

## NOTES ON MAGNOLIACEAE IV

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### SUMMARY

A new system of Magnolioideae (Magnoliaceae) is given, based on the latest available data on DNA and morphology. New combinations and name changes in Malesian *Magnolia* are given as well as some corrections in previously published names.

**Key words:** Magnoliaceae, *Elmerrillia*, *Kmeria*, *Magnolia*, *Manglietia*, *Michelia*, *Pachylarnax*, new combinations.

### INTRODUCTION

Based on DNA work by Kim et al. (2001) and Azuma et al. (1999, 2000, 2001), morphological considerations by Figlar (2000, 2003a, b) and Nootboom (1985, 1998, 2000), and later observations on morphology, subfam. Magnolioideae of Magnoliaceae is considered to contain only one genus, *Magnolia*. To account for the variability that resulted in the recognition of several to many genera in the past, *Magnolia* is subdivided into three subgenera: 1) *Magnolia* with 8 sections and 7 subsections; 2) *Yulania* with 2 sections and 6 subsections; and 3) *Gynopodium* with 2 sections. In the descriptions is also referred to the stomata types of Baranova & Jeffrey (2000). Further, new combinations are given for Malesia and for some SE Asian taxa the authors are familiar with. Also, some previously published names that were invalid are corrected.

The names in former genus *Michelia* are an update to Figlar (2000). All combinations under *Elmerrillia*, *Kmeria*, *Manglietia*, *Michelia*, and *Pachylarnax* for the Malesian area (and some outside), and used in Flora Malesiana, are renamed under *Magnolia*, or, when made before, listed under the latter genus.

*Magnolia* sect. *Blumiana* Blume is reduced to *Magnolia* sect. *Gwillimia* DC. subsect. *Blumiana* (Blume) Figlar & Noot.

*Magnolia* sect. *Buergeria* (Siebold & Zucc.) Dandy is reduced to *Magnolia* subg. *Yulania* Spach (Rchb.) subsect. *Yulania*.

*Magnolia* sect. *Gynopodium* Dandy is raised to *Magnolia* subg. *Gynopodium* Figlar & Noot. (sect. *Gynopodium*).

*Magnolia* sect. *Macrophylla* Figlar & Noot. and *Magnolia* sect. *Auriculata* Figlar & Noot. are newly described.

*Magnolia* sect. *Maingola* Dandy is reduced to *Magnolia* L. subg. *Yulania* Spach sect. *Michelia* (L.) Baill. subsect. *Maingola* Figlar & Noot.

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- Magnolia* sect. *Oyama* Nakai is reduced to *Magnolia* sect. *Rytidospermum* Spach subsect. *Oyama* (Nakai) Figlar & Noot.
- Magnolia* sect. *Splendentes* Dandy ex A. Vazquez is reduced to *Magnolia* sect. *Talauma* subsect. *Splendentes* (Dandy ex A. Vazquez) Figlar & Noot.
- Magnolia* sect. *Theorhodon* Spach is reduced to *Magnolia* sect. *Magnolia*.
- Magnolia* sect. *Tulipastrum* (Spach) Dandy is reduced to *Magnolia* subg. *Yulania* Spach (Rchb.) subsect. *Tulipastrum* (Spach) Figlar & Noot.
- Aromadendron* Blume (*Magnolia* sect. *Aromadendron* (Blume) Noot.) is reduced to *Magnolia* L. subg. *Yulania* Spach sect. *Michelia* (L.) Baill. subsect. *Aromadendron* Figlar & Noot.
- Dugandiodendron* Lozano is reduced to *Magnolia* sect. *Talauma* Baill. subsect. *Dugandiodendron* (Lozano) Figlar & Noot.
- Elmerrillia* Dandy is reduced to *Magnolia* L. subg. *Yulania* Spach sect. *Michelia* (L.) Baill. subsect. *Elmerrillia* (Dandy) Figlar & Noot.
- Kmeria* (Pierre) Dandy is reduced to *Magnolia* sect. *Kmeria* (Pierre) Figlar & Noot.
- Michelia* L. is reduced to *Magnolia* L. subg. *Yulania* Spach sect. *Michelia* (L.) Baill. subsect. *Michelia* (L.) Figlar & Noot.
- Pachylarnax* Dandy and *Manglietiastrum* Y.W. Law are reduced to *Magnolia* subg. *Gynopodium* Figlar & Noot. sect. *Manglietiastrum* (Y.W. Law) Noot.

## SUBDIVISION AND SPECIES

### MAGNOLIA

- Magnolia* L. (1753) 535. — Type: *Magnolia virginiana* L. (eastern USA).
- Michelia* L. (1753) 536. — Type: *Michelia champaca* L.
- Talauma* Juss. (1789) 281. — *Magnolia* sect. *Talauma* Baill. (1866) 66. — *Magnolia* subg. *Talauma* Pierre (1880) sub t. 1. — Type: *Talauma plumierii* (Schwartz) DC. (*Magnolia plumierii* Schwartz).
- Aromadendron* Blume (1825) 10. — *Talauma* sect. *Aromadendron* Miq. (1868) 70. — Type: *Aromadendron elegans* Blume = *Magnolia elegans* (Blume) H. Keng.
- Blumia* Nees. (1825) 152, nom. rejic., non *Blumea* DC., nom. cons. — *Magnolia* sect. *Blumia* (Nees) Baill. (1866) 2. — Type: *Talauma candollii* Blume = *Magnolia candollii* (Blume) H. Keng.
- Liriopsis* Spach (1839) 462. — Type: *Liriopsis fuscata* (Andr.) Spach.
- Yulania* Spach (1839) 462. — Type: *Yulania conspicua* Spach = *Magnolia liliiflora* Desr. in Lam. (1792).
- Tulipastrum* Spach (1839) 481. — Type: *Magnolia acuminata* L.
- Lirianthe* Spach (1839) 485. — Type: *Lirianthe grandiflora* Spach = *Magnolia pterocarpa* Roxb.
- Buergeria* Siebold & Zucc. (1846) 186. — Type: *Buergeria stellata* Siebold & Zucc. = *Magnolia stellata* (Siebold & Zucc.) Maxim.
- Alcimandra* Dandy (1927) 260. — Type: *Alcimandra cathcartii* (Hook.f. & Thomson) Dandy = *Magnolia cathcartii* (Hook.f. & Thomson) Noot.
- Pachylarnax* Dandy (1927) 260. — Type: *Pachylarnax praecalva* Dandy.
- Elmerrillia* Dandy (1927) 261. — Type: *Elmerrillia papuana* (Schltr.) Dandy.
- Svenhedinia* Urb. (1927) 3. — Type: *Svenhedinia minor* (Urb.) Urb. (*Talauma minor* Urb.).
- Paramichelia* Hu (1940) 1442. — Type: *Paramichelia baillonii* (Pierre) Hu.
- Parakmeria* Hu & W.Y. Cheng (1951a) 255. — Type: *Parakmeria omeiensis* Hu & W.Y. Cheng = *Magnolia omeiensis* (Hu & W.Y. Cheng) Dandy.
- Micheliopsis* H. Keng (1955) 207, t. 345. — Type: *Micheliopsis kachirachirai* (Kaneh. & Yamam.) H. Keng = *Magnolia kachirachirai* (Kaneh. & Yamam.) Dandy.

