

## Family 137. RUTACEAE

### Literature:

Swingle, J. 1943. *The Citrus Industry*

Stone, BC. 1972. *Rutaceae*. Tree Flora of Malaya 1: 367-387

Jones, DT. 1995. *Rutaceae*. Tree Flora of Sabah and Sarawak 1: 351-419.

Stone, BC. 1994. *Supplement to the Rutaceae of Peninsular Malaysia*. Gardens' Bulletin Singapore 46: 121-140.

### **Acronychia** JR & G Forster

#### Revision:

Hartley, TG. 1968. *A revision of the genus Acronychia (Rutaceae)*. Journal of the Arnold Arboretum 55: 469-523; 525-567.

**Acronychia pedunculata** (Blume) Miq., Fl. Ind. Bat. Suppl. (1861-62) 532; --Merr., EPFP 2 (1923) 333.

India to S China, Malaya, Philippines.

N LUZON to PALAWAN, SULU ARCHIPELAGO, MINDANAO. In forests at low and medium altitudes, ascending to 1400m.

Atalantia Corr. Serr. =Severinia

### **Boenninghausenia** Reichenbach ex Meissner

**Boenninghausenia albiflora** Reichb., Conspect. (1828) 197; --Merr., PJS 5 c (1910) Bot. 355; EPFP 2 (1923) 333.

Himalayan region through China to Japan and Taiwan, N Philippines.

LUZON: Benguet. In the mossy forest on the higher mountains, altitude 2000-2400m.

Chaetospermum (M Roemer) Swingle =Swinglea

### **Citrus** Linnaeus

**Citrus aurantifolia** (Christm.) Swingle, J. Wash. Acad. Sci. (1913) 465; --Merr., EPFP 2 (1923) 341; Fl. Manila (1912) 271; -- Limonia aurantifolia Christm. in L., Pflanzensyst...nach d. Houttuyn 1 (1777) 618. --Type: Originally described from Ambon but no type material preserved. Based on Rumphius' description and Merian's plate.

Citrus lima Lunan, Hort. Jamaic. (1814) 451.

#### **var. aurantifolia**

East Indian Archipelago where it is apparently indigenous; From there it has spread by human help to the Asiatic mainland and to many other tropical or subtropical regions of the world. It is a distinct species, not closely related to any other species of *Citrus*.

*Common name*.—Lime.

**var. pseudolimonum** (Wester) Tanaka, Trans. Nat. Hist. Soc. Formosa 22 (1932) 427.

*Citrus limonia* var. *pseudolimonum* (Wester) Merr., EPFP 2 (1923) 343; --*Citrus pseudolimonum* Wester, Philip. Agr. Review 8 (1915) 24, t. 7a,  
SIQUIJOR, BOHOL. Occasionally planted; perhaps a hybrid between *Citrus limonia* Osbeck and some other species.

Hybrid:

**Citrus aurantium** L., Sp. Pl. (1753) 783; -- Merr., EPFP 2 (1923) 342.

SE Asia, now widely cultivated in the tropics and subtropics.

Throughout the Philippines, usually or always planted. Sour or Seville orange.

**Citrus celebica** Koord. Fl. N. O. Celebes, Mededeel. uit 's Lands Plantent. 19 (1898) 639, also 370.  
*Illus.*

**var. southwickii** (Wester) Swing. J. Wash. Acad. Sci. 28 (1938) 533; --*Citrus southwickii* Wester, Philip. Agr. Rev. 8 (1915) 16-17, pls. 3c, 4c; *loc. cit.* pls. 3c, 4c, and Philip. Bur. Agr. Bull. 27 (1913) pl. 16b. (*fide* Wester, *loc. cit.* 1915 = *C. southwickii*).

*Type.*—Philippines, Bohol (Southwick, Wester). Herb. Bur. Sci., Manila.

*Distribution.*—Philippines: Bohol and Mindanao.

It was also found by Wester in Baganga (Lat. 7° 35' N., Long. 126° 35' E.), in eastern Mindanao, about 450 miles north-northeast of Karoa in northern Celebes. It has been introduced into the United States.

OTHER POSSIBLE HYBRIDS OF CITRUS CELEBICA

Alemow.

**Citrus macrophylla** Wester, Philip. Agr. Review 8 (1915) 16, t. 3b, 6c; --*Citrus hystrix* var. *macrophylla* (Wester) Merr., EPFP 2 (1923) 343; --*Type:* Wester 4820. Cebu

CEBU. Sometimes cultivated. Seems to be a hybrid of *C. celebica* (or some other species of the subgenus *Papeda*) with a species of the subgenus *Citrus* (probably a pummel, *C. grandis*).

Kabuyao. This is another possible hybrid of *C. celebica*. It is called kabuyao in Luzon Island, P.I., and kopahan in Bohol Island. It was described by Wester (1915, pp. 17-19, pl. 5b, fig. 1; and 1924, p. 93, pl. 31c) as typical *C. hystrix*. It differs from that species, however, in having more numerous stamens (30 to 36) and more locules (13 to 18) in the ovary. The fruit is subglobose or short-pyriform, 7 to 9 cm long and 7 cm in diameter, with a smooth skin; the pulp-vesicles contain a "nucleus," doubtless composed of droplets of acrid oil such as are found in all species of the *Papeda* group and in most of their hybrids.

Amongpong.

This plant is found in Bohol Island, P.I., and is evidently similar to the kabuyao, but according to Wester (1915, p. 18) it has only 26 to 30 stamens and a larger fruit, 10 cm in diameter.

These two hybrids, the kabuyao and the amongpong, and other similar fruits may perhaps be hybrids of *C. celebica* (which has many locules in the ovary) with *C. macroptera* or with *C. hystrix*, both members of the subgenus *Papeda*. The increased number of stamens and the larger fruits might result from such hybridization.

**Citrus excelsa** Wester, Philip. Agr. Review 8 (1915) 26, incl. var. *davaoensis* Wester, loc. cit.; --Merr., EPFP 2 (1923) 341, *pro syn.* *C. aurantifolia*; --Tanaka, Trans. Nat. Hist. Soc. Formosa 22 (1932) 428.

**Citrus grandis** Osbeck, Dagbok Ostind. Resa (1757) 98.

*Citrus maxima* (Burm.) Merr., Interpret. Herb. Amb. (1917) 296; EPFP 2 (1923) 344.

*Citrus decumana* L., Syst. ed. 12 (1767) 508; --Merr., Fl. Manila (1912) 271.

All warm countries, but native of the Old World. Throughout the Philippines in the settled areas, usually planted; probably not a native of the Archipelago. Pomelo or Suha.

**Citrus hystrix** DC, Cat. Hort. Monsp. (1813) 97; Prodr. 1 (1824):539. --Merr., EPFP 2 (1923) 342.

*Citrus hystrix* var. *torosa* (Blanco) Wester, Agr. Review 8 (1915) 19; --*Citrus torosa* Blanco, Fl. Filip. ed. 3. 4 (1880) 38, pl. 408 ("var. colobot"); --Vidal, Sinopsis Atlas (1883) pl. 25, fig. F.

**var. hystrix**

Sri Lanka, Burma, Peninsular Malaysia, Indonesia, Philippines. Throughout the Philippines in most islands and provinces. In secondary and primary forests, sometimes in or near settlements, at low and medium altitudes, often rather common and truly native of the Archipelago. Var. *torosa* is a form with very rough fruits.

**var. balincolong** Tanaka, Trans. Nat. Hist. Soc. Formosa 22 (1932) 429.

**var. macrophylla** (Wester) Merr., EPFP 2 (1923) 343; --*Citrus macrophylla* Wester, Philip. Agr. Review 8 (1915) 16, t. 3b, 6c. --Type: Wester 4820. Cebu

CEBU. Cultivated. According to Merrill (1923): "This is in all probability a hybrid between *C. hystrix* DC and some other species, perhaps *C. maxima*".

**Citrus kinokuni** Hort. ex Tanaka, Mem. Tan. Cit. Farm Expt. St. 1 (1927) 31.

According to **xxxxx**, cultivated at Lamao. The Kishu.

**Citrus limonimeditica** Lush., Indian Forester 36 (1910) 348.

*Citrus medica sensu* Merr., EPFP 2 (1923) 344, *pro parte*.

India to S China and Malesia. Occasionally planted in the Philippines but nowhere spontaneous. Citron.

**Citrus limon** (L.) Burm.f., Fl. Ind. (1768) 173; --*Citrus medica* var. *limon* L., Sp. Pl. (1753) 782. --Type from Europe? (LINN).

*Citrus limonia* Merr., EPFP 2 (1923) 343, *non* Osbeck (1765).

SE Asia (?); widely cultivated in all subtropical countries.

The lemon.

The origin of the lemon is a mystery.

