

NEW SPECIES OF ARYTERA BLUME (SAPINDACEAE) IN MALESIA

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SUMMARY

Eight new species of *Arytera* are described, viz. *A. bullata*, *A. lineosquamulata*, *A. miniata*, *A. morobeana*, *A. multijuga*, *A. musca*, *A. novaebritanniae*, and *A. pseudofoveolata*. Five of these are endemic to New Guinea, one occurs on New Guinea and the Solomon Islands, the other two on New Guinea and in N Australia. One species, *A. gigantosperma* from Sumatra, is reduced to the widespread *A. littoralis*.

INTRODUCTION

During investigations of *Arytera* Blume (Sapindaceae), material of eight new species, all from New Guinea, was discovered. Several of the specimens had been mentioned earlier in the literature, under names of Australian or Malesian taxa. *Arytera gigantosperma* Radlk., from Sumatra, was found conspecific with *A. littoralis* Blume. A key to all Malesian taxa and more elaborate descriptions will appear in the treatment in Flora Malesiana (scheduled for publication in 1994), and in a monograph on *Arytera* which I am at present preparing.

TAXONOMIC NOTES

Arytera bullata H. Turner

Arytera bullata foliis brevioribus, foliolis sat coriaceis parum bullatis et fructibus longius stipatis a *Arytera macrobotrye* distinguitur. — Typus: Hartley 12077 (holo A; iso CANB, K, LAE), five miles S of Sassaurea, Eastern Highlands, Papua New Guinea, 23 July 1963.

Tree; indumentum puberulous. *Leaves* 3–6-jugate. *Leaflets* subopposite to alternate, oblong-elliptic, 6.7–10.9 by 3–4 cm, slightly bullate, base slightly attenuate to acute, apex obtuse to slightly acuminate, very apex retuse, very coriaceous, domatia large pits to sacs opening on top, main nerves marginally distinctly looped. *Inflorescences* 17–22.5 cm long, cymules 7–15-flowered. *Calyx* 0.8–1 mm high, teeth equal. *Petals* 5, 0.9–1 by 0.7–1 mm, apically rounded, abaxially and adaxially glabrous, scales 0–0.2 mm long, free, basally auricled, pilose. *Disc* glabrous. *Stamens* 7 or 8, filament (male) 2–2.3 mm long, basally pilose, anther (male) 0.3 mm long, straight, connective not protruding, glabrous. *Pistil*: ovary 3-locular, style and stigma minutely 3-lobed. *Fruit* with 1 or 2 well-developed lobes, 2.7–3 cm high by 2.6–4.5 cm broad, stipe 5–6 mm long, lobes opening irregularly, endocarp gla-

brous, with a sclerenchymatic layer radiating from the attachment of the seed, leaving the axis and the suture free, reaching up to c. 2/3 of the height of the lobe, detaching from the fruit wall in mature fruit. *Seed* orbicular, laterally not flattened, c. 17 by 19 mm, ariloid apically open, completely covering the seed, very thick especially towards base, fleshy, coriaceous towards the base, consisting of 1 layer. *Embryo*: cotyledons secondarily laterally beside each other, surface irregular with a knobby appearance, margin of hypocotyl glabrous.

Distribution — Papua New Guinea: Eastern Highlands Prov.

Notes — 1. Closely related to *A. macrobotrys* from New Guinea and Australia and *A. lautereriana* from Australia, the present species can be distinguished from the former by the shorter leaves with very coriaceous, slightly bullate leaflets, larger number of flowers per cymule, and much longer stipe of the larger fruit. The latter species has 3–11-jugate leaves, the leaflets are narrower (index > 3), and the embryo is smooth and much smaller.

2. Only known from the type collection.

Arytera lineosquamulata H. Turner

Arytera lineosquamulata a aliis *Aryteris* crispato-hirsutis petalis saepe reductis, petalorum squamulis fere linearibus plerumque bifidis differt. — Typus: Carr 14969 (holo L; iso A, BM, K, NY), Boridi, Papua New Guinea, 15 Nov. 1935.

