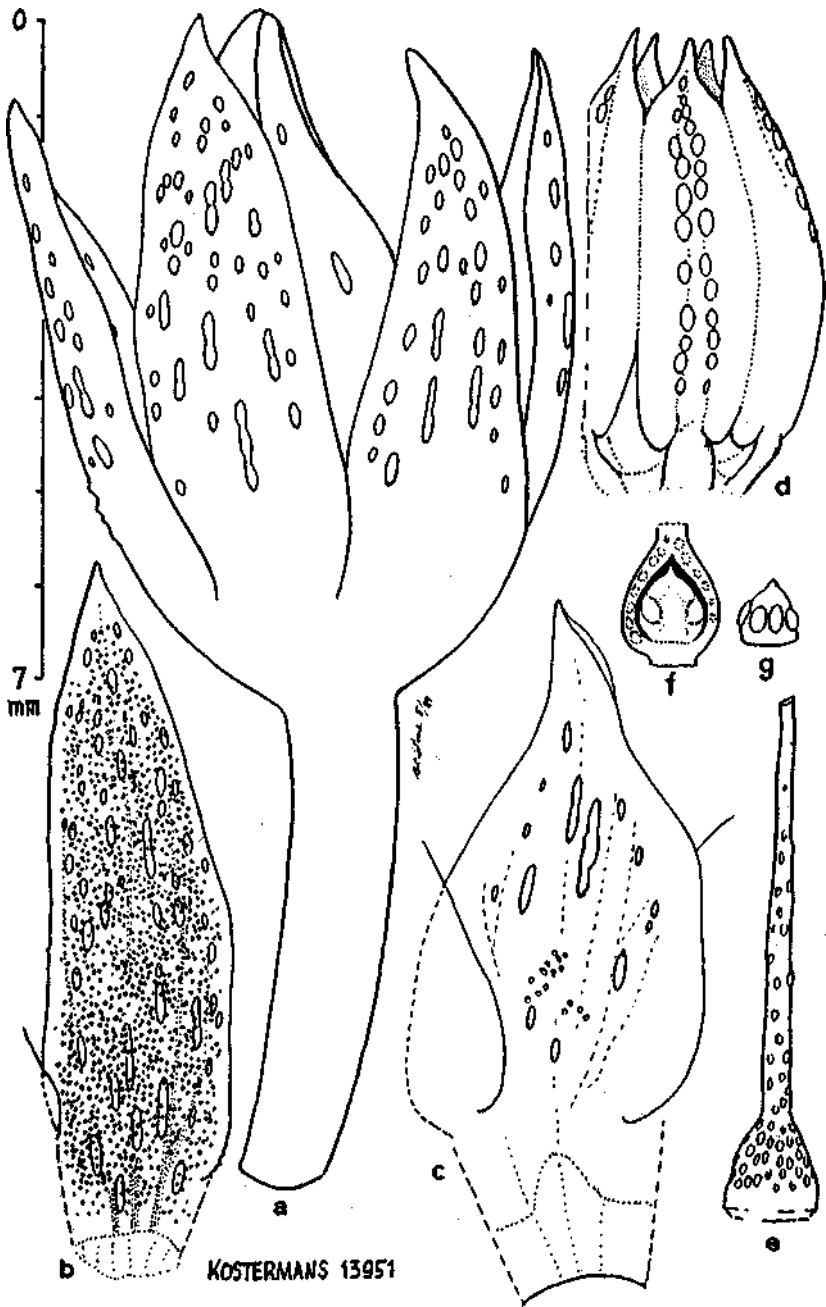


Fig. 2. *Hymenandra lilacina* n. sp. a. Flower in profile, b. Calyx-lobe, interior view; entire surface with suberect papilliform glandular trichomes. c. Corolla-lobe, interior view; antistaminal subbasal zone sparsely and infrequently with a few papillae, d. Staminal tube, with glandular connectives. e. Ovary and style with dermal glands, f. Ovary in longitudinal section displaying placenta. g. Placenta with 9 ovules. From type collection, *Kostermans 13951*.