. Probably the lemon should be considered as a satellite species of the citron; possibly it may prove to be of hybrid origin, perhaps having the citron and the lime for parent species.

**Citrus longispina** Wester, Philip. Agr. Review 8 (1915) 15, t. 2a, 3a; --Tanaka, Trans. Nat. Hist. Soc. Formosa 22 (1932) 429.

*Citrus sinensis* Osbeck, Reise Ostind. China (1765) 148.

Doubtfully considered by Tanaka as a distinct species from *C. aurantium*. According to Merrill (1923), *C. longispina* is perhaps a hybrid between *C. aurantium* and some other species.

**Citrus macroptera** Montr., Mém. Acad. Sci. Lyon 10 (1860)187. --Type from New Caledonia. Thailand, Indochina, Philippines, New Guinea, New Caledonia, and Polynesia (possibly escaped from culture here). This species doubtless grows wild in New Guinea, Bismarck Archipelago, Sulawesi, southern Luzon, and the southern islands of the Philippines. LUZON: Laguna (Mt Makiling, wild population?), lowland forest up to 600m.

### **Webber's Philippine hybrid.**

**Citrus webberi** Wester, Philip. Agr. Review 8 (1915) 13, incl. var. *montana* Wester, op. cit. 14; --Tanaka, Trans. Nat. Hist. Soc. Formosa 22 (1932) 433; --Merr., EPFP 2 (1923) 345, *pro syn.* *C. nobilis*. LUZON, MINDANAO.

Webber's Philippine hybrid is a mandarin-like citrus fruit tree which was named *C. webberii* by Wester in honor of his former chief, HJ Webber. It is called *kalpi* in the Bicolano dialect. It seems to be a hybrid of the native *C. macroptera* with the common Philippine mandarin (see the Chinese [Yuzu](#), a similar hybrid of the papeda with a mandarin).

Another form of Webber's Philippine hybrid is a tree with weeping branches considered by Wester (1917, p. 108, pl. 1a) to be "the most ornamental species in the genus *Citrus*." It grows well at the Citrus Research Center at Riverside, California, where its handsome shape and beautiful foliage make it a perpetual tribute to Dr. Webber. It should also be tested as a rootstock, as it produces seeds abundantly.

**Kansi.** A Philippine citrus called *kansi* by the natives of Bohol, where it is sparingly cultivated, may be a hybrid of *C. macroptera*, which occurs in Bohol, with a pummelo (*C. grandis*). The *kansi* has leaf blades broadly ovate to elliptical, pointed at the tip, broadly acute at base, with subentire margins, 9 to 12 by 3 to 4.5 cm; winged petioles broadly obovate, even-margined, 3.5 to 4.5 by 2.5 to 3 cm, having less than half the area of the leaf blade; stamens 20 to 23, free; ovary oblate; fruit oblate, smooth, lemon yellow, 38 to 40 by 44 to 46 mm, pulp acid, peel 3 to 5 mm thick, segments 11 to 14, seeds many, flattened, monoembryonic. This was called *C. hystrix* var. *boholensis* by Wester (1915, p. 19, pls. 4, 5), who stated that the fruit is eaten with fish and also makes a fairly good ade. That it is a hybrid of *C. macroptera* with a pummelo is borne out by the statement of Wester (1915, p. 12) that pummelos with from 11 to 14 segments in the fruits are widely distributed in the Philippines.

**Citrus macroptera** Mont., Mem. Acad. Lyon 10 (1860) 187;

**var. boholensis** (Wester) Tanaka, Trans. Nat. Hist. Soc. Formosa 22 (1932) 430.

*Citrus hystrix* var. *boholensis* Wester, Philip. Agr. Review 8 (1915) 19, t. 4a, 5a; --Merr., EPFP 2 (1923) 342.

**var. southwickii** Tanaka, Trans. Nat. Hist. Soc. Formosa 22 (1932) 430

*Citrus hystrix* var. *micrantha* (Wester) Merr., EPFP 2 (1923) 343.

**Citrus madurensis** Lour., Fl. Coch. (1790) 467; --Hatusima, Mem. Fac. Agr. Kagoshima Univ. 5 (1966) 34.

*Citrus mitis* Blanco, Fl. Filip. (1837) 610; --Merr., EPFP 2 (1923) 344.

*Citrus microcarpa* Bunge, Mem. Sav. Etr. Petersb. 2 (1835) 84.

S China, Indochina to the Philippines. Introduced in tropical America and the S US. Not

known wild. Kalamansi.

Calamondin (orangequat?) [*Citrus reticulata* var. *austera* ? X *Fortunella* sp. ?]. This Chinese citrus fruit tree, illustrated in [figure 3-35](#), widely cultivated in the Philippines and also grown in Hawaii and the United States, is very probably an orangequat that arose in China by insect cross-pollination of a sour, loose-skinned mandarin orange and a kumquat, perhaps *Fortunella margarita*. In the Philippines, it is known under the name Calamonding. This hybrid was described under the name *Citrus mitis* Blanco by Swingle (1914-1917, vol. 2, p. 784) and by Hume (1926, pp. 133-34, fig. 87) and under the name *Citrus microcarpa* Bunge by Tanaka (1933b, p. 184). It was figured in Ochse (1931, pp. 131-32, col. pl. 50). It is reasonably certain that the Calamondin is a *Citrus* X *Fortunella* hybrid and should not be considered as a valid species (see Swingle, 1942, p. 26). This hybrid has depressed-globose fruits with a very thin peel, that becomes loose as the fruit ripens, and with intensely acid pulp. The segments number only seven to ten. It may possibly turn out to be a back-cross of an F<sub>1</sub> *Citrus* X *Fortunella* hybrid on *Citrus reticulata*. This could probably be determined by experimental hybridization. This hybrid enters into the parentage of the interesting trigeneric hybrid, the Altamaha or Glen [citrangedin](#).

**Citrus medica** L., Sp. Pl. (1753) 782; --Merr., EPFP 2 (1923) 344. **–Type: Wanting, but plant seen and studied by Linnaeus.**

**var. medica**

China and India southward; cultivated in many subtropical regions. The native home of the citron has not been determined with certainty.  
Citron

**var. nana** Wester, PJS 8 c (1915) Bot. 22.

**var. odorata** Wester, PJS 8 c (1915) Bot. 22.

**var. alata** Tanaka, Trans. Nat. Hist. Soc. Formosa 22 (1932) 431.

**Citrus miaray** Wester, Philip. Agr. Review 10 (1917) 457; --Tanaka, Trans. Nat. Hist. Soc. Formosa 22 (1932) 431  
*Citrus aurantifolia* var. *miaray* (Wester) Merr., EPFP 2 (1923) 342.

**Citrus micrantha** Wester, Philip. Agr. Rev. 8 (1915) 20, pls. 5c, 6b. **–Type: Wester 4829 (PNH). Bohol.**

*Citrus hystrix* var. *micrantha* (Wester) Merr., EPFP 2 (1923) 343;

*Citrus macroptera* var. *micrantha* (Wester) Tanaka, Trans. Nat. Hist. Soc. Formosa 22 (1932) 430. *Illus.* Wester, *loc. cit.* pls. 5c, 6b, and Phil. Bur. Agr. Bul. 27 (1913) pl. 12.

**var. micrantha**

NEGROS, CEBU, BOHOL, MINDANAO: Zamboanga, Misamis. Sparingly cultivated. According to Merrill (1923): “Apparently merely a form of *C hystrix* DC, or perhaps a hybrid between it and *C aurantifolia* Swingle”.

**Common name.**—Small-flowered papeda. **Native name:** Biasong.

**var. microcarpa** Wester, Philip. Agr. Rev. 8 (1915) 21, pl. 7b; Wester, *loc. cit.* pl. 7b, and Phil. Bur. Agr. Bul. 27 (1913) pl. 14.

CEBU, BOHOL.

*Common name.*—Small-fruited papeda. *Native name:* Samuyao.

**Citrus natsudaikai** Hayata, Icon. Pl. Formos. 8 (1919) 29.

**Citrus nobilis** Lour., Fl. Coch. (1790) 466; --Merr., EPFP 2 (1923) 344.

*Citrus papillaris* Blanco, Fl. Filip. (1837) 160.

*Citrus nobilis* var. *papillaris* Wester, Philip. Agr. Review 8 (1915) 11.

Tizon (Pisong), dalanghita, sintones. The loose-skinned or mandarin orange.

**Citrus paradisi** Macfarl., Fl. Jam. 1 (1837) 131.

Grape fruit.