*Tsoongiodendron* Chun (1963) 281. — Type: *Tsoongiodendron odorum* Chun.

*Dugandiodendron* Lozano (1975) 33. — Type: *Dugandiodendron mahechae* Lozano.

*Manglietiastrum* Y.W. Law (1979) 72. — Type: *Manglietiastrum sinicum* Y.W. Law = *Magnolia sinica* (Y.W. Law) Noot.

### Subgenus **Magnolia**

Branches produced by syllepsis (except in subsect. *Oyama*). Leaves conduplicate in prefoliation (Fig. 1a). Flowers terminal. Introrse anther dehiscence. Gynoecium sessile. Fruit more or less ovoid or ellipsoid with fused or connivent carpels until dehiscence. Mid-late season flowering in non-tropical species. Pollen large, diameter > 50  $\mu\text{m}$ . Stamens caducous during the male phase (except in subsect. *Oyama*).

Distribution — America and Asia (c. 132 spp.).

Notes — Syllepsis means that the branches arise from axillary buds produced on current year's shoots. Prolepsis means that branches arise from dormant axillary buds produced on the previous year's shoots (see Figlar, 2000).

Caducous stamens = stamens detach from the androphore during the male phase when shedding the pollen and fall into the base of the flower.

Section **Magnolia** — *Magnolia* sect. *Magnoliastrum* DC. (1824) 80. — Type: *Magnolia virginiana* L., the type of the genus.

*Magnolia* sect. *Theorhodon* Spach (1839) 470; Dandy (1950) 70. — Type: *Magnolia grandiflora* L.

Leaves evergreen to sometimes late or partially deciduous, leaf undersides glaucous or not. Stipules adnate to most of petiole in one species, *M. virginiana*, or adnate to the base of the petiole, thus appearing to be free. Two ovules per carpel. Stomata group of Baranova 5.

Distribution — Southeast North America south through Central America (16 spp.).

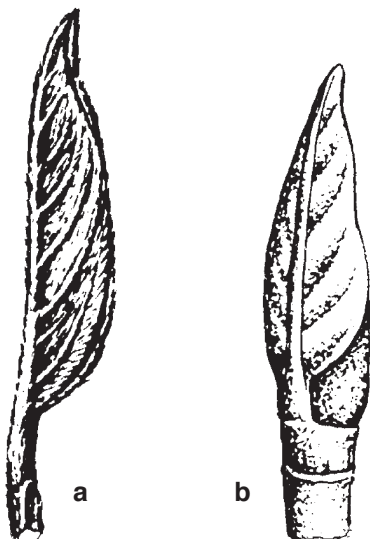


Fig. 1. a. Conduplicate prefoliation; b. open prefoliation (after Flora of China).

Section **Gwillimia** DC. (1817) 455, 548; Dandy (1950) 68; (1978) 29. — Type: *Magnolia coco* DC.

*Magnolia* sect. *Lirianthe* (Spach) Dandy (1950) 68. — *Lirianthe* Spach (1839) 485. — Type: *Lirianthe grandiflora* Spach = *Magnolia pterocarpa* Roxb.

Leaves evergreen. Stipules adnate to petiole. Two ovules per carpel. Stomata group of Baranova 9.

Distribution — SE continental Asia and Malesia (c. 16 spp.).

Subsection **Gwillimia** — *Lirianthe* Spach.

Adnate stipules with scar mostly along the entire length of the petiole. Carpels longitudinally dehiscent. Styler beaks occasionally flattened, short (2–3 mm) to very long (15 mm).

Distribution — SE continental Asia and Malesia (8 spp.).

Subsection **Blumiana** (Blume) Figlar & Noot., *stat. nov.* — *Magnolia* sect. *Blumiana* Blume, Verh. Batav. Genootsch. Kunsten 9 (1829) 32 (7 spp.). — Type: *Talauma candollii* Blume.

Adnate stipules with the scars ranging from about half the length of the petiole to nearly the entire length of it. Carpels dehiscent circumscissile.

Distribution — Tropical and subtropical SE Asia from Central Himalayas to Indochina and through Malesia to New Guinea (c. 8 spp.).

Section **Talauma** Baill. (1866) 3, 66, p.p. — *Talauma* Juss. (1789) 281, p.p. — *Talauma* sect. *Richardsianae* Blume (1829) 32. — Subg. *Talauma* (Juss.) Pierre (1880) sub t. 1, p.p.

Leaves evergreen. Connective appendage long (and embedded in gynoeceum) except in subsect. *Talauma*. Carpels dehiscent circumscissile except in subsect. *Splendentes*. Two ovules per carpel. Stomata group of Baranova 5, 3, and 2.

Distribution — Mostly South America, but also West Indies, and one species in Mexico (c. 55 spp.).

Subsection **Talauma** — *Talauma* Juss.

Stipules adnate to petiole. Carpels dehiscent circumscissile. Stomata group of Baranova 5.

Distribution — Central and South America, and 2 spp. in West Indies (c. 31 spp.).

Subsection **Dugandiodendron** (Lozano) Figlar & Noot., *stat. nov.* — *Dugandiodendron* Lozano, Caldasia 11 (1975) 33. — Type: *Dugandiodendron mahechae* Lozano.

Stipules free from petiole (or appearing so). Long connective appendage embedded in gynoeceum except in *D. calophyllum* and *D. magnifolium* (Lozano-Contreras, 1983) and *D. calimaense* (Lozano-Contreras, 1994). Carpels dehiscent circumscissile. Stomata group of Baranova 2 (and 3).