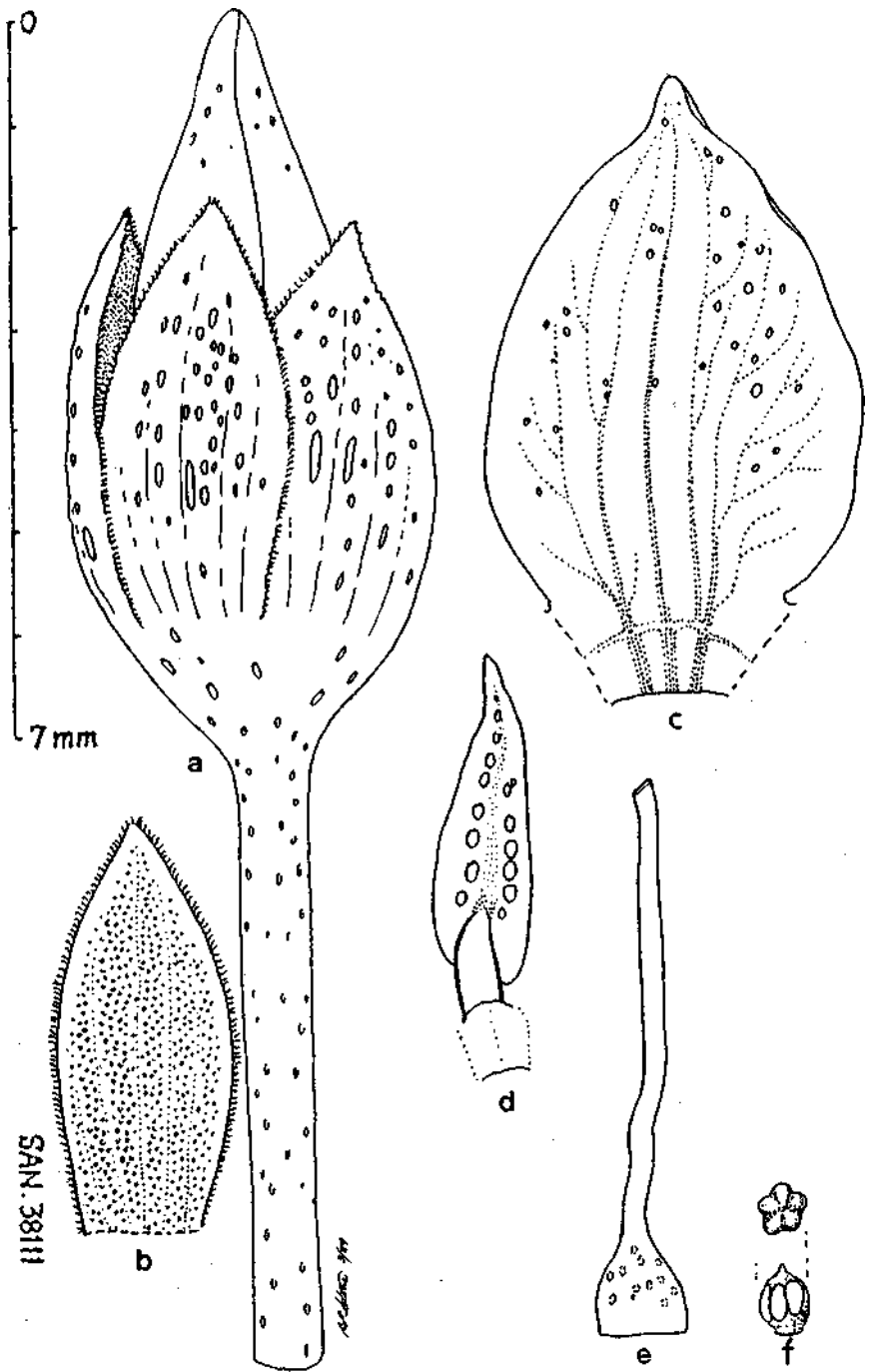


Fig. 3. *Hymenandra rosea* n. sp. a. Flower in profile, b. Calyx-lobe, interior view, showing surface almost uniformly set with suberect papilliform glandular trichomes. c. Corolla-lobe, interior view, the glands are subdermal. d. Stamen, dorsal view, the dotted lines showing attachment to base of corolla-tube. e. Ovary and style; subdermal glands only in ovary, f. Placenta in profile (lower) and top views; ovules 5. All from type collection, SAN 38111.

4. *Hymenandra calcicola* (Furt.) B.C. Stone, *comb. nov.*

Ardisia calcicola Furtado, *Gardens' Bulletin, Singapore* 17: 296. 1958.

Glabrous subshrub to 50-75 cm tall; upper part of stem 5 mm diam. Main leaves oblanceolate or obovate, subacute to acute, toward the base gradually narrowed, to 20 cm long and 5 cm wide. Petioles rather distinct and somewhat long, up to 20 mm long and less than 2 mm thick. Lamina subcoriaceous, entire, obscurely undulate or entire, midrib beneath prominent; undersurface darker than midrib; lateral veins obvious, about 6-10 pairs with subequal intercalated veins, prominent beneath; tertiary veins mostly obscure; glands very minute, reddish, scattered. Lateral fertile branches slender, 9-12 cm long, 1 mm thick, at apex with one much reduced leaf (this subsessile, narrowly elliptic-lanceolate, acute at both ends). Inflorescence an umbel of umbels, about 2 cm long and equally wide, peduncles 5-8 mm long, bracts lanceolate-acuminate, to 5-6 mm long; pedicels 5-7 mm long, slender. Flower c. 6 mm long, calyx-lobes 4 mm long, 1.8 mm wide, subentire, but sparsely ciliate near base, copiously black-glandular with oval-oblong glands; interior surface entirely papillose with suberect glands. Corolla tubular in basal fifth, lobes ovate-acuminate, entire, internally and externally quite glabrous, rather sparsely glandular with oblong reddish glands. Stamen tube 5 mm long, anthers 4.5 mm long, connective rather sparsely glandular (about 8 glands in each of the two rows); ovary glabrous, distinctly glandular, conic, almost 1 mm high, style slender, glandular, 3 mm long; stigma truncate. Placenta with 10 ovules in one series, c. 0.7 mm high. Fruit not seen.

Type: BORNEO: KALIMANTAN: West Koetai subdistrict, 30 m alt., edge of limestone rockface in flat country, in forest, shrub to 75 cm high, flowers dark red, 22 November 1925, *EH Endert 5134* (SING! holotype, isotypes K, L).