**Citrus reticulata** Blanco, Fl. Filip. (1837) 610, --Merr., EPFP 2 (1923) 344, *pro syn.* *C. nobilis*.

6. **Citrus reticulata** Blanco, Fl. Filip. 610. 1837. *Citrus nobilis* Andrews (non Lour.), Bot. Repos. 9:pl. 608. 1809; *C. nobilis* var. *major* Kerr, Bot. Reg. 3:pl. 211. 1817; *C. deliciosa* Ten. Ind. Sem. Hort. Neap. [9]. 1840; *C. nobilis* var. *genuina* Tan. Bot. Mag. Tokyo 26:204. 1912. *Illus.* Andrews, *loc. cit.* pl. 608; Kerr, *loc. cit.* pl. 211; Du. Breuil, in Risso & Poiteau, Hist. Nat. Orang. ed. 2. 49, pl. 29 *bis.* 1871-1872.

*Type.*—Wanting. *Substitute type:* Philippines, Luzon (Merrill, Species Blancoanae, No. 402).

*Distribution.*—Philippines, southeastern Asia; widely cultivated in all subtropical regions.

*Common name.*—Mandarin orange.

**Citrus sinensis** Osbeck, Reise Ostind. China (1765) 250; --*Citrus aurantium* [var.] *sinensis* L., Sp. Pl. 2 (1753) 782; --*Aurantium sinensis* Mill. Gard. Dict. ed. 8. 1768; --*Type:* Europe (Linnaeus), lost ? (no authentic specimen in Linnean Herbarium, *vide* B. Daydon Jackson [1912, p. 58]).

*Citrus aurantium* Lour., Fl. Cochinch. 2 (1790) 466, non L.

*C. aurantium* Risso, Ann. Mus. Hist. Nat. Paris 20 (1813) 181, non L.

*C. aurantium* [var.] *vulgare* Risso & Poit. Hist. Nat. Orang. (1818-22) 33.

*C. aurantium* [var.] *dulce* Heyne, Arzn. Gew. 11 (1830) pl. 28. *Illus.* Risso & Poiteau, *loc. cit.* pls. 3, 4 (col.); Heyne, *loc. cit.* pl. 28 (col.); Bentley & Trimen, Med. Pl. 1:pl. 51 (col.). 1880; and many others.

China, Indo-China, possibly other southeastern Asiatic regions.

*Common name.*—Sweet orange.

**Citrus tangerina** Hort. ex Tanaka, Mem. Tan. Cit. Farm Expt. St. 1 (1927) 29.

Dancy tangerine.

**Citrus unshiu** Marcovich, Isv. Soch. Obl. Sukum. Sad. Sel. Opyt. St. 2 (1921) 5.

Satsuma orange.

## BIGENERIC HYBRIDS OF FORTUNELLA WITH CITRUS AND PONCIRUS

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mandarin orange and a kumquat, perhaps *Fortunella margarita*. In the Philippines, it is known under the name Calamonding. This hybrid was described under the name *Citrus mitis* Blanco by Swingle (1914-1917, vol. 2, p. 784) and by Hume (1926, pp. 133-34, fig. 87) and under the name *Citrus microcarpa* Bunge by Tanaka (1933b, p. 184). It was figured in Ochse (1931, pp. 131-32, col. pl. 50). It is reasonably certain that the Calamondin is a *Citrus X Fortunella* hybrid and should not be considered as a valid species (see Swingle, 1942, p. 26). This hybrid has depressed-globose fruits with a very thin peel, that becomes loose as the fruit ripens, and with intensely acid pulp. The segments number only seven to ten. It may possibly turn out to be a back-cross of an F<sub>1</sub> *Citrus X Fortunella* hybrid on *Citrus reticulata*. This could probably be determined by experimental hybridization. This hybrid enters into the parentage of the interesting trigeneric hybrid, the Altamaha or Glen [citrangedin](#)

### **Clausena Burman filius**

**Clausena anisum-olens** (Blanco) Merr., Govt. Lab. Publ. (Philip.) 17 (1904) 21; Fl. Manila (1912) 269; EPFP 2 (1923) 337; --Cookia anisum-olens Blanco, Fl. Filip. (1837) 359. --Type: Lacking. *Substitute type*: Merrill, Species Blancoanae 1012. Luzon: Rizal prov. *Clausena loheri* Merr., PJS 27 (1925) 27. LUZON: Mountain Province, Benguet, Pampanga, Bataan, Rizal, Laguna, Batangas, Sorsogon, MASBATE, BASILAN, MINDANAO. Low and medium altitude forests, ascending to 1500m.

**Clausena brevistyla** Oliver, J. Linn. Soc. Bot. 5, Suppl. 2 (1861) 31; --Tanaka, Trans. Nat. Hist. Soc. Formosa 22 (1932) 422. *Clausena grandifolia* Merr., PJS 9 c (1914) Bot. 294; EPFP 2 (1923) 337. --Type: Merrill 9544. As *C grandifolia*: PALAWAN. On forested talus slopes, altitude c. 800m. Note: *C. grandifolia* Merr. was reduced by Tanaka (1932) to *C. brevistyla*,

**Clausena excavata** Burm.f., Fl. Ind. (1768) 87, t. 20; --Merr., EPFP 2 (1923) 337. --Type from Java. India (Coromandel and N districts) to Bhutan, Burma, Thailand, S China; N Vietnam; S Vietnam; Laos; Cambodia; Sumatra, Peninsular Malaysia, Sumatra, Java, Borneo, the Philippines; New Guinea. MINDORO, CULION, PALAWAN, SULU ARCHIPELAGO. Lowland thickets and old clearings.

**Clausena lansium** (Lour.) Skeels, US Dept. Agr. Bur. Plant Ind. Bull. 168 (1909) 3; --Merr., EPFP 2 (1923) 337; --Quinaria lansium Lour., Fl. Cochinch. (1790) 272. --Type from China. Native in S China and Indo-China; widely cultivated in tropical and subtropical regions. Rare in cultivation in the Philippines. *Common name*.—Wampee.

**Clausena laxiflora** Quisumb. & Merr., PJS 37 (1928) 154. --Type: BS 48983 Ramos and Edaña (UC). Mindanao: Davao Oriental prov., Mati. Known only from the type locality.

**Clausena mollis** Merr., PJS 5 c (1910) Bot. 181; --Merr., EPFP 2 (1923) 338. --Type: FB 16530 Curran. Luzon: Mountain Province, near Bontoc, altitude 915-1220m. LUZON: Mountain Province, Benguet, Cagayan, Nueva Vizcaya. Medium altitude thickets and forests, ascending to 1200m.

**Clausena sanki** (Perr.) JF Molino, *Adansonia* B 16(1) (1994) 147;  
*Clausena todayensis* Elmer, LPB 8(1915) 2805. --Type: Elmer 10530. Mindanao: Davao, Mt Apo (Todaya)  
Known only from the type, collected on a densely wooded ridge south of the Sibulan  
River at 1,500 ft. [457 m] altitude.

Tanaka (1932e, p. 423) did not follow Merrill (1923, p. 337) in reducing this to a synonym  
of *C. anisum-olens* because, as he stated, *C. todayensis* has a 4-merous "small ovary,  
with only 8 large oil-glands somewhat like that of *C. harmandiana*. The plant is,  
however, very gracile and not like the above [*C. harmandiana*]." Pending further study,  
the species is here retained.

Euodia JR & G Forster =Melicope

Evodia JR & G Forster =Melicope

### **Glycosmis** Corrêa de Serra

The taxonomy of *Glycosmis* is in such a state of confusion that it is not yet possible to tell  
with certainty how many species should be recognized as valid.

**Glycosmis angularis** Elmer, LPB 2 (1908) 489; --Merr., EPFP 2 (1923) 334, in synonymy of  
*Glycosmis pentaphylla sensu* Merr.; --Tanaka, *Trans. Nat. Hist. Soc. Formosa* 22 (1932) xxx.  
*Glycosmis pentaphylla* Merr., EPFP 2 (1923) 334, *non* (Retz.) Corr. Serr.  
LEYTE

**Glycosmis citrifolia** Lindl., *Trans. Hort. Soc. Lond.* 6 (1826) 72; --Tanaka, *Trans. Nat. Hist. Soc.*  
*Formosa* 22 (1932) xxx; --Merr., EPFP 2 (1923) 334, in synonymy of *Glycosmis pentaphylla sensu*  
Merr.  
*Glycosmis pentaphylla sensu* Merr., EPFP 2 (1923) 334, *non* (Retz.) Corr. Serr. (1805).  
*Glycosmis cochinchinensis* Merr., *Fl. Manila* (1912) 268; EPFP 2 (1923) 334, in synonymy of *Glycosmis*  
*pentaphylla* Merr. *non* Pierre ex Engl. (1895).

#### **var. citrifolia**

**var. obtusa** Tanaka, *Trans. Nat. Hist. Soc. Formosa* 22 (1932) 420.

**Glycosmis chlorosperma** (Blume) Spreng., *Syst. Veg. ed. 16, 4* (1827) 162; --BC Stone, *Gard.*  
*Bull. Sing.* 46 (1994) 126.