Distribution — South America (c. 14 spp.).

Subsection **Splendentes** (Dandy ex A. Vazquez) Figlar & Noot., *stat. nov.* — *Magnolia* sect. *Splendentes* Dandy ex A. Vazquez, *Brittonia* 46 (1994) 4. — Type: *Magnolia splendens* Urb.

Stipules free from petiole (or appearing so). Long connective appendage embedded in gynoecium. Carpels longitudinally dehiscent. Stomata group of Baranova 2.

Distribution — West Indies (c. 10 spp.).

Section **Manglietia** (Blume) Baill. (1866) 66. — *Manglietia* Blume (1823) 149. — Type: *Manglietia glauca* Blume = *Magnolia blumei* Prantl.

*Paramanglietia* Hu & W.Y. Cheng (1951b) 255. — Type: *Paramanglietia aromatica* (Dandy) Hu & W.Y. Cheng.

Leaves evergreen (except 1 sp.). Stipules adnate to petiole. Usually 4 or more ovules per carpel. Stomata group of Baranova 8.

Distribution — China, SE Asia (c. 29 spp.).

Section **Kmeria** (Pierre) Figlar & Noot., *stat. nov.* — *Magnolia* subg. *Kmeria* Pierre, *Fl. For. Cochinch.* 1 (1880) sub t. 1. — *Kmeria* (Pierre) Dandy (1927) 262. — Type: *Magnolia duperreana* Pierre.

Leaves evergreen. Stipules attached to > 50% of petiole. Flowers unisexual. Two ovules per carpel. Stomata group of Baranova 11

Distribution — China, Indochina, Thailand (3 spp.).

Section **Rytidospermum** Spach (1839) 474, p.p. — Type: *Magnolia tripetala* L.

Branches produced by syllepsis or prolepsis. Leaves deciduous, in false whorls or not. Two ovules per carpel. Stomata group of Baranova 7.

Distribution — Temperate northern East America and temperate E and SE Asia (8 spp.).

### Subsection **Rytidospermum**

Branches produced mostly by syllepsis. Leaves arranged in prominent false whorls (flushing). Stamens caducous during male phase.

Distribution — Temperate eastern North America and temperate E and SE Asia (4 spp.).

Subsection **Oyama** (Nakai) Figlar & Noot., *stat. nov.* — *Magnolia* sect. *Oyama* Nakai, *Fl. Sylv. Koreana* 20 (1933) 117. — *Magnolia* sect. *Gophantera* Dandy (1936) sub t. 9467. — Type: *Magnolia sieboldii* K. Koch.

Branches produced mostly by prolepsis. Leaves arranged normally (no flushing). Stamens persistent during male phase.

Distribution — Temperate E and SE Asia (4 spp.).

Note — Persistent stamens = stamens spread, but do not detach from the androphore, during the male phase, and remain persistent usually for several days after shedding the pollen.

Section **Auriculata** Figlar & Noot., *sect. nov.* — Type: *Magnolia fraseri* Walter.

Folia decidua glabra pseudoverticillata basi auriculata.

Leaves deciduous, with auriculate base, glabrous, not glaucous, arranged in prominent false whorls (flushing). Flowers sometimes semi-precocious. Tepals without purple spot on base of adaxial surface. Two ovules in each carpel. Stomata group of Baranova 6.

Distribution — SE North America (2 spp.).

Note — *Auriculata* commemorates William Bartram who actually discovered the type species first, and named it *M. auriculata* in 1791. Unfortunately, Walter (of British Museum) and John Fraser were first to validly describe the plant and named it *M. fraseri*.

Section **Macrophylla** Figlar & Noot., *sect. nov.* — Type: *Magnolia macrophylla* Michx.

Folia decidua pubescentes pseudoverticillata basi auriculata vel cordata.

Leaves deciduous, arranged in false whorls, with cordate to auriculate base, pubescent and glaucous beneath. Tepals with purple spot on base of adaxial surface. Flowers do not close at night. Two ovules in each carpel. Stomata group of Baranova 4.

Distribution — SE North America, SE Mexico (3 spp.).

Subgenus **Yulania** (Spach) Rchb. (1841) 192. — *Yulania* Spach (1839) 462 (c. 85 spp.).  
— Type: *Yulania conspiciua* Spach = *Magnolia denudata* Desr. in Lam. (1792).

Leaves conduplicate in prefoliation. Precocious flowering and proleptic branching (less pronounced in tropical species). Fruit more or less cylindrical with longitudinally dehiscent carpels, but when carpels connate ± ellipsoidal and apical parts of carpels falling, often in irregular masses. Pollen small, diameter < 50 μm. Mostly two ovules in each carpel (but 2–6 (or more?) in sect. *Michelia*). Stamens persistent for up to several days after shedding pollen during male phase.

Distribution — (E) Asia and North America (79 spp.).

### Section **Yulania**

Leaves deciduous. Flowers terminal or occasionally on proleptic brachyblasts. Latrorse anther dehiscence. Ovules 2 in each carpel. Fruits always cylindrical. Stomata group of Baranova 13.

Distribution — Temperate E Asia and eastern North America (13 spp.).

Subsection **Yulania** — *Buergeria* Siebold & Zucc.

Tepals white, pink, or purple. Pronounced precocious flowering.

Distribution — Asia (12 spp.).

Subsection **Tulipastrum** (Spach) Figlar & Noot., *stat. nov.* — *Tulipastrum* Spach, Hist. Natur. Veget. 7 (1839) 481. — *Magnolia* sect. *Tulipastrum* (Spach) Dandy (1950) 74. — Type: *Magnolia acuminata* L.

Precocious flowering less pronounced. Tepals green to yellow.

Distribution — North America (1 sp.).

Section **Michelia** (L.) Baill. (1866) 66. — *Michelia* L. (1737) 119; (1753) 536; (1754) 240; Noot. (1985) 108. — *Champaca* Adans. (1763) 365, 537. — *Sampacca* Kuntze (1891) 6 (excl. *S. cathcartii* and *S. evonymodes*). — *Magnolia* subg. *Michelia* (L.) Figlar (2000) 20. — Type: *Michelia champaca* L. (= *Magnolia champaca* (L.) Baill. ex Pierre).

Leaves evergreen. Ovules 2–6 (to many) in each carpel.

Distribution — SE Asia from India and Sri Lanka to Japan and Malesia (c. 65 spp.).