Additional specimen examined: BORNEO: KALIMANTAN: Berau, Mt. Njapa on Kelai River, 1,000 m alt., shrub 1 m, flowers and fruits red, 25 Oct. 1963, *Kostermans 21518* (L!)

Although placed in *Ardisia* by Furtado, this species appears to have a staminal tube; as noted in the caption to the illustration provided by Furtado in his protolog, which states "E, *Flos juvenilis sepalis desumptis ut stamina tubiformiter collata appareant.*" Furtado's diagnosis also specifies that the calyx-lobes are lepidote on both sides; I equate this term in this case with papillose. This species clearly is very near to *H. lilacina* and *H. rosea*.

5. *Hymenandra beamanii* B.C. Stone, *sp. nov.*

Figs. 4, 5.

Suffrutex suberectus humilis ad 50 cm altus, stipite simplici, ramuli unifoliati fertili excepta; foliis caulibus magnis obovatis obtusis basi truncatis vel subcordatis, petiolis crassis 5-6 mm longis, laminis 12-17 cm longis, 7-9 cm latis, glabris, sed in pagina infra minute et dissite lepidotis. Folia in ramuli laterali solitaria multo minores subsessilia. Inflorescentia compacta congeste bisumbellatis, apicalia in ramulis lateralibus, axibus valde contractis, pedicellis 5-11 mm longis. Flores numerosi dispersi, 7-8 mm longi, bracteis lanceolatis c. 5 mm longis. Calyx cupulari-urceolatis profunde lobatis, scarloso-marginatis, extus glabris, margine minute et sparsiter capitato-ciliatis, glandulis immersis ovalibus vel oblongis; intus minute et perdense papulosis. Corolla 7.5 mm longa in basi tubuloso per 1.5 mm, lobis ovatis acutis leviter asymmetricis, glandulis immersis ovalibus vel oblongis distaliter auctis, integris, utrinque glabris. Stamina fere 6 mm longa, per antheras coalitis basi per filamentas tubulosa, filamentis liberis ad basi corollae adnatis 1.5 mm, parte libera 0.5 mm longo, antheris lanceolatis 4 mm longis, marginaliter connatis introrsis, dorso glandulosis glandulis paucis (c. 12) atris rotundatis, apiculis antherarum breviter liberatis. Ovarium conico-ovoideum, obscure glandulosum, c. 1 mm altum, in stylo elongato 6 mm longo productum, stigma minute punctiforme. Placenta turbinata minute apiculata, 0.75 mm alta, ovulis 6-9 uniseriatis. Fructus ruber giobosus, c. 6 mm diam., minute apiculatus.