#### **var. chlorosperma**

Peninsular Malaysia, Borneo, Java, and Philippines.

#### BALABAC

**var. elmeri** Tanaka, *Med. Rijksherb. Leyden* 69 (1931) 3; --*Glycosmis elmeri* Merr., *PJS* 30 (1926) 400.

**Glycosmis cyanocarpa** (Blume) Spreng., *Syst. Veg. ed. 16, 4* (1827) 161; --Tanaka, *Trans. Nat.*  
*Hist. Soc. Formosa* 22 (1932) 421.

#### **var. cyanocarpa**

**var. philippinensis** Stone, *Proc. Acad. Nat. Sci. Phil.* 137 (1985) 7. --Type: BS 24568 Ramos (US\*,  
iso). Samar: Catubig River.



**var. platyphylla** (Merr.) Stone,

*Glycosmis platyphylla* Merr., PJS 12 c (1917) Bot. 273; --Merr., EPFP 2 (1923) 335. Type: Wenzel 1611 (MO\*, US\*, iso). LEYTE.

LEYTE, SAMAR.

**Glycosmis greenei** Elmer, LPB 4 (1912) 1512; --Merr., EPFP 2 (1923) 334, in synonymy of *Glycosmis pentaphylla sensu* Merr.; --Tanaka, Trans. Nat. Hist. Soc. Formosa 22 (1932) xxx. ---Type: Elmer 12438 (L\*, MO\*, NY\*, US\*, iso). Sibuyan: Mt. Guiting-guiting.

*Glycosmis pentaphylla* Merr., EPFP 2 (1923) 334, *non* (Retz.) Corr. Serr.

**var. greenei**

Australia; New Guinea, Moluccas, Borneo, Philippines

**var. simplex** Stone, Fed. Mus. J. (Kuala Lumpur) 23 (1978) 91; --Soejarto et al. (1995). Prelim. Checklist Fl. Pl. Palawan.

Extra-Philippine distribution? PALAWAN: Taytay Bay; Victoria Mtns.

**var. virgata** Tanaka,

**Glycosmis lanceolata** (Blume) Spreng. ex Teysm. & Binn., Cat. Hort. Bog. (1866) 208, *nomen*; --Kurz, J. Bot. 14 (1876) 35.

Hainan, Indochina, Sumatra, Java, Borneo, Lesser Sunda Isls and the Philippines.

**Glycosmis parviflora** (Sims.) Little,

*Murraya cerasiformis* Blanco, Fl. Filip. (1837) 363; --Merr., EPFP 2 (1923) 334, under synonymy of *Glycosmis pentaphylla sensu* Merr.

**G. pentaphylla** (Retz.) Corrêa (= *G. cochinchinensis* [Lour.] Pierre), very widely distributed; leaves and inflorescences very variable; leaves one- to two-paired or unifoliolate, with long-lanceolate, blunt or acuminate leaflets; distributed in the whole Indian Malayan region through the Malay Peninsula and Timor to northern Australia, and north to the Philippines (among the many varieties is one with a single lanceolate leaflet, in the Khasi Hills, Assam and Burma; another [*G. simplicifolia* Spreng.] occurs in Java);

## Lunasia Blanco

**Revision:**

Hartley, TG. 1968. *A revision of the genus Lunasia (Rutaceae)*. Journal of the Arnold Arboretum 48: 460-xxx.

**Lunasia amara** Blanco, Fl. Filip. (1837) 783; --Merr., EPFP 2 (1923) 332; --TG Hartley, J. Arnold Arb. 48 (1967) 460.

**var. amara**

*Lunasia amara* var. *repanda* Merr., PJS 4 c (1909) Bot. 302; EPFP 2 (1923) 332. --Type:

*Lunasia macrophylla* Merr., PJS 9 c (1914) Bot. 300; EPFP 2 (1923) 332. --Type:

*Lunasia mollis* Merr., PJS 9 c (1914) Bot. 299; EPFP 2 (1923) 332. --Type:

*Lunasia nigropunctata* Merr., PJS 9 c (1914) Bot. 301; EPFP 2 (1923) 333. --Type:

*Lunasia obtusifolia* Merr., PJS 9 c (1914) Bot. 300; EPFP 2 (1923) 333. --Type:

Java, Lesser Sunda Isls, Borneo, Philippines, Sulawesi, Moluccas, New Guinea, Australia.

Throughout the Philippines. Well-drained rainforests, moist to rather dry thickets, gallery forests and garden regrowth, also frequent on limestone, 0-900m.

**var. babuyanica** (Merr.) TG Hartley, J. Arnold Arb. 48 (1967) 473; --Lunasia babuyanica Merr., PJS 3 c (1908) Bot. 411; EPFP 2 (1923) 332. --Type: BS 4050 E Fenix  
BABUYAN ISLS (CAMIGUIN). Coastal thickets.

### **Luvunga Buchanan-Hamilton ex Wight & Arnott**

**Luvunga philippinensis** Merr., PJS 3 c (1908) Bot. 233; --Merr., EPFP 2 (1923) 338; --Soejarto et al. (1995) Prelim. Checklist Fl. Pl. Palawan. --Type: BS 9104 Whitford & Hutchinson (not seen). Mindanao: Zamboanga

Borneo, Philippines.

PALAWAN, MINDANAO: Lanao; Zamboanga. Primary forest at low and medium altitudes.

**Luvunga scandens** (Roxb.) Buch.-Ham. in Wall., Cat. (1832, 1831 *fide* Swingle) No. 6382; --Merr., EPFP 2 (1923) 338; --Limonia scandens Roxb. Fl. Ind. 2 (1832) 380. --Type from India. India, Burma, Thailand, Laos, Vietnam, Hainan, Sumatra, Peninsular Malaysia, Borneo, Philippines.

PALAWAN, ?TAWI-TAWI. Primary lowland forests.

*Common name.*—Indian liana-lime (or luvunga).

### **Maclurodendron TG Hartley**

#### **Revision:**

Hartley, TG. 1982. *Maclurodendron: a new genus of Rutaceae from Southeast Asia*. Gardens' Bulletin Singapore 35: 1-19.

**Maclurodendron obovatum** (Merr.) TG Hartley, Gard. Bull. Sing. 35(1) (1982) 12; --Acronychia obovata Merr., PJS 12 c (1917) Bot. 274; EPFP 2 (1923) 333. --Type: FB 26473 Mallonga (US\*, iso). Mindanao: Surigao del Norte prov., Manangas, Carrascal, on slopes in rich soil, altitude c. 50m, 13 Dec 1916.

MINDANAO: Surigao del Norte. Open slopes at low altitudes.

**Maclurodendron porteri** (Hook.f.) TG Hartley, Gard. Bull. Sing. 35 (1982) 8; --BC Stone, Gard. Bull. Sing. 46 (1994) 127.

Burma, Peninsular Thailand, Sumatra, Peninsular Malaysia, Singapore, Borneo and the Philippines.

### **Melicope JR & G Forster**

*Euodia camiguinensis* Merr., PJS 9 c (1914) Bot. 296; EPFP 2 (1923) 328. --Type: BS 14664 Ramos. CAMIGUIN. In thickets and forests.

*Euodia coriacea* Merr., PJS 17 (1920) 265; EPFP 2 (1923) 328. --Type: BS 35172 Ramos & Pascasio. DINAGAT. Low altitude forests.

**Epithet coriacea already occupied in Melicope: *M. coriacea* Merr. & Perry, J. Arnold Arbor. 22 (1941) 49 (1941).** But am not sure if this a comb. nov.

*Euodia glaberrima* Merr., PJS 13 c (1918) Bot. 265; EPFP 2 (1923) 329. --Type: BS 28864 Ramos &

Edaño (US\*, iso). Luzon: Quezon prov., Mt Binuang, May 1917.

LUZON: Quezon (Mt Binuang). Lowland forests along streams.

**Epithet glaberrima already occupied in Melicope: *M. glaberrima* Guillaumin, Bull. Soc. Bot. France, 85 (1938) 301.**

*Euodia reticulata* Merr., PJS 2 c (1907) Bot. 277; EPFP 2 (1923) 329. –Type: Merrill 5711 (US\*, iso). Mindoro: Mindoro Oriental prov., Mt Halcon, in open heaths, altitude c. 2400m.

MINDORO: Mindoro Oriental (Mt Halcon).

**Epithet reticulata already occupied in Melicope: *M. reticulata* Laut., Nova Guinea 8 (1912) 824.**

*Euodia subcaudata* Merr., PJS 9 c (1914) Bot. 298; EPFP 2 (1923) 330. –Type: BS 15922 Fenix (not seen). Mindanao: Agusan del Norte prov., Aug 1912.