Subsection **Michelia** (L.) Figlar & Noot., *stat. nov.* — *Michelia* L., Sp. Pl. (1753) 536. — *Champaca* Adans. (1763) 365, 537. — *Sampacca* Kuntze (1891) 6. — Type: *Michelia champaca* L.

*Liriopsis* Spach (non Reichenbach, 1828) (1839) 460. — Type: *Liriopsis fuscata* (Andrews) Spach (= *Magnolia figo* (Lour.) DC.).

*Talauma* sect. *Spongocarpum* King (1891) 205 ('*Spongocarpon*'). — Type: *Talauma spongocarpa* King (= *Magnolia baillonii* Pierre).

*Paramichelia* Hu (1940) 142. — *Michelia* sect. *Paramichelia* (Hu) B.L. Chen & Noot. (1993) 1087. — Type: *Paramichelia baillonii* (Pierre) Hu (= *Magnolia baillonii* Pierre).

*Tsoongiodendron* W.Y. Chun (1963) 281. — *Michelia* sect. *Tsoongiodendron* (W.Y. Chun) B.L. Chen & Noot. (1993) 1086. — Type: *Tsoongiodendron odorum* W.Y. Chun (= *Magnolia odora* (W.Y. Chun) Figlar).

Flowers mostly on proleptic brachyblasts. Gynoecium stipitate. Latrorse anther dehiscence. Fruits cylindrical, apocarpous or sometimes ellipsoidal, syncarpous. Ovules 2–6 (to many) in each carpel. Stomata group of Baranova 12

Distribution — As the section, warm temperate to tropical (c. 50 spp.).

Subsection **Elmerrillia** (Dandy) Figlar & Noot., *stat. nov.* — *Elmerrillia* Dandy, Bull. Misc. Inform. Kew (1927) 261. — Type: *Elmerrillia papuana* (Schltr.) Dandy = *Elmerrillia tsiampacca* (L.) Dandy.

*Elmerrillia* sect. *Pseudoaromadendron* Dandy (1974) 5. — Type: *Elmerrillia ovalis* (Miq.) Dandy (= *Magnolia vrieseana* (Miq.) Baill. ex Pierre).

Flowers mostly on proleptic brachyblasts. Gynoecium sessile. Introrse anther dehiscence. Fruits cylindrical, carpels becoming free at dehiscence; or sometimes ellipsoidal, syncarpous, carpels breaking away in irregular masses; ovules 2–6 in each carpel. Stomata group of Baranova 12.

Distribution — Malesia (4 spp.).

Subsection **Maingola** Figlar & Noot., *stat. nov.* — *Magnolia* sect. *Maingola* Dandy, Curtis's Bot. Mag. 165 (1948b) sub t. 16; S. Kim et al. (2002) 319. — Type: *Magnolia maingayi* King.

*Alcimandra* Dandy (1927) 260. — *Magnolia* sect. *Alcimandra* Noot. (1985) 88.  
— Type: *Michelia cathcartii* Hook.f. & Thomson (= *Magnolia cathcartii* (Hook.f. & Thomson) Noot.).

Flowers terminal or rarely on proleptic brachyblasts. Gynoecium variably stipitate. Introrse anther dehiscence. Fruits cylindrical with carpels becoming free at dehiscence. Ovules 2 in each carpel. Stomata group of Baranova 12 and 14.

Distribution — SE Asia (7 spp.).

Subsection **Aromadendron** Figlar & Noot., *stat. nov.* — *Aromadendron* Blume, Bijdr. (1825) 10. — *Talauma* sect. *Aromadendron* Miq. (1868) 70. — *Magnolia* sect. *Aromadendron* (Blume) Noot. (1985) 89. — Type: *Magnolia elegans* (Blume) H. Keng.

Flowers terminal or rarely on proleptic brachyblasts. Introrse anther dehiscence, anthers with long connective appendage except in *M. ashtonii*. Gynophore present except in *M. bintuluensis*. Ovules 2 in each carpel. Fruits with connate carpels, ovoid or ellipsoid, the apical parts of the carpels falling away in irregular masses. Stomata group of Baranova 14.

Distribution — Malesia (5 spp.).

Subgenus **Gynopodium** Figlar & Noot., *comb. & stat. nov.* — *Magnolia* sect. *Gynopodium* Dandy, Curtis's Bot. Mag. 165 (1948b) t. 16; Noot. (1985) 87. — Type: *Magnolia nitida* W.W. Sm.

Plants entirely glabrous. Leaves evergreen, not conduplicate in prefoliation (Fig. 1b). Stipules completely free. Semi-precocious flowering. Flowers bisexual or tree androdioecious. Introrse anther dehiscence. Ovules 2–8 in each carpel. Carpels dehiscing longitudinally. Gynoecium shortly stipitate but sessile in *Pachylarnax praecalva* and *P. pleiocarpa*. Fruit more or less ovoid or ellipsoid.

Distribution — Continental SE Asia and Malesia (8 spp.).

### Section **Gynopodium**

*Parakmeria* Hu & W.Y. Cheng (1951a) 1, 2. — Type: *Parakmeria omeiensis* Hu & W.Y. Cheng.

*Micheliopsis* H. Keng (1955) 207, t. 345. — Type: *Micheliopsis kachirachirai* (Kaneh. & Yamam.) H. Keng.

Tree androdioecious. Gynoecium shortly stipitate. Carpels dehiscing mostly along the dorsal suture. Ovules 2 in each carpel (4 in *M. kachirachirai*). Stomata group of Baranova 11.

Distribution — Continental SE Asia, Taiwan (5 spp.).

Section **Manglietiastrum** (Y.W. Law) Noot. (1985) 91. — *Manglietiastrum* Y.W. Law (1979) 72, t. 2 (3 spp.). — Type: *Manglietiastrum sinicum* Y.W. Law.  
*Pachylarnax* Dandy (1927) 260. — Type: *Pachylarnax praecalva* Dandy.



Flowers bisexual. Gynoecium sessile but shortly stipitate in *Magnolia sinica*. Carpels dehiscent mostly along ventral suture especially at apex of fruiting body. Ovules 3–8 in each carpel. Stomata group of Baranova 10.

Distribution — Continental SE Asia and Malesia (3 spp.).