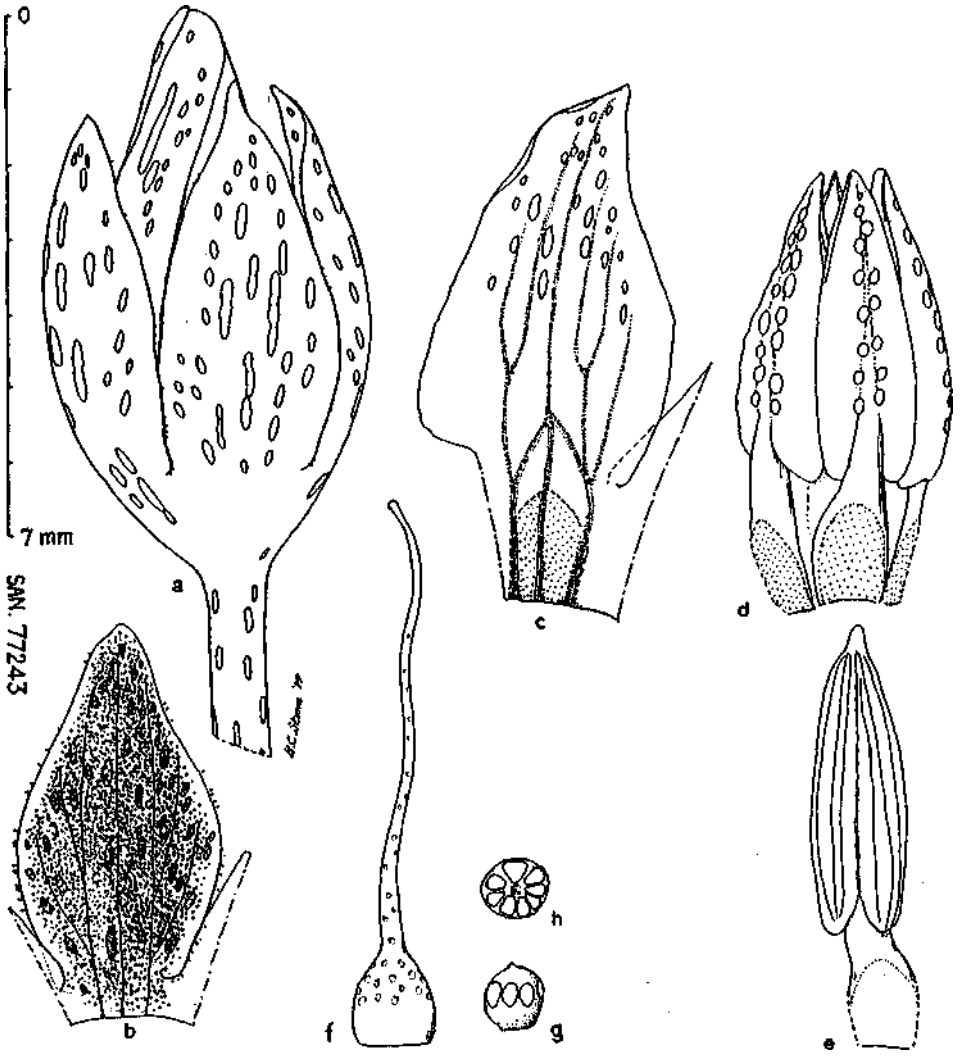


Fig. 4. *Hymenandra beamanii* n. sp. a. Flower in profile, b. Calyx-lobe, interior view; surface with small papillae; immersed glands reddish or blackish, c. Corolla-lobe, interior view; note basal area (dotted) to which filament is adnate, d. Stamen tube; filaments adnate to corolla-tube on dotted areas, e. Stamen, ventral view. f. Gynoecium. g. Placenta (ovules 8). h. Placenta in transverse section. From SAN 77243, type.

Type: BORNEO: SABAH: Ranau district, about 3 miles north of Kampong Takutan, primary forest on ridge at 2,800 ft. alt., flowers whitish, 28 May 1973, G. Shea & Aban Gibot SAN 77243 (K! holotype, isotypes L! SAN).

Additional specimen examined: BORNEO: SABAH: Ranau district, southwest side of Lohan River, 700-900 m alt., on cliffs and slopes over ultramafic substrate, low stature forest, 5 April 1984, J.H. Beaman 9229 (PH! MSC, UKMS).

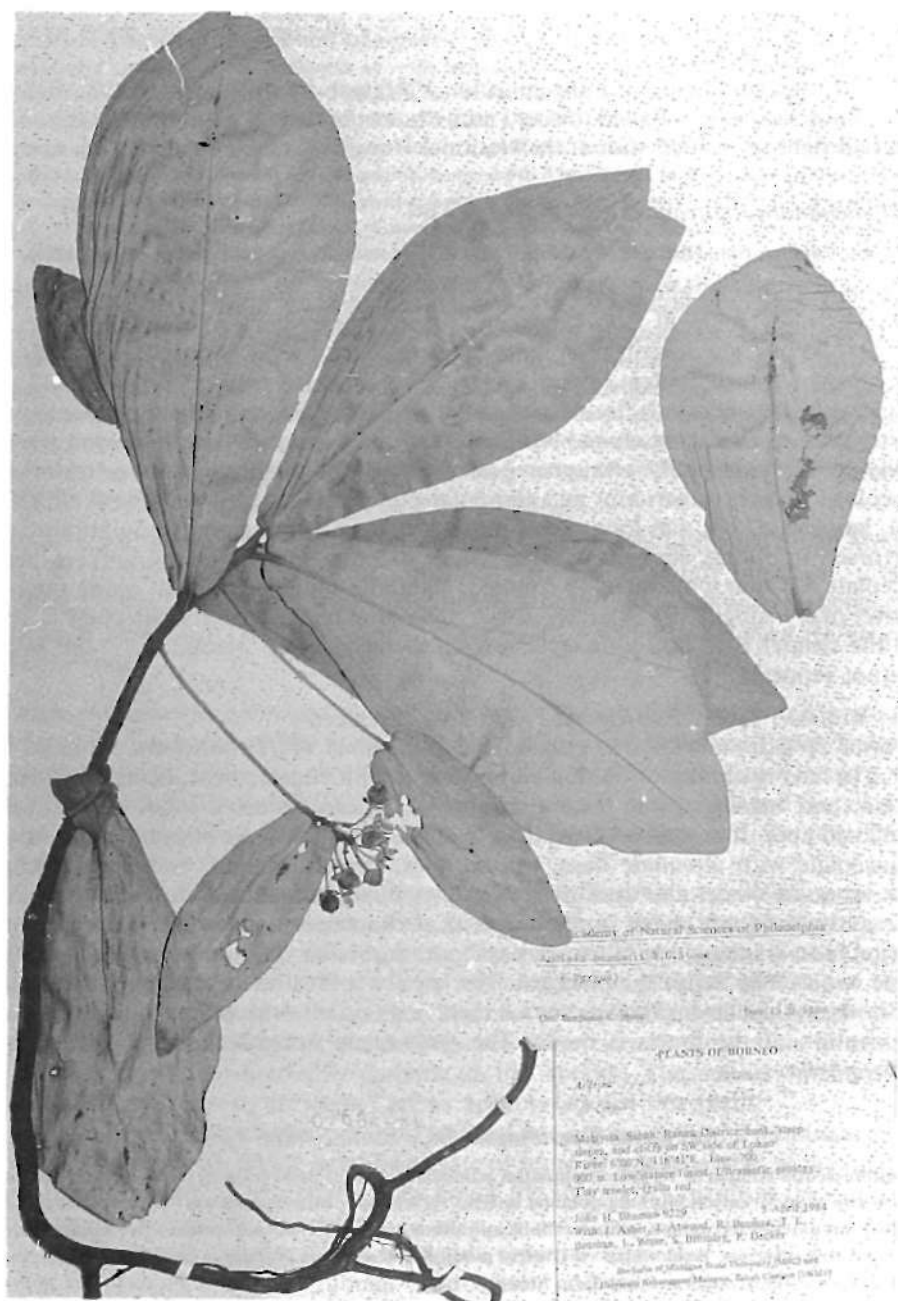


fig. 5. *Hymenandra beamanii* n. sp. From Beaman 9229 in PH.