Tree; indumentum crispate-hirsute. *Leaves* 1- or 2-jugate. *Leaflets* opposite to subopposite, ovate to elliptic, 6.7–16.2 by 2.8–6 cm, base slightly attenuate to acute, apex acuminate, very apex obtuse to rounded, chartaceous to coriaceous, domatia small pockets to sacs opening in front, venation marginally indistinctly looped. *In-florescences* 5.5–15 cm long, cymules 1–4-flowered. *Calyx* 0.9–1.2 mm high, teeth equal. *Petals* 2–5, often more or less reduced, obovate to ovate to suborbicular, 0.3–1 by 0.2–0.7 mm, apex obtuse to acute, abaxially densely pilose, adaxially glabrous, scales almost linear, often one or both reduced, 0.3–0.8 mm long, approx. free, basally sometimes auricled, apically often forked, sparsely pilose. *Disc* pilose on rim. *Stamens* 7 or 8, filament (female) 0.7–1.5 mm long, pilose, anther (female) 0.5–0.7 mm long, straight, connective not protruding, pilose. *Pistil*: ovary 2-, rarely 3-locular, style and stigma not lobed. *Fruit* not observed.

Distribution — Papua New Guinea: Central Prov.; Australia: N Queensland.

Note — *Arytera lineosquamulata* most closely resembles *A. densiflora*, *A. moro-beana*, and *A. pseudofoveolata* in the crispate-hirsute indumentum, but is distinguishable from the first two species by the often reduced number of petals, from the third by the free, almost linear, often apically forked petal scales, and more acuminate leaflets.

Specimens studied — Papua New Guinea: Carr 14969. Australia: Webb & Tracey 13258.

Arytera miniata H. Turner

Arytera miniata *A. divaricatae* similissima ovario biloculari et cotyledonibus erectis distinguitur. — Typus: Carr 11554 (holo L; iso A, BM, CANB, K), Kanosia, Papua New Guinea, 28 Feb. 1935.

Tree or shrub; indumentum puberulous. *Leaves* 1- or 2-jugate. *Leaflets* opposite to subopposite, ovate to elliptic, 4–11.6 by 1.9–6 cm, base slightly attenuate to acute, apex retuse to slightly acuminate, very apex retuse to rounded, (slightly) chartaceous to somewhat coriaceous, domatia somewhat pustulate (pockets to) sacs opening in front, venation marginally indistinctly looped to more or less distinctly looped apically. *Inflorescences* 3–10 cm long. *Calyx* (only remains below fruit seen) 0.6–1.5 mm high, teeth equal. *Petals* (only few observed on young fruit) obovate, c. 1 by 0.6 mm, apex obtuse, abaxially and adaxially glabrous, scales c. 0.5 mm long, adnate to margin, basally not auricled, apically broadened, pilose. *Disc* probably glabrous. *Stamens*: filament (female) c. 1 mm long, basally pilose, anther (female) c. 0.6 mm long, straight, connective not protruding, pilose. *Pistil*: ovary 2-locular, style and stigma minutely 2-lobed. *Fruit* with 1 or 2 well-developed lobes, 0.7–1.3 cm high by 0.7–1.7 cm broad, stipe 1–3 mm long, lobes opening along margins, endocarp pilose on sutures. *Seed* ellipsoid to slightly ovoid, laterally not flattened, 8–9 by 5–6 mm, arilloid apically open, completely covering the seed, thin to slightly thickened towards the base, coriaceous, consisting of 2 layers. *Embryo*: cotyledons laterally beside each other (to somewhat obliquely above each other), smooth, margin of hypocotyl glabrous.

Distribution – Papua New Guinea: Central Prov.

Notes – 1. This species resembles the Australian *Arytera divaricata* and the New Guinean *A. musca*. It differs from the first by the always 2-locular ovary and the different position of the cotyledons. In *A. divaricata* the leaves are often 3- or 4-jugate, and the leaflets opposite to alternate, usually more coriaceous, and with pocket-shaped domatia. The differences with *A. musca* are that *A. miniata* has petals that are shorter than the calyx, petal scales adnate to the margin of the petal, much shorter anthers, and lateral nerves that are more distinctly looped apically.