MINDANAO: Agusan del Norte. In thickets or forests.

**Melicope acuminata** (Merr.) TG Hartley, Allertonia 8 (2001) 183; --*Euodia acuminata* Merr., PJS 5 c (1910) Bot. 183; EPFP 2 (1923) 327. –Type: FB 10530 HM Curran (US\*, iso). Luzon: Sorsogon prov., no precise locality given, near abaca (*Musa textilis*) plantations, altitude c. 200m, 10 Jun 1908.

LUZON: Laguna, Camarines, Sorsogon. Lowland thickets or forests.

**Melicope alpestris** TG Hartley, Allertonia 8 (2001) 229. –Type: BS 40279 Ramos & Edaño (L\*, US\*, iso). Luzon: Mountain Province, Mt Data, Sept 1921.

**Melicope benguetensis** (Elmer) TG Hartley, Allertonia 8 (2001) 230; --*Euodia benguetensis* Elmer, LPB 8 (1915) 2808; --Merr., EPFP 2 (1923) 328. –Type: Elmer 14276 (L\*, NY\*, U\*, US\*, iso). Luzon: Benguet prov., Baguio, Mar 1913. Note: Cited in the original protologue as Elmer 14274, but Merrill (1923) only cites 14276.

LUZON: Benguet. High montane ridges, altitude 1800-2200m.

**Melicope blancoi** TG Hartley, Allertonia 8 (2001) 245; --*Euodia ternata* (Blanco) Merr., PJS 9 c (1914) Bot. 297; Sp. Blancoanae (1918) 197; EPFP 2 (1923) 330 --*Orixa ternata* Blanco, Fl. Filip. (1837) 62; ed. 2 (1845) 45; ed. 3, 1 (1877) 84. . –Type: Not extant; neotype (designated by Hartley 2001): Merrill Sp. Blancoanae 913 (US\*, isoneo).

As *Euodia ternata*: LUZON: Cagayan, Bataan, Rizal, Laguna, PALAWAN, MINDANAO. Low and medium altitude thickets or forests.

**Melicope bonwickii** (F Muell.) TG Hartley, Sandakania 4 (1994) 56.

*Euodia villamilii* Merr., PJS 9 c (1914) Bot. 296; EPFP 2 (1923) 330. –Type: FB 20653 A Villamil (US\*, iso). Luzon: Laguna prov., Mt Makiling, in forest, altitude 300-350m, Oct 1913.

Java, Borneo, Philippines, E to Papua New Guinea and Australia.

LUZON: Laguna (Mt Makiling), MINDANAO: Lanao. Primary forests, 300-1000m.

**Melicope confusa** (Merr.) Liu, Illustr. Native Introd. Lign. Pl. Taiwan 2 (1962) 876; --*Euodia confusa* Merr., PJS 20 (1922) 391; EPFP 2 (1923) 328. –Lectotype: FB 3045 TE Borden (US\*, iso). Luzon: Bataan prov., Mt Mariveles, Lamao River, May 1905.

*Cissus frutescens* Blanco, Fl. Filip (1837) 70. –Type: not extant; neotype (designated by Hartley 2001): Merrill Sp. Blancoanae 904 (NY\*, US\*, isoneo). Luzon: Rizal prov., Mar 1915.

**Taiwan (Lanyu?),** Borneo, Philippines, Sulawesi, Moluccas.

LUZON: Cagayan, Mountain Province, Bataan, Rizal, Laguna, Quezon, Camarines, Sorsogon, POLILLO, MINDORO, PANAY, LEYTE, SAMAR, MINDANAO. Common in lowland and medium altitude forests.

**Melicope crassifolia** (Merr.) TG Hartley, Allertonia 8 (2001) 222; --*Euodia crassifolia* Merr., PJS 9

c (1914) Bot. 362; EPFP 2 (1923) 328. –Type: CA Wenzel 699 (L\*, US\*, iso). Leyte: Leyte prov., Buenavista near Jaro, in forest, altitude c. 500m, Apr 1914.  
LEYTE, SAMAR, MINDANAO: Surigao. Low and medium altitude forests, clearings, etc.

**Melicope curranii** Merr., PJS 3 c (1910) Bot. 234; EPFP 2 (1923) 331. –Type: FB 9663 Curran (US\*, iso). Luzon: Quezon prov., Mar 1908.  
LUZON: Quezon. Lowland forests.

**Melicope denhamii** (Seem.) TG Hartley, Sandakania 4 (1994) 57; --TG Hartley in BC Stone, Gard. Bull. Sing. 46 (1994) 130; --*Picrasma denhamii* Seem., Fl. Vit. (1865) 33. --Type from Vanuatu.  
Borneo to S Philippines and Carolines, throughout E Malesia, Solomon Isls, Vanuatu, and Fiji.

**Melicope dubia** (Merr.) TG Hartley, Allertonia 8 (2001) 233; --*Euodia dubia* Merr., Govt. Lab. Publ. (Philip.) 35 (1906) 23; EPFP 2 (1923) 329. –Lectotype, cited by Hartley 2001: Elmer 5992 (NY\*, US\*, isolecto). Luzon: Benguet prov., Baguio, Mar 1904.  
LUZON: Mountain Province, Benguet. Thickets and forests, altitude 1200-2400m.

**Melicope glabella** TG Hartley, Allertonia 8(1) (2001) 228. –Type: BS 79943 Ramos (NY\*, holo; iso: K, MICH, PR). Batanes Isls, Batan Is., Mt Iraya, altitude 2800ft, 30 Apr 1930.  
BATAN: Mt Iraya, altitude c. 850m.

**Melicope latifolia** (DC) TG Hartley, Sandakania 4 (1994) 72; --*Euodia latifolia* DC, Prodr. 1 (1824) 724; --Fern.-Villar, Novis. App. (1880) 34; --Vidal, Sinopsis Atlas (1883) 18, t. 24, Fig. D; Phan. Cuming. Philip. (1885) 100; Rev. Pl. Vasc. Filip. (1886) 74. –Type: *Euodia bintoco* Blanco, Fl. Filip. ed. 2 (1845) 50; --Merr., EPFP 2 (1923) 328. –Neotype: Merrill Sp. Blancoanae 981 (US\*, designated by Hartley 1994; isoneo: US\*).  
*Euodia mindanaensis* Merr., Philip. Bur. Forestry Bull. 1 (1903) 25. –Type: Elmer 13844 (MO\*, NY\*, iso). Mindanao: Agusan del Norte prov., Mt Urdaneta [=Mt Hilong-hilong], Cabadbaran, Sept 1912.  
Peninsular Malaysia, Java, Borneo, Philippines, Papua New Guinea and eastward to Samoa.  
As *E. bintoco*: MINDORO, SIBUTAN, TABLAS, PANAY, BOHOL, LEYTE, BASILAN, MINDANAO. Lowland thickets and secondary forests.

**Melicope laxa** (Elmer) TG Hartley, Allertonia 8 (2001) 192; --*Euodia laxa* Elmer, LPB 4 (1912) 1509; --Merr., EPFP 2 (1923) 329. –Type: Elmer 12562 (BISH\*, L\*, MO\*, NY\*, US\*, iso). Sibuyan: Mt Giting-giting, forested ridge, altitude 1250ft, May 1910.  
SIBUYAN. In forests, altitude c. 375m.

**Melicope lunu-ankenda** (Gaertn.) TG Hartley, Sandakania 4 (1994) 61; --TG Hartley in BC Stone, Gard. Bull. Sing. 46 (1994) 131; --*Euodia luna-ankenda* (Gaertn.) Merr., PJS 7 c (1912) Bot. 378, as 'lunur-ankenda'; --*Fagara luna-ankenda* Gaertn., Fruct. Sem. Pl. 1 (1788) 334, tab. 68, Fig.9.  
–Type from Sri Lanka.  
*Euodia arborea* Elmer, LPB 8 (1915) 2806; --Merr., EPFP 2 (1923) 328. –Type: Elmer 13159 (BISH\*, L\*, NY\*, U\*, US\*, iso). Palawan: Puerto Princesa, "on fertile humid forests at 750ft on the trail to Napsan", May 1911  
Himalayas southwards to Sri Lanka, Peninsular Malaysia, Singapore, Java, SW Philippines, Sulawesi.  
As *E. arborea*: PALAWAN. Lowland forests, altitude c. 225m.

**Melicope mindanaensis** Elmer, LPB 8 (1915) 2809; --Merr., EPFP 2 (1923) 331. –Type: Elmer 13844 (US\*, iso). Mindanao: Agusan del Norte prov., Mt Urdaneta [=Mt Hilonghilong], Sept 1912.  
MINDANAO: Bukidnon, Agusan del Norte. In forests, altitude c. 1350m.