The very compact umbelliform inflorescences borne on slender subterminal fertile branches, each with a strongly reduced leaf, the elongate sepals with densely papillose inner surfaces, and the laterally joined anthers readily distinguish this species as a *Hymenandra*. The floral details in the description above are taken from the SAN collection, those of the fruits from the Beaman collection, and the habit and leaf information from both.

The epithet commemorates the collector, Professor John Beaman of the Michigan State University, who collected this and numerous other Sabah plants during the course of a Fulbright-sponsored stint at the National University of Malaysia, Sabah campus.

6. *Hymenandra narayanaswamii* Nayar & Giri

Journ. Bombay Nat. Hist. Soc. 72: 818-821. "1975" (actual date of publication 13 Aug 1976).

Shrub with terete, glabrous stems. Leaves oblong to oblong-elliptic, 8-18 cm long, 3-11 cm wide, acute at both apex and base, entire, pellucid-glandular-punctate, membranaceous, the midrib prominent beneath; lateral veins about 30 with about as many nearly as prominent intersecondaries; reticulations evident; petiole 10-12 mm long, canaliculate above. Inflorescence axillary, 4-7 cm long, subcorymbose paniculate, shorter than the leaf, densely puberulous, glandular-dotted; flowers 5-merous, corymbosely to subumbellately arranged; pedicels 4-8 mm long; calyx lobes triangular-lanceolate, densely puberulous and glandular-punctate; corolla lobes shortly united at base, lanceolate, 7-8 mm long, 1.5-2 mm wide, long acuminate, glandular-punctate, dextrorsely imbricate; stamens with very short (0.5 mm) free filaments, anthers linear-lanceolate 6-7 mm long, laterally connate, glandular-punctate dorsally along the connective; ovary subglobose, scarcely 1 mm high, glandular, abruptly narrowed at apex into the slender 8-10 mm long style; stigma inconspicuous; placenta ... and ovules ... (not reported).

Type: BURMA: Tavoy, *FT. Russell 2105* (CAL, not seen).

Nayar & Giri state of this species that it is allied to *Hymenandra wallichii* but differs in having oblong or oblong-elliptic leaves with cuneate base, acute apex, entire margin, and membranaceous texture, triangular lanceolate calyx lobes and abruptly attenuated apex of anther; whereas in *H. wallichii*, the leaves are obovate-lanceolate or oblanceolate with attenuate base, rotund apex, dentate margin, and fleshy texture; calyx lobes are ovate; and apex of anther is gradually attenuate. Most unfortunately, these authors do not report on certain critical characters such as whether or not the interior faces of the calyx lobes are papillose, and what the number and disposition of the ovules may be on the placenta. The species is illustrated but these features are not shown in the drawings either, nor are there descriptions or drawings of the trichomes. No mention of the bracts is made. The authors do not redescribe *H. wallichii* or *H. iteophylla*.

Subgenus *Lacrimopikt* B.C. Stone, *subg. nov.*

*Inflorescentia compacta vel laxa tripinnatim paniculata, axibus pedicellisque satis vel bene elongatis, bracteis cito caducis; calycis lobis marginaliter hirtellis vel lepidotis, intus epapillosis (sed in species typicum hirtellis); indumento ferrugineo, pilibus cellulis apicalibus capitulatis lacrimiformibus, vel lepidis flabelliformis vel stellatiformis. Arbusculae vel frutices modice erectae ramis pluralibus basi ampliati alternatim foliatis. Typus: *Hymenandra diamphidia* Stone.*

7. *Hymenandra diamphidia* B.C. Stone, *sp. nov.*

Fig. 6.

Arbuscula usque ad 3 m alta, sparse ramosa, ramis ramullisque gracilibus, subteretibus, ad 3-4 mm diametro, cortice atro, subdensiter ferrugineo-tomentellis, demum glabrescentibus; indumento trichomils