2. Named for the colour of the arilloid (*miniatus* = scarlet).

Specimens studied – *Brass* 3760; *Carr* 11080, 11554; *Kwapena (WLL)* 123, 127; *UPNG (Frodin, Katik & Mabberley)* 4316.

Arytera morobeana H. Turner

Arytera morobeana ab *A. densiflora* petalis ellipticis abaxialiter aliquanto dense pilosis, petalorum squamulis brevioribus, bracteis bracteolisque latius triangularibus differt. — Typus: *LAE (Katik & Taho)* 74816 (holo L; iso A, BRI, CANB, LAE), Papua New Guinea, Oomsis logging area, Morobe Prov., Lae Subprov., 6 Apr. 1980.

Arytera litoralis auct. non Blume: Hartley et al., *Lloydia* 36 (1973) 269.

Tree; indumentum crispate-hirsute. *Leaves* 1- or 2-jugate. *Leaflets* opposite, slightly ovate to slightly obovate, 9.3–21.6 by 3.8–7.2 cm, base slightly attenuate to acute, apex acute to acuminate, rarely slightly retuse, very apex retuse to obtuse, chartaceous, domatia pockets to sacs opening in front, venation marginally indistinctly looped. *Inflorescences* 3–5 cm long, cymules 1–2-flowered. *Calyx* 1–1.5 mm high, teeth equal. *Petals* 5, elliptic, 1.5–1.8 by 0.8–1.2 mm, blade gradually decurrent into claw, margin pilose, apex obtuse to acute, abaxially rather densely pilose, adaxially subglabrous to pilose, scales 0.8–1.2 mm long, free, basally not auricled, apically broadened, rather densely pilose. *Disc* subglabrous to pilose on rim. *Stamens* 8 or 9,

filament (female) 0.8–1.4 mm long, densely pilose, anther (female) 1–1.5 mm long, curved inward, connective not protruding, densely pilose. *Pistil*: ovary 2-locular, style and stigma minutely 2-lobed. *Fruit* not observed.

Distribution – Papua New Guinea: Morobe Prov.

Note – This species resembles *Arytera densiflora*, *A. lineosquamulata*, and *A. pseudofoveolata* in the crispate-hirsute indumentum. It differs from the first in the triangular, not subulate bracts and bracteoles, almost free calyx teeth, longer flower pedicel, and shape of the petals. The latter two differ in the much longer inflorescence and often reduced number of petals which are glabrous adaxially.

Specimens studied – *Hartley 11354*; *LAE (Katik & Taho) 74816*.

***Arytera multijuga* H. Turner**

Arytera multijuga ab aliis *Aryteris* crispato-hirsutis foliis tetrajugis, calycis dentibus parum inaequalibus biseriatis et antheris glabris differt. — Typus: *ANU (Flenley) 2846* (holo L; iso A, BRI, CANB, K, LAE), Pokaris near Kompian, Wabag Subdist., Western Highlands Dist., Papua New Guinea, 15 June 1965.

Tree; indumentum crispate-hirsute. *Leaves* 4-jugate. *Leaflets* subopposite to alternate, elliptic to slightly obovate, 10.6–20.4 by 4.7–7.2 cm, base acute, apex slightly cuspidate, very apex rounded, coriaceous, domatia minute pockets opening in front, venation marginally distinctly looped. *Inflorescences* 4–11 cm long, cymules 1–3-flowered. *Calyx*: teeth slightly dimorphic: 2 outer smaller ones 1.1–1.4 mm high, 3 inner larger ones 1.7–2 mm high. *Petals* 5, elliptic to ovate, 1.1–1.9 by 0.8–1.2 mm, apex obtuse to acute, abaxially (sub)glabrous, adaxially subglabrous to subpuberulous, scales 0.4–0.9 mm long, adnate to margin, basally not auricled, apically broadened, densely pilose. *Disc* glabrous. *Stamens* 7 or 8, filament (male) 2–3 mm long, pilose, anther (male) 1.1–1.4 mm long, straight, connective slightly protruding, glabrous. *Pistil*: ovary 3-locular, style and stigma not lobed. *Fruit* not observed.