**Melicope mindorensis** TG Hartley, *Allertonia* 8 (2001) 193; --*Euodia monophylla* Merr., *PJS* 4 c (1909) Bot. 269; EPFP 2 (1923) 329, *non* *Melicope monophylla* Merr. (1908). --Type: Merrill 6169 (NY\*, US\*, iso). Mindoro: Mindoro Oriental prov., Mt Halcon, in forests, altitude c. 750m, Nov 1906.  
MINDORO: Mindoro Oriental (Mt Halcon).

**Melicope obtusa** Merr., *Govt. Lab. Publ. (Philip.)* 35 (1906) 24; EPFP 2 (1923) 331. --Type: Elmer 6370 (NY\*, US\*, iso). Luzon: Benguet prov., Baguio, May 1904.  
LUZON: Mountain Province, Benguet. In thickets, altitude 1200-1600m.

**Melicope pergamentacea** (Elmer) TG Hartley, *Allertonia* 8 (2001) 235; --*Euodia pergamentacea* Elmer, *LPB* 2 (1908) 479; --Merr., EPFP 2 (1923) 329. --Type: Elmer 9504 (L\*, MO\*, NY\*, US\*).  
Negros: Negros Oriental prov., Cuernos Mtns, 'in the moss-rainy belt of the summit of the lesser peak at 4500ft', Mar 1908.  
NEGROS: Negros Oriental (Cuernos Mtns). In mossy thickets, altitude c. 1500m.

**Melicope pulgarensis** (Elmer) TG Hartley, *Allertonia* 8 (2001) 198; --*Euodia pulgarensis* Elmer, *LPB* 5 (1913) 1831; --Merr., EPFP 2 (1923) 329. --Type: Elmer 13216 (BISH\*, L\*, MO\*, NY\*, iso).  
Palawan: Palawan prov., Puerto Princesa, Mt Pulgar [=Thumb Peak], May 1911.  
PALAWAN. In thickets, exposed ridges and peaks, altitude c. 1300m.

**Melicope semecarpifolia** (Merr.) TG Hartley, *Fl. Taiwan ed. 2, 3* (1993) 522; --*Euodia semecarpifolia* Merr., *Govt. Lab. Publ. (Philip.)* 35 (1906) 23; EPFP 2 (1923) 329. --Type: Elmer 5868 (NY\*, iso). Luzon: Benguet prov., Baguio, Mar 1904.  
*Euodia retusa* Merr., *PJS* 1 (1906) Suppl. 68; EPFP 2 (1923) 329. --Type: FB 1329 TE Borden (NY\*, US\*, isolecto, designated by Hartley 2001). Luzon: Bataan prov., Mt Mariveles, Lamao River, Jul 1904, Taiwan, Philippines.  
LUZON: Apayao, Abra, Mountain Province, Benguet, Zambales, Bataan, Pampanga, Nueva Ecija, Rizal, Laguna, Quezon, Sorsogon, MINDORO, PANAY. Montane and ridge thickets and forests, altitude 1300-2000m.

**Melicope sessilifoliola** (Merr.) TG Hartley, *Allertonia* 8 (2001) 234; --*Euodia sessilifoliola* Merr., *PJS* 14 (1919) 410; EPFP 2 (1923) 330. --Type: BS 31788 JK Santos (US\*, iso). Luzon: Benguet prov., Pauai, altitude c. 2400m, 22 Apr 1913.  
LUZON: Benguet. Forests, altitude 2000-2400m.

**Melicope triphylla** (Lam.) Merr., *PJS* 7 c (1912) Bot. 375; EPFP 2 (1923) 331; --*Bergera ternata* Blanco, *Fl. Filip.* (1837) 360. --Neotype, designated by Hartley, 2001: Merrill Sp. Blancoanae 16 (US\*, isoneo). Luzon: Benguet prov., in thicket, altitude c. 1000m, 5 May 1914.  
*Euodia laxireta* Merr., *PJS* 9 c (1914) Bot. 295; EPFP 2 (1923) 329. --Type: BS 21407 L Escritor (L\*, NY\*, US\*, iso). Mindanao: Bukidnon prov., 27 Jul 1913.  
*Melicope monophylla* Merr., *PJS* 3 c (1908) Bot. 139; EPFP 2 (1923) 331. --Type: FB 3931 WI Hutchinson (US\*, lecto, designated by Hartley 2001, isolecto: NY\*, US\*). Mindanao: Maguindanao prov., Rio Grande Valley, Kabalokan Hills, in forest, altitude 110ft, 10 Mar 1906.  
*Melicope monophylla* var. *glabra* Elmer, *LPB* 8 (1915) 2810. --Type: Elmer 13897 (BISH\*, L\*, MO\*, NY 2 sheets\*, U\*, US\*). Mindanao: Agusan del Norte prov., Mt Urdaneta [=Mt Hilong-hilong], Cabadbaran, Sept 1912.  
*Melicope densiflora* Merr., *PJS* 5 c (1910) Bot. 182; EPFP 2 (1923) 331. --Syntypes: BS 3235 Mearns; --BS 3603 E Fenix (US\*); --BS 10682 RC McGregor, all the above from Batanes Isls, Batan, Santo Domingo de Basco; --BS 10676 RC McGregor from Sabtan  
*Melicope mindanaensis* Elmer, *LPB* 8 (1915) 2809; --Merr., EPFP 2 (1923) 331. --Type: Elmer 13844 (BISH\*, L\*, U\*, iso). Mindanao: Agusan del Norte prov., Mt Urdaneta [=Mt Hilong-hilong], Cabadbaran, Sept 1912  
*Melicope odorata* Elmer, *LPB* 2 (1908) 476. --Syntypes: Elmer 9529 (L\*, NY\*, US\*). Negros: Negros Oriental prov., Cuernos Mtns, Mar 1908; --Elmer 10432 (L\*, MO\*, NY\*, US\*), same locality as preceding, Jun 1908  
*Melicope nitida* Merr., *PJS* 9 c (1914) Bot. 362; EPFP 2 (1923) 331. --Type: CA Wenzel 822 (US\*, iso).

Leyte: Leyte prov., Buenavista near Jaro, in forests, altitude c. 500m, 7 Jul 1914.  
BATANES, BABUYAN ISLS, N LUZON, PALAWAN, NEGROS: Negros Oriental (Cuernos Mtns), LEYTE, SAMAR, MINDANAO: Maguindanao (Kabalokan Hills), Bukidnon, Agusan del Norte (Mt Hilong-hilong),  
In forests and thickets at low and medium altitude, in Benguet ascending to 2000m, common.

**Melicope villosa** (Merr.) TG Hartley, Allertonia 8 (2001) 236; --*Euodia villosa* Merr., PJS 7 c (1912) Bot. 84; EPFP 2 (1923) 330. --Type: Vanoverbergh 1002 (not seen). Luzon: Mountain Province, Bauco, in forests, altitude c. 1650m, 15 Nov 1910.  
LUZON: Abra, Mountain Province. In forests, altitude 1300-1700m.

**Melicope zambalensis** (Elmer) TG Hartley, Allertonia 8 (2001) 198; --*Euodia zambalensis* Elmer, LPB 9 (1934) 3216. --Type: Elmer 22326 (L\*, MO\*, NY\*, iso). Luzon: Pampanga prov., Mt Pinatubo, Camp Stotsenburg, May 1927.

### Merope M Roemer

**Merope angulata** (Willd.) Swingle, Wash. Acad. Sci. 5 (1915) 423; --Merr., PJS 30 (1926) 399; --Tanaka, Trans. Nat. Hist. Soc. Formosa 22 (1932) 426.  
Burma to Indochina and throughout Malesia.  
TAWI-TAWI. In mangrove. Based on BS 44341 Ramos & Edaño.

### Micromelum Blume

**Micromelum compressum** (Blanco) Merr., Sp. Blancoanae (1918) 200; --*Micromelum tephrocarpum* Turcz., Bull. Soc. Nat. Moscou 31<sup>1</sup> (1858) 379; --Merr., EPFP 2 (1923) 335, *pro syn.* *M. minutum* --Neotype: Merrill Species Blancoanae 884.

#### var. **compressum**

Philippines: Luzon to Palawan and Mindanao.

**var. inodorum** (Blanco) Tanaka, Trans. Nat. Hist. Soc. Formosa 22 (1932) 418; --*Bergera inodora* Blanco, Fl. Filip. (1837) 360. --Type: Cuming 1056. Not located. Neotype: Merrill, Species Blancoanae 719.

*Micromelum molle* Turcz., Bull. Soc. Nat. Moscou 31<sup>1</sup> (1858) 380; --Merr., EPFP 2 (1923) 335, *pro syn.* *M. minutum* --Type:

Philippines; doubtfully reported from Sulawesi by Tanaka (1932: p. 419).