stipite cellulis 1 vel 2 pellucidis cellulis terminalibus ovoideis plerumque gemellatis translucide brunneis acutis vel bifidis c. 0.05-0.075 mm longis dissite dispersis in superficiem pedicelli, calycis, corollae, antherae, et gynoecei, et axium omnium inflorescentii; partibus aliis glabris. Folia exacte anguste ovatae vix acuminatae, 3-20 cm longae, 1.5-6.5 cm latae, basi rotundata vel subcordata, valde petiolatis, petioli gracilibus 10-30 mm longis, subdensiter minuteque tomentellis; lamina integra submembranacea, perconspicue multiglanduloso glandulis atris orbicularibus, pagina supra glabra (marginibus et costa tomentellis excepta), infra pallidiora sueto purpurata ad venis tomentellis; costa supra vadose impresso, infra valde carinato, venis lateralibus manifestis, 6-9-paribus, curvato-patentibus, praeter margos sublonge continuatis; reticulationibus tenuibus sed manifestis. Inflorescentia in ramulis lateralibus terminalis, pendula, laxe tripinnatim racemoso-paniculatis, 10-15 cm longis, multifloris, axibus omnibus gracilibus minuteque tomentellis, floribus in pedunculis laxe dispositis, pedicellis 5-8 mm longis in statu floriferi (vel usque ad 10 mm longis in statu fructiferi). Flores angusti c. 6 mm longi purpurei 5-meri tomentelli. Calyx profunde lobatus, lobis peranguste triangularibus 3-5 mm longis, basi 0.6-0.7 mm latis utrinque et marginaliter tomentellis, basem versus persparse glandulosus. Corolla profunde lobata 6.5 mm longa, lobis anguste ovatis subacuminatis apicem versus leviter convolutis, medialiter persparse glandulosus, integris, extus dorso tomentellis, intus glabris, obscure paucivenosis, basi minime tubulosus. Stamina per antheris connata filamentis liberis brevissimis complanatis 0.5 mm longis perminime ad tubo corollae adnatis, antheris lanceolatis acuminatis 4.5 mm longis, utrinque sparse tomentellis, baud glandulosus, rimose aperientibus, apiculis brevissime liberatis, polline luteo. Ovarium breviter conicum vix 1 mm altum in stylo greccile albo 4 mm longo basem versus sparse tomentello productum, stigma punctiforme perminute sparseque subpapilloso; placenta turbinato ovulis 8-9 irregulariter biserialiter dispositis. Fructus globosus tomentellus, miniatus vel scarlatinus, apiculatus, c. 6 mm diametro, calycis lobis patentibus persistentibus et pedicellis gracilibus auctus.

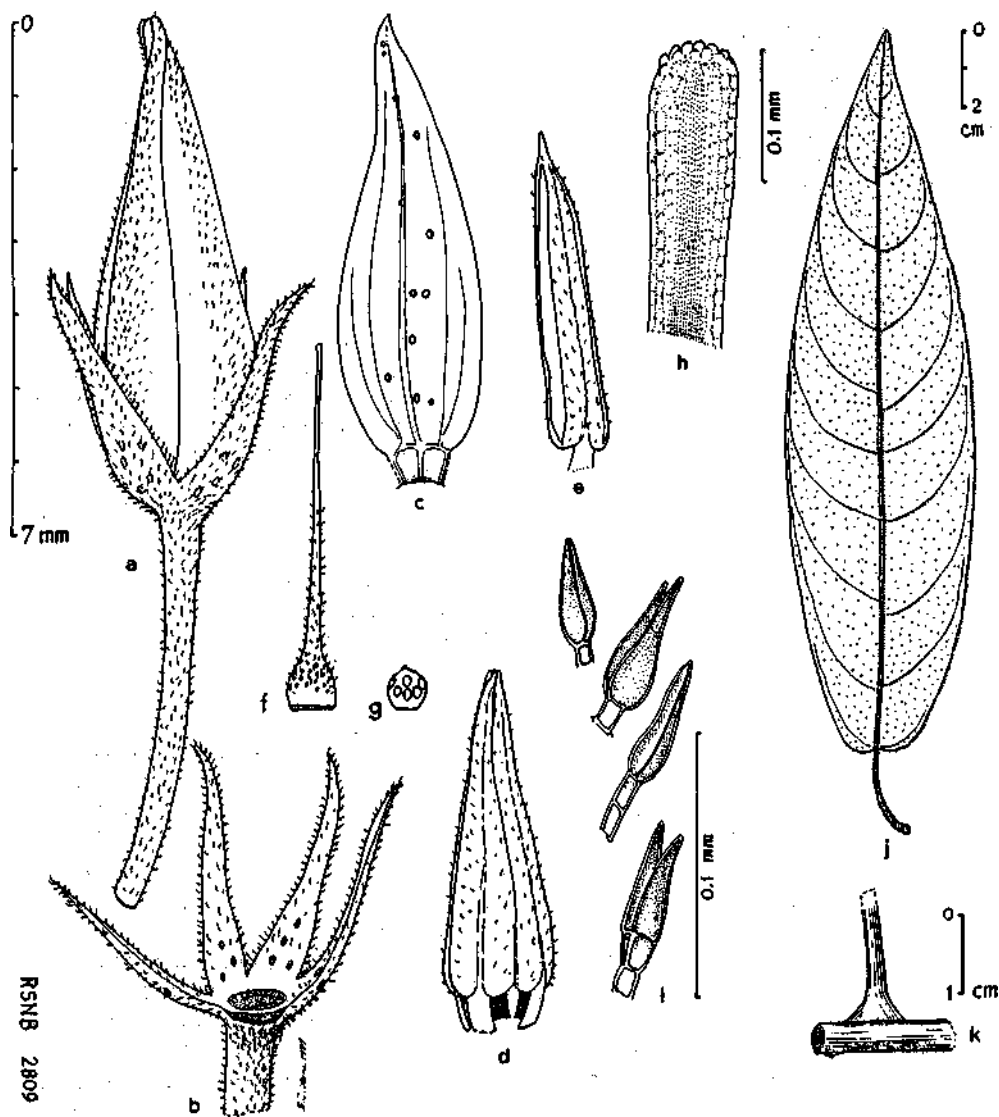
Type: BORNEO: SABAH: Ranau District, Mount Kinabalu, Ulu Liwagu and Ulu Mesilau (6° N, c. 116° 35' E), c. 5,000 ft. alt., shrub 3-5 ft. tall, sparingly branched, flowers purplish, berries pink, young leaves purple beneath, inflorescence and infructescence hanging, 6 November 1961, *W.L. Chew, E.J.H. Corner and J.D. Stainton RSNB 2809* (K! holotype).