Distribution – Papua New Guinea: Western Highlands Prov.

Notes – 1. Easily distinguished from the other crispate-hirsute *Arytera* species by the 4-jugate leaves, slightly dimorphic calyx teeth, and glabrous anthers.

2. Only known from the type locality.

Specimens studied – *ANU (Flenley) 2846, 2875*.

***Arytera musca* H. Turner**

Arytera musca *A. divaricatae* similissima ovario biloculari, antheris majoribus connectivo protrudente differt. — Typus: *Brass 7620* (holo L; iso A, BM, BO), Lake Daviumbu, Middle Fly River, Aug. 1936.

Arytera divaricata auct. non F. Muell.: Merr. & Perry, *J. Arnold Arbor.* 21 (1940) 522.

Tree; indumentum puberulous. *Leaves* 2-jugate. *Leaflets* opposite to subopposite, elliptic to slightly obovate, 4.5–19 by 2.2–8.8 cm, base acute to slightly attenuate, apex obtuse to slightly acuminate, very apex retuse to obtuse, thinly coriaceous to

chartaceous, domatia pockets (to sacs) opening in front, venation marginally indistinctly looped. *Inflorescences* 4–12.5 cm long, cymules 1–7-flowered. *Calyx* 0.7–1.2 mm high, teeth equal. *Petals* 2–5 (rarely 6), elliptic (to orbicular), 0.9–1.3 by 0.4–1 mm, apex obtuse to acute (to slightly acuminate), abaxially and adaxially subpilose, scales 0.5–0.8 mm long, free, basally not to slightly auricled, apically (slightly) broadened, densely pilose. *Disc* glabrous. *Stamens* 8, filament (male) 1.5–2.5 mm long, pilose, anther (male) 1.1–1.3 mm long, curved inward, connective protruding, pilose. *Pistil*: ovary 2-, rarely 3-locular, style and stigma with a distinct thickening between style and stigma, not to slightly 2-lobed. *Fruit* with 1 or 2 well-developed lobes, 0.7–1.3 cm high by 0.7–2.6 cm broad, stipe 0.5–2 mm long, lobes opening along margins, endocarp pilose on sutures. *Seed* orbicular, laterally flattened, c. 6 by 6 mm, arilloid apically open, completely covering the seed, thick towards the base, coriaceous, consisting of 2 layers. *Embryo*: cotyledons obliquely dorsoventrally to almost laterally beside each other, margin of hypocotyl glabrous.

Distribution – Papua New Guinea: Western Prov.

Notes – 1. Similar to *Arytera divaricata* from Australia, from which it differs in the almost always 2-locular ovary, always 2-jugate leaves, and larger, curved anthers. Also similar to *A. miniata*; for the differences, see there under note 1.

2. Named after the Fly River (*musca* = fly).

Specimens studied – *Brass* 7620, 7743, 8422, 8483; *Paijmans* 386; *Pullen* 7229.

Arytera novaebritanniae H. Turner

Arytera novaebritanniae foliolis acuminatioribus at caudatis, domatia majora et hypocotyli margine piloso ab *A. litorale* differt. — Typus: LAE (*Stevens et al.*) 58188 (holo L; iso A, BRI, CANB, E, K, LAE, M, NSW), Fullebourn Harbour, hill overlooking bay, West New Britain Dist., Gasmata Subdist., 3 May 1973.