NEW COMBINATIONS AND NAME CHANGES OF SPECIES

TREATED IN FLORA MALESIANA

(For detailed synonymy see Nootboom, 1985)

**Magnolia** L. subg. **Magnolia** sect. **Manglietia** (Blume) Baill. — *Manglietia* Blume.

**Magnolia calophylloides** Figlar & Noot., *nom. nov.* — *Manglietia calophylla* Dandy, Bull. Misc. Inform. Kew (1928b) 46; Noot. (1985) 94, non *Magnolia calophylla* (Lozano) Govaerts in Frodin & Govaerts, 1996: *Dugandiodendron calophyllum* Lozano (1978) 283. — Type: *Robinson & Kloss 200* (BM; iso SING), Sumatra, Korinchi Peak.

**Magnolia dolichogyna** (Dandy ex Noot.) Figlar & Noot., *comb. nov.* — *Manglietia dolichogyna* Dandy ex Noot. Blumea 31 (1985) 95. — Type: *SAN 41051* (L; iso SAN), Ranau, Hot Spring, 15 Oct. 1964.

**Magnolia blumei** Prantl (1888) 16. — *Manglietia glauca* Blume (1823) 150, non *Magnolia glauca* L. (1759) = *Magnolia virginiana* L. — Type: *Blume s.n.* (n.v.), Salak.

**Magnolia blumei** Prantl var. **sumatrana** (Miq.) Figlar & Noot., *comb. nov.* — *Manglietia sumatrana* Miq., Fl. Ind. Bat., Suppl. (1861) 367. — *Manglietia glauca* Blume var. *sumatrana* (Miq.) Dandy (1928a) 188; Noot. (1985) 93. — Type: *Teijsmann 468* (holo L; iso BO), Bukit Sulit.

**Magnolia lanuginosoides** Figlar & Noot., *nom. nov.* — *Manglietia glauca* Blume var. *lanuginosa* Dandy, Bull. Misc. Inform. Kew (1928a) 187. — *Manglietia lanuginosa* (Dandy) Noot. (1985) 94, non *Magnolia lanuginosa* (Wall.) Figlar & Noot.: *Michelia lanuginosa* Wall.

**Magnolia sabahensis** (Dandy ex Noot.) Figlar & Noot., *comb. nov.* — *Manglietia sabahensis* Dandy ex Noot. (1985) 95. — Type: *Clemens 34192* (holo L; iso A, BO).

**Magnolia** subg. **Gynopodium** Figlar & Noot. sect. **Manglietiastrum** (Y.W. Law) Noot. (1985) 91. — *Pachylarnax* Dandy (1927) 260. — *Manglietiastrum* Y.W. Law (1979) 72.

**Magnolia praecalva** (Dandy) Figlar & Noot., *comb. nov.* — *Pachylarnax praecalva* Dandy, Bull. Misc. Inform. Kew (1927) 260, excl. plantae ex Annam; Noot. (1985) 97. — Type: *Haniff 4067* (holo K; iso SING), Penang.

**Magnolia pleiocarpa** (Dandy) Figlar & Noot., *comb. nov.* — *Pachylarnax pleiocarpa* Dandy, J. Bot. 71 (1933) 313; Noot. (1985) 98. — Type: *Beat Officer 48427* (holo BM), Lakhimpur Dist., Jaipur Reserve.

- Magnolia** L. sect. **Kmeria** (Pierre) Figlar & Noot., *stat. nov.* — *Kmeria* (Pierre) Dandy, Bull. Misc. Inform. Kew (1927) 262. — *Magnolia* subg. *Kmeria* Pierre (1880) sub t. 1.
- Magnolia duperreana** Pierre (1880) sub t. 1. — *Kmeria duperreana* (Pierre) Dandy (1927) 262.
- Magnolia kwangsiensis** Figlar & Noot., *nom. nov.* — *Kmeria septentrionalis* Dandy, J. Bot. 69 (1931) 233. — *Woonyoungia septentrionalis* (Dandy) Y.W. Law (1997) 356, non *Magnolia septentrionalis* B.H. Tiffney (1978).
- Magnolia thailandica** Noot. & Chalermglin (2002) 541.
- Magnolia** L. subg. **Yulania** Spach sect. **Michelia** (L.) Baill. subsect. **Michelia** (L.) Figlar & Noot., *comb. & stat. nov.* — *Michelia* L. (1753) 536.
- Magnolia** × **alba** (DC.) Figlar & Noot., *comb. nov.* — *Michelia* × *alba* DC., Syst. 1 (1817) 449; Noot. (1985) 119. — Type: *Blume s.n.* (holo L).
- Magnolia banghamii** (Noot.) Figlar & Noot., *comb. nov.* — *Michelia banghamii* Noot., Blumea 38 (1994) 334. — Type: *Bangham 930* (holo A; iso NY), Malesia, Sumatra, Takeugeum (sic!), 3600 ft, 15 Jan. 1932.
- Magnolia champaca** (L.) Baill. ex Pierre (1880) t. 3. — *Michelia champaca* L. (1753) 536; Noot. (1985) 113. — *Michelia rheedei* Wight (1840) 14, t. 5. — *Michelia sua-veolens* Pers. (1806) 94, p.p. — Type: *Hermann, Fl. Zeyl. 144* (holo BM).
- Magnolia champaca** (L.) Baill. ex Pierre var. **pubinervia** (Blume) Figlar & Noot., *comb. nov.* — *Michelia pubinervia* Blume, Fl. Javae Magnol. (1829) 14, t. 4. — *Michelia champaca* L. var. *pubinervia* (Blume) Miq. (1868) 72; Noot. (1985) 115. — Type: *Blume 670* (holo L; iso B, K), Malesia, Java.
- Magnolia figo** (Lour.) DC. (1817) 460. — *Liriodendron figo* Lour. (1790) 347. — *Michelia figo* (Lour.) Spreng. (1825) 643; Noot. (1985) 120. — Type: *Loureiro* (n.v.).
- Magnolia figo** DC. var. **crassipes** (Y.W. Law) Figlar & Noot., *comb. nov.* — *Michelia crassipes* Y.W. Law [Sylva Sinica 1 (1983) 488, t. 155, nom. nud.] Bull. Bot. Res. North-East. Forest. Inst. 5 (1985) 121, t. 1. — *Michelia figo* var. *crassipes* (Y.W. Law) B.L. Chen & Noot. (1993) 1085. — Type: *S.H. Chun 3115* (holo IBSC), Guangdong, Lechang, 1000 m.
- Magnolia koordersiana** (Noot.) Figlar (2000) 22. — *Michelia koordersiana* Noot. (1985) 111. — Type: *Van der Zwaan voor Thorenaar E 997* (holo L; iso BM, BO, K), Sumatra, Palembang, Lematang Ilir.
- Magnolia lanuginosa** (Wall.) Figlar & Noot., *nom. nov.* — *Michelia lanuginosa* Wall., Tent. Fl. Nepal. (1824) 8, t. 5. — *Sampacca lanuginosa* (Wall.) Kuntze (1891) 6. — Type: *Wallich 6493* (holo K; iso A, BM).