Additional specimens examined: BORNEO: SABAH: Mount Kinabalu, Ulu Liwagu and Ulu Mesilau, Tenompok, 5,000 ft. alt., tree 10 ft. tall, in oak-podocarp forest, fruit red, 8 September 1961, *Chew, Corner and Stainton RSNB 1454* (K!). Same locality, Ulu Langanani, Sungei Mamut (6° 04' N, 116° 40-44' E), 4,500 ft. alt., shrub 8 ft. tall, fruit scarlet, in montane oak forest, 10 August 1961, *Chew, Corner and Stainton RSNB 1265* (K!).

A most extraordinary species, with numerous peculiar features, differing from all other species of *Hymenandra* other than *H. iteophylla* in habit, indument, shape and size of glands, and type of inflorescence. The comparatively slender and elongated petioles, narrow leaves, with rather large scattered black pustular glands, the open, pendulous, slender-stalked inflorescence, the characteristic form of the glandular trichomes, the tomentellous ovary, and the presence of hirtellous indument on the anthers, are all manifest and remarkable features of this species. The epithet "*diamphidia*" meaning (Greek) "utterly different" seems appropriate for this plant.

The glandular trichomes have a short stalk of one or two cells, and terminate in one or usually two cells which are laterally adnate or more or less separated at the tip, thus appearing "twinned". These apical cells are in the shape of a teardrop (lacrimiform) and are translucently ferruginous.

While placing this species in a subgenus separate from that including the type species of *Hymenandra*, the tubular androecium and the ovular number conform well to the generic characters. Yet there are several peculiar or unique features of this species. Including *H. iteophylla* with its very different kind of indument, but similar habit, may be incorrect, but I would prefer newer collections to become available for study before reassessing this relationship.



RSNB 2809

Fig. 6. *Hymenandra diamphidia* n. sp. a. Flower in profile, b. Calyx with one lobe removed, c. Corolla-lobe, interior view. d. Stamen tube. e. Single detached stamen, ventral face oblique, f. Ovary and style, g. Placenta with 9 ovules, h. Tip of style showing sparsely papillate stigma, i. Trichomes showing the twinned apical cells of lacrymiform shape, and T-2-celled stalks; representative of the indument on all parts, j. Leaf undersurface, the tertiary veins omitted for clarity. Scattered dots are immersed glands, k. Branch base (gusset). All from type collection, Chew, Corner & Slainton RSNB 2809. (All illustrations original.)

8. *Hymenandra iteophylla* (Ridl.) Furtado

Fig. 7.

Gardens' Bulletin, Singapore 17: 306. 1958. Nayar & Giri, *Journ. Bombay Nat. Hist. Soc.* 72: 821. "1975" (actually published 13 Aug 1976).

Ardisia iteophylla Ridley, *Journ. Bot.* 62: 298. 1924; *Fl. Malay. Penins.* 5: 318. 1924.

Entirely resembling an *Ardisia* (Ridley); branchlets with broad triangular gussets at base; shrubby with ascending branches; leaves lanceolate-elliptic, thinly coriaceous, slightly acuminate, cuneate, tapered to base, 5-10 cm long, 1-2 cm wide, the petiole 5-10 mm long; young leaves brown-lepidote (or golden) beneath; scales irregular, substellate; indument of young branches ferruginous, with the scales erect, flabellate to substellate, later evanescent; midrib elevated beneath, lateral and tertiary veins obscure, numerous, close; undersurface densely lepidote. Inflorescence terminal and axillary subterminal, with foliaceous bracts; umbels with lepidote-puberulent axes and bracts; pedicels 6-7 mm long, slender; calyx tuberculate-glandular, the lobes narrowly ovate, 15 mm long, copiously glandular; ciliate; corolla-lobes pink, long and narrow, imbricate, acute, entire, glabrous, not or very obscurely glandular, 4-5 mm long, the tube 0.75 mm long; stamens lanceolate, the filaments much elongated (more than half as long as the anthers), distinct; anthers lanceolate, 4.25 mm long, connate marginally, but tips free; outer thecae with fertile portion about $\frac{2}{3}$ as long as anther, inner thecae with fertile portion shorter, about half as long as anther; connective set dorsally with two rows of large convex glands; ovary subglobose, 15 mm high, glabrous, with the slightly glandular style 6.5 mm long and projecting beyond the corolla. Placenta 0.5 mm high, with about 6 to 8 ovules in one row.

Type: MALAYSIA: JOHORE: Gunung Besidong, 1,500 ft. alt., hill forest, *R.E. Holttum SF 10973* (SING! holotype).

Additional specimens examined: MALAYSIA: JOHORE: Gunung Belumut, northwest, 1,200 ft. alt., rocky stream bed, monopodial treelet 6 ft. tall, flowers purplish-pink, leaves golden beneath, 15 May 1968, *T.C. Whitmore FRI 8782* (KEP!) TRENGGANU: Bukit Bauk Forest Reserve, 1,000 ft. alt., shrub 6 ft. tall, on ridge, fruits green, 13 November 1968, *KM. Kochummen FRI 2601* (KEP!).