Tree; indumentum puberulous. *Leaves* 2–4-jugate. *Leaflets* opposite to subopposite, ovate, 4.4–17.8 by 1.4–5.9 cm, base acute, apex acuminate to caudate, very apex rounded, coriaceous to chartaceous, domatia few to many large sacs opening on top, venation marginally indistinctly looped. *Inflorescences* 3–18 cm long, cymules 1–7-flowered. *Calyx* 0.8–1.1 mm high, teeth equal. *Petals* 5, rhomboid to obovoid, 0.6–0.8 by 0.5–0.6 mm, apex obtuse, abaxially pilose, adaxially subglabrous to pilose, scales 0.6–0.7 mm long, free, basally not auricled, apically broadened, densely pilose. *Disc* swollen spoke-like between the filaments, puberulous to pilose. *Stamens* 7 or 8, filament (male) 2.2–2.8 mm long, pilose, anther (male) 0.8–0.9 mm long, straight, connective not protruding, puberulous. *Pistil*: ovary 2-, rarely 3-locular, style and stigma not lobed. *Fruit* with 1 or 2 well-developed lobes, 1.5–2.2 cm high by 1–2.9 cm broad, stipe 1.5–2.5 mm long, lobes opening along margins, endocarp (sub)puberulous on sutures. *Seed* ovoid, laterally not flattened, c. 14 by 9 mm, arilloid apically open, covering 1/2–3/4 of the seed, thick towards base, coriaceous, consisting of 2 layers. *Embryo*: cotyledons dorsoventrally above each other, margin of hypocotyl pilose.

Distribution – Papua New Guinea: West New Britain Prov.; Solomon Islands: Guadalcanal Island.

Note — This species can be distinguished from *Arytera litoralis*, which it closely resembles, by the more elongate leaflets with acuminate to caudate apex, the large sac-like, not pustular domatia which open on top, and the pilose margin of the hypocotyl.

Specimens studied — New Britain: *LAE* (Stevens *et al.*) 58188; *NGF* (Frodin) 26789, 26856. Solomon Islands: *Kajewski* 2573.

Arytera pseudofoveolata H. Turner

Arytera pseudofoveolata a *A. lineosquamulata* foliolorum apice minus acuminato et petalorum squamulis latioribus dimidio ad marginem adnatis differt. — Typus: *Brass* 5560 (holo A; iso BM, BO, NY, US), Kubuna, Central Dist., Nov. 1933.

Arytera spec.: S. T. Reynolds, Fl. Austral. 25 (1985) 93; *Austrobaileya* 2 (1985) 165.

Arytera foveolata auct. non F. Muell.: Merr. & Perry, J. Arnold Arbor. 21 (1940) 523.

Tree; indumentum crispate-hirsute. *Leaves* 2-jugate. *Leaflets* opposite, ovate to elliptic, 5.4–17.7 by 2–7.4 cm, base slightly attenuate to acute, apex rounded to slightly acuminate, very apex retuse to rounded, coriaceous to chartaceous, domatia small, few pockets to (pustular) sacs opening in front, venation marginally indistinctly looped. *Inflorescences* 3.5–14 cm long, cymules 1–5-flowered. *Calyx* 0.7–0.9 mm high, teeth equal. *Petals* 3–5, elliptic to almost semiorbicular, 0.6–1 by 0.5–0.7 mm, apex obtuse, abaxially and adaxially glabrous, scales 0.3–0.7 mm long, adnate to margin up to halfway, basally not auricled, apically slightly broadened, sparsely pilose. *Disc* pilose on rim and between stamens. *Stamens* 6–8, filament (male) 3–3.7 mm long, sparsely pilose, anther (male) 0.5–0.6 mm long, straight, connective not protruding, subglabrous to subpilose. *Pistil*: ovary 2-locular, style and stigma not observed. *Fruit* not observed.

Distribution — Papua New Guinea: Central Prov.; Australia: Cape York area.

Note — Most closely resembling *Arytera lineosquamulata* in the crispate-hirsute indumentum and often reduced number of petals, but distinguishable from it by the well-developed petal scales which are adnate to the petal margin in the lower half, and the more rounded apex of the leaflets. Mistaken for *A. foveolata* by Merrill & Perry (1940), but already provisionally kept separate by Reynolds (1985a, b). It is distinguishable from the latter by the always 2-jugate leaves, the larger and usually much broader leaflets with more rounded apex, the smaller bracts and flowers, and the always 2-locular ovary. Moreover, *A. foveolata* is not found further north than about the Tropic of Capricorn.