**Micromelum minutum** (G Forst.) Wight & Arn., Prodr. Fl. Pen. Ind. Or. 1 (1834) 93; --*Limonia minuta* G Forst., Prodr. (1786) 33. --Type from NE Australia: Friendly Islands.

*Micromelum glabrescens* Benth. *in* Hook., J. Bot. 2 (1843) 212; --Merr., EPFP 2 (1923) 335, *pro syn.* *M. minutum*.

#### var. **minutum**

Samoa, Tonga, Fiji, New Caledonia, NE Australia, Melanesia, Bismarck Archipelago, New Guinea, Sumbawa, Borneo, Peninsular Malaysia and the Philippines; also Annam (*fide* Tanaka).

**var. curranii** (Elmer) Tanaka, Trans. Nat. Hist. Soc. Formosa 22 (1932) 419; --*Micromelum curranii* Elmer, LPB 2 (1908) 480; --Merr., EPFP 2 (1923) 335. --Type: Elmer 8530 (MO\*, NY\*, US\*, iso).  
Luzon: Benguet prov., Baguio, Mar 1907.

*Micromelum caudatum* Merr., PJS 27 (1925) 26; EPFP 4 (1925) 252. --Type: Loher 13615 (not seen).

LUZON: Mountain Province, Benguet, La Union, Rizal (Montalban), Quezon (Umiray).  
Recorded at altitude 1200-1450m altitude in the Cordillera region of N Luzon.

**var. tomentosum** Tanaka, Trans. Nat. Hist. Soc. Formosa 22 (1932) 419. --Type from Timor.  
Philippines, Timor.  
LUZON, MINDORO.

**Micromelum pubescens** Blume, Bijdr. 3 (1825) 138. --Type from Java.  
Andaman Isls, S Burma, Sumatra, Peninsular Malaysia, Java, Philippines.  
PALAWAN.

Monanthocitrus Tanaka  
(*Wenzelia* Merrill is possibly referable here)

### Murraya Koenig ex Linnaeus

**Murraya crenulata** (Turcz.) Oliver, J. Linn. Soc. 5 (1861) Suppl. 2: 29; --Merr., EPFP 2 (1923) 336;  
--Glycosmis crenulata Turcz. Bull. Soc. Nat. Mosc. 31 (1858) 250. --Type: Cuming 335. (LE, cited  
by Swingle).  
Clausena citriodora Merr., PJS 26 (1925) 458; EPFP 4 (1925) 248. --Type: B Gallardo sn (PNH, holo,  
possibly lost; iso UC). Leyte: Leyte prov., without definite locality, Apr 1923.  
Clausena worcesteri Merr., PJS 5 c (1910) Bot. 180; --Merr., EPFP 2 (1923) 338. --Type: BS 10743  
Worcester (US\*, iso). Luzon: Apayao prov., Taut, Aug 1909  
Murraya sorsogonensis Elmer, *in sched.*  
Murraya globosum Elmer, *in sched.*  
Java, Philippines, Sulawesi, NE Australia, New Caledonia.  
LUZON: La Union, Rizal, Laguna, Sorsogon, LEYTE. Forested slopes at low and  
medium altitudes.

**Murraya exotica** L., Mant. 2 (1771) 563; --Merr., Fl. Manila (1912) 269; EPFP 2 (1923) 336, *pro syn.* M.  
paniculata

**Murraya paniculata** (L.) Jack, Malay Miscel. 1 (1820) 31; --Merr., EPFP 2 (1923) 336.  
India to Malaya, now pantropic in cultivation.  
BATAN and N LUZON to PALAWAN and MINDANAO, in most or all islands and  
provinces, often common. In thickets and secondary forests at low and medium  
altitudes, sometimes planted.

### Paramignya Wight

**Paramignya longipedunculata** Merr., Govt. Lab. Publ. (Philip.) 35 (1906) 24; EPFP 2 (1923) 339.  
--Type: FB 2146 Ahern's Collector (PNH, holo, possibly lost; iso: NY\*, US\*). Luzon: Rizal prov.,  
Bosoboso.  
LUZON: Pampanga, Bataan, Rizal, Laguna, MINDORO. Low and medium altitudes, in  
forested ravines and thickets.  
Common name.—Luzon paramignya.

**Paramygnia mindanaensis** Merr., PJS 3 c (1908) Bot. 140; EPFP 2 (1923) 339. --Type: MS  
duplicate at US\*). Mindanao: Lanao del Sur prov., Lake Lanao, Camp Keithley.  
Paramignya grandiflora *sensu* Tanaka (1932) *non* Wall. ex Oliver, J. Linn. Soc. Lond. 5, suppl. 2 (1861) 42.

Clemens 591 (PNH, holo)

LUZON, SAMAR (fide Tanaka), MINDANAO: Lanao del Sur (Camp Keithley).

**Paramignya trimera** (Oliv.) Burkill, Gard. Bull. S.S. 5 (1931) 213; --*Atalantia trimera* Oliv., J. Linn. Soc. Bot. 5 (1861) 24; --Tanaka, Trans. Nat. Hist. Soc. Formosa 22 (1932) 427. --Type from Timor. NE Australia, Timor, Java and the Philippines: MINDORO, MINDANAO.

“This species of *Paramignya* is an anomalous one and may prove not to belong to this genus. It has, however, recurved spines and a cylindrical gynophore like *Paramignya*. The locule walls seems [*sic*] to have minute hair-like secreting emergences unlike any other member of this genus yet studied”. --Swingle

### **Severinia** Tenore ex Endlicher

**Severinia disticha** (Blanco) Swingle, J. Wash. Ac. Sci. 28 (1938) 533; --*Limonia disticha* Blanco, Fl. Filip. (1837) 356. --Type. Wanting. Substitute type: Merrill Sp. Blancoanae 594.

*Atalantia disticha* (Blanco) Merr., Govt. Lab. Publ. (Philip.) 27 (1905) 28; --Merr., EPFP 2 (1923) 339.

Banguay Is (N of Sabah) and the Philippines.

LUZON (widespread), MINDORO, MASBATE, PANAY, GUIMARAS, NEGROS, CEBU, LEYTE, SAMAR, MINDANAO: Misamis. Often common in low and medium altitude forests, ascending to 1500m in Benguet.

**Common name.**—Philippine box-orange.

**Severinia linearis** (Blanco) Swingle, J. Wash. Acad. Sci. 28 (1938) 533; --*Atalantia linearis* (Blanco)

Merr., PJS 1 (1906) Suppl. 200; EPFP 2 (1923) 340; --*Limonia linearis* Blanco, Fl. Filip. (1837) 357.

--Type. Wanting. --Neotype: Merrill Sp. Blancoanae 746. Luzon: Rizal prov.

LUZON: Bulacan, Rizal, Laguna, Quezon, SAMAR. Along swift running streams subject to flash-flooding during heavy rains.

**Common name.** Narrow-leaf box-orange.

**Severinia paniculata** (Warb.) Swingle, J. Wash. Ac. Sci. 28 (1938) 533; --*Atalantia disticha* var.

*paniculata* Tanaka, J. Arnold Arb. 9 (1928) 141; --*Atalantia paniculata* Warb., Bot. Jahrb. 13 (1891) 340. --Type from Seram.

*Atalantia maritima* Merr., PJS 9 c (1914) Bot. 293; EPFP 2 (1923) 340. --Type:

Biak, Sumbawa, Java, Borneo (Sabah), Philippines, Moluccas (Kei Isls; Seram Laut).

APO (off the W coast of Mindoro), PALAWAN, TICAPO, PANAY, NEGROS, BOHOL, SULU ARCHIPELAGO, MINDANAO: Zamboanga, DINAGAT. Beach forests, borders of mangroves, etc.

**Common name.**—Bouquet box-orange.

**Severinia retusa** (Merr.) Swingle, J. Wash. Acad. Sci. 28 (1938) 533; --*Atalantia retusa* Merr., PJS 1

Suppl. 4 (1906) 200. --Type: BS 3609 Curran (US\*, iso). Palawan: Palawan prov., old clearing, ½ mile E of Puerto Princesa, altitude 20m, 30 Jan 1906.

MINDORO, PALAWAN, PANAY. Low altitude second-growth forests, old clearings, etc.

### **Skimmia** Thunberg

**Skimmia japonica** Thunb., Nov. Gen. (1783) 58; --Merr., PJS 1 (1906) Suppl. 201; 5 c (1910) Bot. 355; EPFP 2 (1923) 334.

China, Taiwan, Japan, N Philippines.

LUZON: Abra, Mountain Province, Benguet. Mossy forests on the higher mountains, altitude 1700-2400m.