*Michelia velutina* DC. (1825) 79. — *Magnolia velutina* (DC.) Figlar (2000) 23, nom. illeg. (non P. Parm., 1896). — Type: *Wallich s.n.* (holo K; iso L 908.126-1627), Nepal, 1821.

***Magnolia montana*** (Blume) Figlar & Noot., *comb. nov.* (*Magnolia montana* (Blume) McLaughlin (1933) 36, in syn., nom. inval.). — *Michelia montana* Blume, Verh. Batav. Genootsch. Kunsten 9 (1823) 153; Noot. (1985) 116. — *Sampacca montana* (Blume) Kuntze (1891) 6. — Type: *Blume 575* (lecto L; iso NY), Malesia, Java.

***Magnolia odora*** (Chun) Figlar & Noot., *comb. nov.* — *Tsoongiodendron odorum* Chun, Acta Phytotax. Sin. 8 (1963) 283, 9 t. 35, 36. — *Michelia odora* (Chun) B.L. Chen & Noot. (1993) 1086. — [*Magnolia odora* (Chun) Figlar (2000) 23, nom. inval.]. — Type: *S.P. Ko 51928* (holo IBSC; iso BM), China, Kwangtung, Tating, Nov. 1956.

*Michelia gravis* Dandy ex Gagnep. (1938) 50, nom. nud. [fide B.L. Chen & Noot. (1993) 1087].

***Magnolia philippinensis*** P. Parm. (1896) 206, 270. — *Michelia philippinensis* (P. Parm.) Dandy (1927) 263; Noot. (1985) 118. — Type: *Cuming 783* (holo MEL; iso A, BM, K, L, NY).

***Magnolia scortechinii*** (King) Figlar & Noot., *comb. nov.* — *Manglietia scortechinii* King, J. Asiat. Soc. Bengal 58 (1889) 370 ('*scortechini*'). — [*Magnolia scortechinii* (King) King (1891) 213, in syn., nom. inval.]. — *Michelia scortechinii* (King) Dandy (1927) 262. — *Paramichelia scortechinii* (King) Dandy (1974) 5. — Type: *Scortechini 764* (holo BM; iso K, SING), Malay Peninsula, Perak.

***Magnolia sumatrae*** (Dandy) Figlar & Noot., *comb. nov.* — *Michelia sumatrae* Dandy, Bull. Misc. Inform. Kew (1928a) 188. — *Michelia salicifolia* A. Agostini (1926) 23, non *Magnolia salicifolia* Maxim. (1872). — [*Magnolia sumatrae* (Dandy) Figlar (2000) 23, nom. inval.] — Type: *Beccari 118* (holo K; iso BM, L), Malesia, Sumatra, Mt Singalang, 1878.

***Magnolia*** L. subg. ***Yulania*** Spach sect. ***Michelia*** (L.) Baill. subsect. ***Elmerrillia*** (Dandy) Figlar & Noot., *comb. & stat. nov.* — *Elmerrillia* Dandy, Bull. Misc. Inform. Kew (1927) 261.

***Magnolia vrieseana*** (Miq.) Baill. ex Pierre (1880) t. 2. — *Talauma vrieseana* Miq. (1868) 70. — *Elmerrillia vrieseana* (Miq.) Dandy (1927) 262. — Type: *De Vriese & Teijsmann s.n.* (holo L 908.126-1803), Malesia, Celebes near Tondano.

*Talauma ovalis* Miq. (1868) 69. — [*Magnolia ovalis* (Miq.) Figlar (2000) 24, nom. inval.] — *Elmerrillia ovalis* (Miq.) Dandy (1927) 261; Noot. (1985) 101. — Type: *Forsten s.n.* (holo L 908.127-0013; iso BO), Malesia, Celebes near Tondano, June 1840.

***Magnolia platyphylla*** (Merr.) Figlar & Noot., *comb. nov.* — *Michelia platyphylla* Merr., Philipp. J. Sci., Bot. 3 (1918) 11. — *Elmerrillia platyphylla* (Merr.) Noot. (1985) 102. — [*Magnolia platyphylla* (Merr.) Figlar (2000) 24, nom. inval.] — Type:

*Tomeldan*, For. Bur. 26866 (holo K), Philippines, Leyte, Burauen, Cagangon, 21 May 1917.

***Magnolia pubescens*** (Merr.) Figlar & Noot., *comb. nov.* — *Talauma pubescens* Merr., Philipp. J. Sci., Bot. 3 (1908) 133. — *Elmerrillia pubescens* (Merr.) Dandy (1927) 261. — [*Magnolia pubescens* (Merr.) Figlar (2000) 24, nom. inval.] — Type: *Clemens 686* (BO), Mindanao, Lake Lanao, Camp Keithly, Sept.–Oct. 1906. [Note: *Clemens 686* consists of three elements.]

***Magnolia tsiampacca*** (L.) Figlar & Noot., *comb. nov.* — *Michelia tsiampacca* L., Mant. Pl. 1 (1767) 78. — *Elmerrillia tsiampacca* (L.) Dandy (1974) 5; Noot. (1985) 103. — [*Magnolia tsiampacca* (L.) Figlar (2000) 22, nom. inval.] — Type: *Sampacca sylvestris* Rumph., Herb. Amb. 2 (1741) 202, t. 68.

***Magnolia tsiampacca*** (L.) Figlar & Noot. subsp. ***tsiampacca*** var. ***glaberrima*** (Dandy) Figlar & Noot., *comb. nov.* — *Elmerrillia papuana* var. *glaberrima* Dandy, Bull. Misc. Inform. Kew (1928a) 185. — *Elmerrillia tsiampacca* subsp. *tsiampacca* var. *glaberrima* (Dandy) Noot. (1985) 107. — Type: *Ledermann 9509* (holo K), Malesia, New Guinea, Kaiser Wilhelm Land, Sepik Region, Etappenberg, 850 m.