This species is very distinctive in its small leaves with a golden-brown indument beneath, the subterminal umbels, the scattered multiform flabellate to substellate erect or suberect scales on the axes (while the scales on the leaves are peltate and appressed), the dark roundish glands of the calyx and connectives, and the long, slender filaments. Its relationship to *H. diamphidia* is perhaps rather dubious, though in habit it corresponds well. The highly different type of indument, glabrous anthers and ovary, elongated filaments, and smaller, lepidote leaves are obvious distinguishing features.

A character worthy of note is the unequal length of the thecae in each anther. The inner adjacent thecae are about half the anther length; the outermost thecae are about two-thirds the length of the anther.

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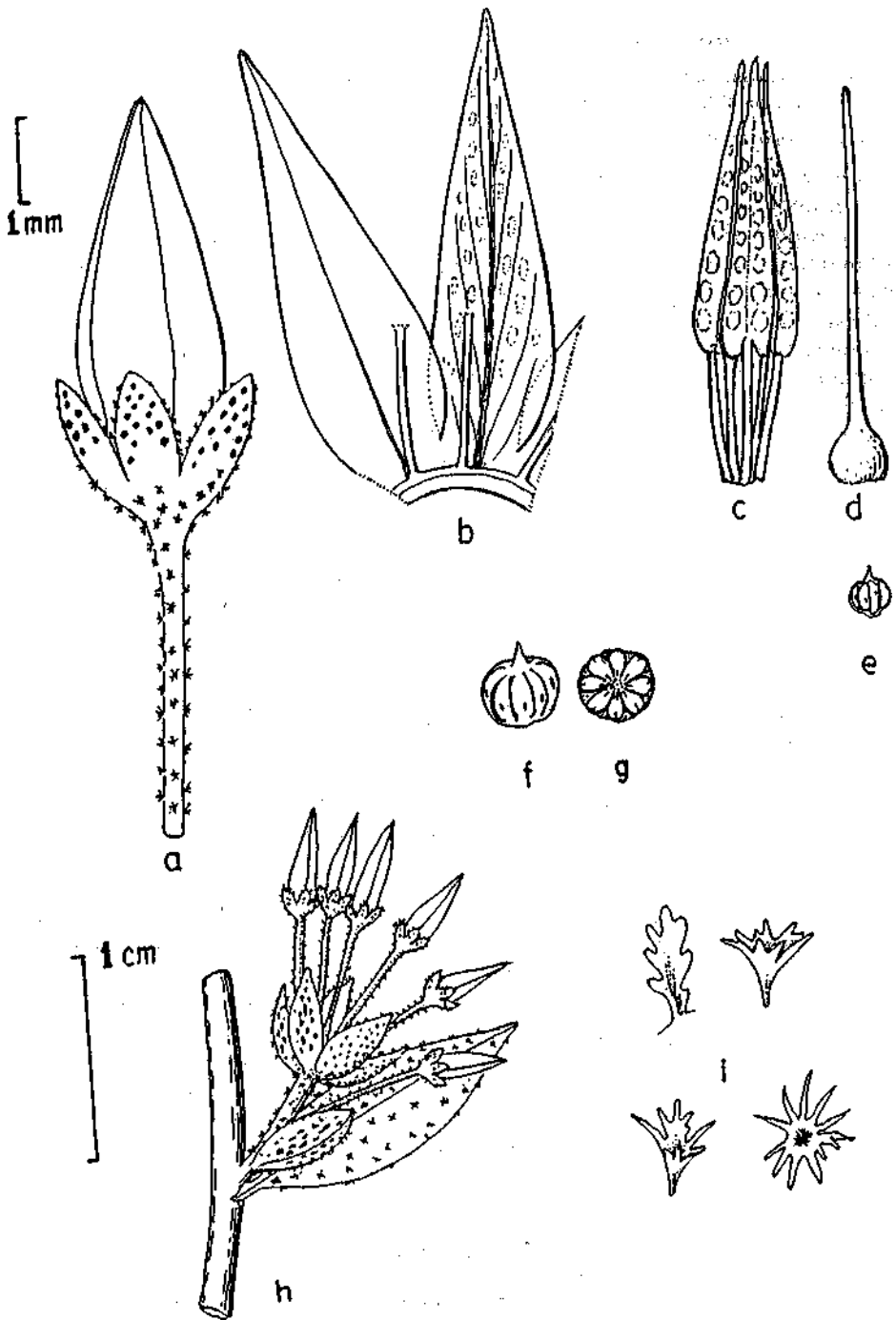


Fig. 7. *Hymenandra iteophylla* (Ridl.) Furt. a. Flower in profile, b. Corolla interior, showing two lobes with filaments intact but anthers removed, c. Androecium, detached from corolla, d. Ovary and style, e. Placenta, f. Placenta, enlarged, with 8 ovules, g. Placenta in transverse section. h. Portion of inflorescence showing one branch, with axillant bract and bracts of the branch. i. Various flabellate and stelliform scales of the indument. (All from *HoltUm SF. 10973*, type collection.)

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