Specimens studied — Papua New Guinea: *Brass* 5560. Australia: *Jones* 2551; *Lawrie* 104; *L.S. Smith* 2551; *Webb & Tracey* 6960, 7884.

Arytera litoralis Blume

The characters mentioned by Radlkofer (1879) as distinctive for *Arytera gigantosperra* are: larger fruit, arilloid covering only half the seed. However, several other specimens with almost equally large fruits [e.g. *Jacobs* 8071, *Maradjo* 53, *King's collector* 4456 (syntype of *A. litoralis* var. *major*!), *KEP* 115677, *FRI* 21556], and

many specimens in which the arilloid does not cover the seed completely were observed among the material of *A. litoralis*. There were no differences in the vegetative parts, so the conclusion seems justified that *A. gigantosperma* is just a large-fruited form of *A. litoralis* which deserves no specific status. The full synonymy of the latter therefore becomes as follows:

- Arytera litoralis* Blume, Rumphia 3 (1849) 170. — *Euphoria xerocarpa* Blume, Bijdr. (1825) 234, p.p. (excl. fruits, see note 1), comb. illeg. (see note 2). — *Nephelium xerocarpum* Cambess., Mém. Mus. Hist. Nat. Paris 18 (1829) 30. — *Ratonia litoralis* Teijsm. & Binn., Cat. Hort. Bogor (1866) 216. — *Arytera ochracea* Blume ex Koord., Exk. Fl. Java 2 (1912) 542 (in syn.). — *Arytera litoralis* f. *genuina* Radlk. in Gibbs, J. Linn. Soc. Bot. 42 (1914) 65 [nom. illeg., ICBN (1988) Art. 26.1]. — *Arytera xerocarpa* (Blume) Adelb., Blumea 6 (1948) 324. — Lectotype (here chosen): *Blume 1314* (holo L, sh. 908.272-805; iso L, sh. 908.272-808, 908.262-838), Nusa Kambangan, Indonesia.
- ? *Euphoria annularis* M. Blanco, Fl. Filip. (1837) 285. — ? *Atalaya annularis* Blume, Rumphia 3 (1849) 186. — Type: not designated.
- ? *Schmidelia conferta* M. Blanco, Fl. Filip., ed. 2 (1845) 217. — Neotype: *Ramos: Merrill Sp. Blanc. 861* (holo PNH, n.v.; iso A, BM, BO, L, MO, P, US), Bosabon, Rizal Prov., Philippines, 9 March 1915.
- [*Sapindus adenophyllus* Wall., Cat. (1847) nr. 8044 (nom. nud., nom. inval., ICBN (1988) Art. 32.1.c)]. — *Cupania adenophylla* Planch. ex Hiern in Hook. f., Fl. Br. India 1 (1865) 677. — *Cupania (Arytera) adenophylla* Kurz, J. As. Soc. Beng. 44 (1875) 188. — *Ratonia adenophylla* Kurz, Pegu Rep. (1875) App. A 38, App. B 40. — Type: *Wallich 8044* (holo K; iso BM, P), Moulmein, Burma, 1836.
- Zygolepis rufescens* Turcz., Bull. Soc. Imp. Nat. Mosc. 21 (1848) 709. — *Ratonia zygolepis* Turcz., Bull. Soc. Imp. Nat. Mosc. 36 (1863) 586. — *Arytera rufescens* Radlk., Sapind. Holl.-Ind. (1879) 44. — *Ratonia rufescens* Fern.-Villar, Nov. App. (1880) 52. — *Arytera litoralis* f. *rufescens* Radlk. in Gibbs, J. Linn. Soc. Bot. 42 (1914) 65. — Type: *Cuming 1761* (holo MW, n.v.; iso A, BM, K, MO, P), Cebu, Philippines.
- Arytera gigantosperma* Radlk., Sitzungsber. Kön. Bayer. Akad. Wiss. Math.-Phys. Cl. München 9 (1879) 674. — Type: *Beccari s.n.* (holo FI; iso M), Abita, ad Ayer Mancior, Padang Prov., Sumatra, Aug. 1878.
- Arytera angustifolia* Radlk., Sapind. Holl.-Ind. (1879) 44. — *A. litoralis* f. *angustifolia* Radlk. in Gibbs, J. Linn. Soc. Bot. 42 (1914) 65. — Type: *Teijsmann s.n.* (holo U, n.v.; iso L, sheet no. 908.272-831), Karimon, Java.
- Guioa geminata* Lauterb. & K. Schum. in K. Schum. & Lauterb., Fl. Schutzgeb. (1900) 420. — *Arytera geminata* Radlk. in K. Schum. & Lauterb., Nachtr. (1905) 308. — Type: *Lauterbach 2305* (holo B, probably †; iso WRSL), Ssigauu, New Guinea, 11 June 1896.
- Arytera litoralis* var. *major* King, J. As. Soc. Beng. 65 (1896) 446. — *A. litoralis* f. *major* Radlk. in Gibbs, J. Linn. Soc. Bot. 42 (1914) 66. — Syntypes: *King's collector 695* (holo CAL, n.v.; iso K, P), Gopeng, Malaya, Sep. 1880, 885 (holo CAL, n.v.: iso FI, K), Sungai Rijak, Malaya, Oct. 1880, 4456 (holo CAL, n.v.; iso BM, L, P), Mt Larut, Malaya, June 1883; *Ridley 1609* (holo K, n.v.), Selangor, Malaya, 5995 (holo K), Chua Chu Kang, Singapore, 1894; *Scortechini 20* (holo CAL, n.v.; iso BM, K, L), Perak, Malaya; *Wray 3163* (not 316!, see note 2) (holo CAL, n.v.; iso FI), Perak, Malaya.
- Arytera litoralis* f. *minor* Radlk. in Gibbs, J. Linn. Soc. Bot. 42 (1914) 66 [nom. nud., ICBN (1988) Art. 32.1.c].
- Moulinsia cupanioides* auct. non Cambess.: Cambess., Mém. Mus. Hist. Nat. Paris 18 (1829) 40.
- Nephelium mutabile* auct. non Blume: Miq., Fl. Ind. Bat. Suppl. 1 (1860) 198, 508.