***Magnolia tsiampacca*** (L.) Figlar & Noot. subsp. ***mollis*** (Dandy) Figlar & Noot., *comb. nov.* — *Elmerrillia mollis* Dandy, Bull. Misc. Inform. Kew (1928a) 184. — *Michelia mollis* (Dandy) McLaughlin (1933) 36. — *Elmerrillia tsiampacca* subsp. *mollis* (Dandy) Noot. (1985) 108. — Type: *Endert 5252* (holo K; iso BO, L), Malesia, Borneo, Kutei, 24 Nov. 1925.

#### REFERENCES

- Adanson, M. 1763. Famille des Plantes 2. Paris, Vincent.
- Agostini, A. 1926. Alcune nuove Magnoliacee Malesie e Papuana. Atti Reale Accad. Fisiocrit. Siena 9.
- Azuma, H., J.G. Garcia-Franco, V. Rico-Gray & L.B. Thien. 2001. Molecular phylogeny of the Magnoliaceae: The biogeography of tropical and temperate disjunctions. Amer. J. Bot. 88, 12: 2275–2285.
- Azuma, H., L.B. Thien & S. Kawano. 1999. Molecular phylogeny of *Magnolia* (Magnoliaceae) inferred from cpDNA sequences and evolutionary divergence of floral scents. J. Plant Res. 112: 291–306.
- Azuma, H., L.B. Thien & S. Kawano. 2000. Molecular phylogeny of *Magnolia* based on chloroplast DNA sequence data and floral scent chemistry. In: Y. Liu et al. (eds), Proceedings of the International Symposium on the Family Magnoliaceae: 219–227. Beijing.
- Baillon, H.E. 1866. Mémoire sur la famille des Magnoliacées. Adansonia 7: 1–16, 65–69.
- Baranova, M.A. & C. Jeffrey. 2000. Stomatographical features in the systematics of the Magnoliaceae. Bot. Zhurn. 85: 35–49.
- Bartram, W. 1791. Travels through North and South Carolina. James & Johnson, Philadelphia.
- Blume, C.L. 1823. Beschrijving van enige gewassen ... etc. Verh. Batav. Genootsch. Kunsten 9: 149–153.
- Blume, C.L. 1825. Bijdragen tot de flora van Nederlandsch-Indië. Lands Drukkerij.
- Blume, C.L. 1829. Flora Javae nec non insularum adjacentium. Frank, Bruxelles.
- Chen, B.L. & H.P. Nootboom. 1993. Notes on Magnoliaceae III: The Magnoliaceae of China. Ann. Missouri Bot. Gard. 80: 999–1104.

- Chun, W.Y. 1963. Genera speciesque novae Magnoliacearum sinensium. *Acta Phytotax. Sin.* 8: 281–286.
- Dandy, J.E. 1927. The genera of Magnoliaceae. *Bull. Misc. Inform. Kew*: 257–264.
- Dandy, J.E. 1928a. Malayan Magnoliaceae. *Bull. Misc. Inform. Kew*: 183–194.
- Dandy, J.E. 1928b. Three new Magnoliaceae. *J. Bot.* 66: 46–48.
- Dandy, J.E. 1931. Four new Magnoliaceae from Kwangsi. *J. Bot.* 69: 231–233.
- Dandy, J.E. 1933. A second species of *Pachylarnax*. *J. Bot.* 71: 313.
- Dandy, J.E. 1936. *Magnolia globosa*. *Curtis's Bot. Mag.* 159: sub t. 9467.
- Dandy, J.E. 1948. *Magnolia nitida*. *Curtis's Bot. Mag.* 165: t. 16.
- Dandy, J.E. 1950. A survey of the genus *Magnolia* together with *Manglietia* and *Michelia*. In: *Camelias and Magnolias*, Conference Report, Royal Horticultural Society: 64–81.
- Dandy, J.E. 1974. Magnoliaceae in Praglovski. In: S. Nilsson, *World Pollen Spore Fl.* 3.
- Dandy, J.E. 1978. A revised survey of the genus *Magnolia* together with *Manglietia* and *Michelia*. In: N.G. Treseder, *Magnolias*: 29–37.
- De Candolle, A.P. 1817. *Regni Vegetabilis Systema Naturale*. Paris (Treuttel & Würtz), Strassbourg, London.
- De Candolle, A.P. 1824. *Prodromus Systematis Naturalis Regni Vegetabilis 1*. Paris (Treuttel & Würtz), Strassbourg, London.
- De Candolle, A.P. 1825. *Prodromus Systematis Naturalis Regni Vegetabilis 2*. Paris (Treuttel & Würtz), Strassbourg, London.
- De Jussieu, A.L. 1789. *Genera Plantarum etc.* Paris.
- De Lamarck, J.B.A.P.M. 1792. *Encycl.* 3: 675.
- De Loureiro, J. 1790. *Flora Cochinchinensis*. Lissabon, Ulyssipone.
- Figlar, R.B. 2000. Proleptic branch initiation in *Michelia* and *Magnolia* subgenus *Yulania* provides basis for combinations in subfamily Magnolioideae. *Proceedings Internat. Symp. Fam. Magnoliaceae 1998*: 14–25. Science Press, Beijing, China.
- Figlar, R.B. 2003a. Those amazing *Magnolia* fruits. *Magnolia – J. Mag. Soc.* 37: 7–15.
- Figlar, R.B. 2003b. Phyllotaxis in *Magnolia* fruits. *Magnolia – J. Mag. Soc.* 37: 26–28.
- Frodin, D.G. & R. Govaerts. 1996. World checklist and bibliography of Magnoliaceae. Royal Botanic Gardens, Kew.
- Gagnepain, F. 1938. Magnoliaceae. In: P.H. Lecomte, *Fl. Indo-Chine*, Suppl. 1: 29–59. Masson & Cie, Paris.
- Hu, H.H. 1940. *Paramichelia*, a new genus of Magnoliaceae. *Sunyatsenia* 4: 142–145.
- Hu, H.H. & W.Y. Cheng. 1951a. *Parakmeria*, a new genus of Magnoliaceae of southwestern China. *Acta Phytotax. Sin.* 1: 1–2.
- Hu, H.H. & W.Y. Cheng. 1951b. *Paramanglietia*, a new genus of Magnoliaceae. *Acta Phytotax. Sin.* 1: 255–256.
- Keng, H. 1955. A new genus of Magnoliaceae for Taiwan. *J. Taiwan Mus. Assoc.* 8: 207, t. 345.
- Kim, Sangtae, H.P. Nootboom, Chong-Wook Park & Youngbae Suh. 2002. Taxonomic revision of *Magnolia* section *Maingola* (Magnoliaceae). *Blumea* 47: 319–339.
- Kim, Sangtae, Chong-Wook Park, Young-Dong Kim & Youngbae Suh. 2001. Phylogenetic relationships in family Magnoliaceae inferred from NDHF sequences. *Amer. J. Bot.* 88: 717–728.
- King, G. 1889. Materials for a flora of the Malayan Peninsula. *J. Asiat. Soc. Bengal.* 58: 359–408.
- King, G. 1891. The Magnoliaceae of British India. *Ann. Bot. Gard. Calcutta* 3: 205–224.
- Kuntze, C.E.O. 1891. *Revisio Genera Plantarum 1*: 6. Arthur Felix etc., Leipzig.
- Law, Y.-W. 1979. A new genus of Magnoliaceae from China. *Acta Phytotax. Sin.* 11: 72.
- Law, Y.-W. 1983. In: W.C. Cheng, *Magnoliaceae*. *Sylva Sinica* 1: 488, t. 155 (in Chinese).
- Law, Y.-W. 1985. *Taxa nova Magnoliacearum*. *Bull. Bot. Res. North-East. Forest. Inst.* 5: 121, t. 1.
- Law, Y.-W. 1997. *Woonyungia*, a new genus of Magnoliaceae from China. *Bull. Bot. Res. North-East. Forest. Univ.* 17, 4: 356.
- Linnaeus, C. 1737. *Genera Plantarum*. Conradum Wishof, Leiden.
- Linnaeus, C. 1753. *Species Plantarum*. Holmiae, Stockholm.
- Linnaeus, C. 1754. *Genera Plantarum ed. 5*. Holmiae, Stockholm.
- Linnaeus, C. 1759. *Systema naturae ed. 10*. Holmiae, Stockholm.

- Linnaeus, C. 1767. *Mantissa Plantarum 1*. Holmiae, Stockholm.
- Lozano-Contreras, G. 1975. Contribucion a las Magnoliaceae de Colombia. *Caldasia* 11: 27–50.
- Lozano-Contreras, G. 1978. Contribuciones al conocimiento des Magnoliaceae de Colombia V. *Caldasia* 12: 283–289.
- Lozano-Contreras, G. 1983. Magnoliaceae. *Fl. Colombia* 1: 1–119.
- Lozano-Contreras, G. 1994. *Dugandiodendron y Talauma (Magnoliaceae) en el Neotrópico (Coleccion Jorge Álvarez Lleras, 3)*. Bogota. Academia de Ciencias Exactas, Fisicas y Naturales.
- Maximowicz, C.J. 1872. *Bull. Acad. Petersb.* 17: 418.
- McLaughlin, R.P. 1933. Systematic anatomy of the woods of the Magnoliaceae. *Trop. Woods* 34: 3–38.
- Merrill, E.D. 1908. New Philippine plants from the collection of Mary Strong Clemens. *Philipp. J. Sci., Bot.* 3: 129–165.
- Merrill, E.D. 1918. New or noteworthy Philippine plants. *Philipp. J. Sci., Bot.* 13: 11.
- Miquel, F.A.W. 1861. *Fl. Ind. Bat., Suppl. Van der Post etc.*, Amsterdam.
- Miquel, F.A.W. 1868. *Annales Musei Botanici Lugduno-Batavi* 4. Van der Post etc., Amsterdam.
- Nakai, T. 1933. *Flora Sylvatica Koreana* 20: 117–120.
- Nees von Esenbeck, C.G.D. 1825. Magnoliaceae. In: *Catalogus van eenige der merkwaardigste zoo in als uit-heemsche gewassen etc. Flora* 8: 152
- Nooteboom, H.P. 1985. Notes on Magnoliaceae. *Blumea* 31: 65–121.
- Nooteboom, H.P. 1994. *Michelia banghamii (Magnoliaceae)*, a new species from Sumatra. *Blumea* 38: 334.
- Nooteboom, H.P. 1998. The tropical Magnoliaceae and their classification. In: *Magnolias and their allies, proceedings of an international symposium*: 71–80. London.
- Nooteboom, H.P. 2000. Different looks at the classification of the Magnoliaceae. In: Y. Liu et al. (eds), *Proceedings of the International Symposium on the Family Magnoliaceae*: 26–38. Beijing.
- Nooteboom, H.P. & P. Chalermglin. 2002. A new species of *Magnolia (Magnoliaceae)* from Thailand. *Blumea* 47: 541–543.
- Parmentier, P.E. 1896. *Histoire des Magnoliacées. Bull. Sci. France Belgique* 27: 159–337.
- Persoon, C.H. 1806. *Synopsis Plantarum* 2: 94. Cramer, Paris.
- Pierre, J.B.L. 1880. *Flore Forestière de la Cochinchine*. Octave Doin, Paris.
- Prantl, K.A.E. 1888. In: A. Engler & K. Prantl (eds), *Die Natürlichen Pflanzenfamilien* 3, 2.
- Reichenbach, H.G.L. 1828. *Consp. Regn. Veg. Lipsiae Consp.* 62.
- Spach, E. 1839. *Histoire Naturelle des Végétaux* 7: 429–490. Librairie encyclopédique de Roret, Paris.
- Sprengel, K. 1825. *Systema Vegetabilium* 2: 643. Göttingen.
- Tiffney, B.H. 1978. Magnoliaceae. *Magnolia septentrionalis*. *Bot. J. Linn. Soc.* 75: 315(–316).
- Urban, I. 1927. *Sertum Antillianum. Feddes Repert. Spec. Nov. Regni Veg.* 24: 3.
- Vázquez, A. 1994. *Magnolia (Magnoliaceae) in Mexico and Central America: a synopsis. Brittonia* 46: 4–23.
- Von Siebold, P.H.F. & J.G. Zuccarini. 1846. *Flora Japonicae familiae naturalis, adjectis generum et specierum exemplis selectis. Sectio prima. Plantae dicotyledonae polypetalae. Abh. Math.-Phys. Cl. Königl. Bayer. Akad. Wiss.* 4, 2: 186.
- Wallich, N. 1824. *Tentamen Florae Napalensis Illustratum 1*. Calcutta & Serampore.
- Wight, R. 1840. *Illustrations of Indian Botany* 1: 14, t. 5. Curtt & Bell, Glasgow.