Notes – 1. Blume's description of *Euphoria xerocarpa* was based on a mixture of material: leaves and flowers of the present species, and fruits of *Xerospermum noronhianum*, as noted by himself in 1849 (p. 170): "excluso fructu ibi descripto,

qui ad *X. Noronhianum* referendus." However, because *E. xerocarpa* was mentioned in the synonymy of both *Arytera litoralis* and *Xerospermum noronhianum*, there has been confusion in the literature as to the correct name for the present species. Adelbert (1948) chose to use the epithet '*xerocarpa*' for the flowering material, arguing that it is older than '*litoralis*'. Leenhouts [Blumea 28 (1963) 398, note 3] made the other choice, arguing that by describing the present species under a new name, Blume implicitly typified *Euphoria xerocarpa* with the fruit material. Unfortunately, neither author explicitly designated a (lecto)type, so both argumentations are equally valid. By lectotypifying *Arytera litoralis* with flowering material from Nusa Kambangan (a locality mentioned in the protologue) which was probably collected by Blume (the material was remounted early this century, but the new labels mention the locality and the annotation: Coll. Blume No. 1314 B), I hope to stabilise the nomenclatural confusion by choosing the better known name for this species.

2. *Euphoria* is an illegitimate name, being a later synonym for *Litchi* [see Leenhouts, Blumea 19 (1971) 116]. Therefore combinations under *Euphoria* are also illegitimate.

3. One of the syntypes of *Arytera litoralis* var. *major* is *Wray 3163*. King's publication, and subsequent authors, gives *Wray 316*, but this must be a printing error, because the same number is given by him as the type of *Begonia lowiana* [J. As. Soc. Beng. 71 (1902) 67].

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