## Swinglea Merrill

**Swinglea glutinosa** (Blanco) Merr., J. Arnold Arb. 8 (1927) 131; --Tanaka, Trans. Nat. Hist. Soc. Formosa 22 (1932) 424; --Chaetospermum glutinosum (Blanco) Swingle, J. Wash. Acad. Sci. (1913) 102; --Merr., EPFP 2 (1923) 340; -- Belou glutinosa (Blanco) Skeels, U.S. Dept. Agr. Bur. Pl. Ind. Bul. 162 (1909) 26; --Aegle glutinosa (Blanco) Merr., Govt. Lab. Publ. (Philip.) 6 (1904) 12; Idem. 27 (1905); Fl. Manila (1912) 271; --*Limonia glutinosa* Blanco, Fl. Filip. (1837) 358. --Type: Wanting. Probable Neotype: Merrill, Sp. Blancoanae 607 (US\*, 2 sheets).

LUZON: Isabela to Quezon. Low and medium altitude thickets and secondary forests. Endemic monotypic Philippine genus.

**Common name.**—Tabog or swinglea. **Native name:** Tabog or boyag (in Tagalog language, Philippines).

## Tetractomia Hooker filius

**Tetractomia tetradium** (Roxb.) Merr., J. Straits Br. Roy. As. Soc. 76 (1917) 87; --TG Hartley, J. Arnold Arb. 60 (1979) 132.  
Tetractomia acuminata Merr., PJS 17 (1920) 265; EPFP 2 (1923) 330. --Type: BS 35135 Ramos & Pascasio (not seen). Bucas Grande, 10 Jun 1919.  
Tetractomia pachyphylla Merr., PJS 13 c (1918) Bot. 19; EPFP 2 (1923) 330. --Type: FB 26985 Ponce (US\*, iso). Dinagat: in thin poor soil on semi-open slopes, altitude c. 20m, 22 Jul 1917.  
Tetractomia philippinensis Elmer, LPB 8 (1915) 2813; --Merr., EPFP 2 (1923) 331. --Syntypes: --Elmer 13702 (BISH\*, L\*, MO\*, NA\*, NY\*, U\*). Mindanao: Agusan del Norte prov., Mt Urdaneta [=Mt Hilong-hilong], Cabadbaran, 'on a mossy-jungled ridge at 5500ft of Masay', Sept 1912; --Elmer 13751 (BISH\*, L\*, MO\*, NA\*, NY 2 sheets\*, US\*). Mindanao: Agusan del Norte prov., Mt Urdaneta [=Mt Hilong-hilong], Cabadbaran, 'on a moss-covered ridge at 5750ft of Masay', Sept 1912.  
S Thailand, Sumatra, Peninsular Malaysia, Borneo, Philippines, Sulawesi, Papua New Guinea and the Solomons.  
LEYTE, MINDANAO: Agusan del Norte, Surigao del Norte, BUCAS GRANDE. Lowland forests to exposed ridges to 1600-1700m.

## Tetradium Loureiro

**Tetradium glabrifolium** (Champ. ex Benth.) TG Hartley, Gard. Bull. Sing. 34 (1981) 109; --BC Stone, Gard. Bull. Sing. 46 (1994) 139; --Boymia glabrifolia Champ. ex Benth. in Hook., J. Bot. Kew Gard. Misc. 3 (1851) 330.  
Euodia meliaefolia (Hance) Benth., Fl. Hongkong. (1861) 58; --Merr., EPFP 2 (1923) 329; --Megabotrya meliaefolia Hance ex Walp., Ann. Bot. Syst. 2 (1852) 259.  
Eurycoma dubia Elmer, LPB 2 (1908) 481. --Type: Elmer 10120 (BISH\*, L\*, NY\*, US\*, iso). Negros: Negros Oriental prov., Cuernos Mtns, 'on ridges at 3000ft', May 1908.  
NE India and Sikkim Himalaya to S China and Indochina, Japan, Taiwan, Sumatra, Peninsular Malaysia, and NE to the Philippines.  
LUZON: Benguet, NEGROS: Negros Oriental (Cuernos Mtns). Slopes and forested ridges, altitude 900-1800m.

## Toddalia Jussieu

**Toddalia asiatica** (L.) Lam., Tabl. Encycl. 2 (1793) 116; --Merr., EPFP 2 (1923) 333.

India to S China, Peninsular Malaysia, Philippines.

LUZON: Benguet, Mountain Province, Nueva Vizcaya, Rizal, Laguna, PALAWAN. Low and medium altitude thickets, ascending to 1700m. (Merr., p. 333).

### **Triphasia Loureiro**

**Triphasia grandifolia** Merr., PJS 26 (1925) 458; EPFP 4 (1925) 248. --Type: BS 40822 Ramos (NY\*, US\*, iso). Mindoro: Mindoro Oriental prov., Pinamalayan, In forest at low altitude, 27 May 1922.

MINDORO: Mindoro Oriental (Pinamalayan). Known only from the type locality.

*Common name.*—Unifoliate limeberry.

**Triphasia trifolia** (Burm.f.) P Wilson, Torreyia 9 (1909) 33; --Merr., Fl. Manila (1912) 270; EPFP 2 (1923) 338. --Type from Java.

Widely cultivated in tropical and subtropical regions, in many countries naturalized.

Whether native to SE Asia and Malesia not certain.

Throughout the Philippines in the settled areas, in thickets, in some places gregarious and abundant; apparently introduced.

*Common name.*—Trifoliate limeberry, limeberry, or triphasia.

### **Wenzelia** Merrill (possibly reducible to *Monanthocitrus* Tanaka)

**Wenzelia brevipes** Merr., PJS 10 c (1915) Bot. 273; EPFP 2 (1923) 339. --Type: Wenzel 1116 (US\*, iso). Leyte: Leyte prov., Buenavista near Jaro, in forest, altitude c. 500m, Sept 1914.

#### **var. brevipes**

BOHOL, LEYTE, SAMAR and E MINDANAO: Surigao. Damp forests, ascending to 500m.

*Common name.*—Philippine wenzelia.

**var. alabatensis** Swingle, J. Arnold Arb. 21 (1940) 16. --Type: BS 48054 Ramos and Edaña (A). Alabat.

ALABAT. Known only from the type locality.

### **Zanthoxylum** Linnaeus

#### **Revision:**

TG Hartley, TG. 1966. *A revision of the Malesian species of Zanthoxylum (Rutaceae)*. Journal of the Arnold Arboretum 47: 171-221.

**Zanthoxylum ailanthoides** Sieb. & Zucc., Abh. Akad. Muench. iv. II. (1846) 138.

**BATAN.** (Hatusima, 1966). Check extra-Philippine distribution.

**Zanthoxylum avicennae** (Lam.) DC, Prodr. 1 (1824) 726; --Merr., EPFP 2 (1923) 326.

SE China, Vietnam, Thailand, Java, Lesser Sunda Isls, Borneo, Philippines, Sulawesi and Maluku.

LUZON: Benguet, Zambales, Nueva Ecija, Rizal, Batangas, Camarines, PALAWAN,

MINDANAO: Misamis, Cotabato. In thickets and forests, chiefly at medium altitudes, in Benguet ascending to 2200m.

**Zanthoxylum armatum** DC, Prodr. 1 (1824) 727;  
Zanthoxylum alatum Roxb., Fl. Ind., ed. 2, 3 (1832) 768; --Merr., EPFP 2 (1923) 326.  
As *Z alatum*: India to SE China, N Philippines.  
LUZON: Benguet. On limestone thickets, cliffs and boulders, altitude 1300-1500m.

**Zanthoxylum integrifolium** (Merr.) Merr., EPFP 2 (1923) 326.  
Taiwan (Lanyu) and the Philippines.  
BATAN and N LUZON southward to MINDORO, SIBUYAN and SAMAR. In forests and thickets from sea level to medium altitudes.

**Zanthoxylum limonella** (Dennst.) Alston in Trimen, Handb. Fl. Ceylon, Suppl. 6 (1931) 37.  
Zanthoxylum rhetsa (Roxb.) DC, Prodr. 1 (1824) 728; --Merr., EPFP 2 (1923) 327.  
As *Z rhetsa*: India to Indochina and (?)Peninsular Malaysia.  
N LUZON to PALAWAN and MINDANAO.

**Zanthoxylum myriacanthum** Wall. ex Hook.f., Fl. Brit. Ind. 1 (1875) 496.  
Zanthoxylum diabolicum Elmer, LPB 2 (1908) 477; --Merr., EPFP 2 (1923) 327.  
E India, N Vietnam, SW China, Sumatra, Peninsular Malaysia, Borneo, Philippines.  
LEYTE, SAMAR. Forest at low and medium altitudes, ascending to 1250m.

**Zanthoxylum nitidum** (Roxb.) DC, Prodr. 1 (1824) 727;  
Zanthoxylum torvum F Muell., Fragm. 7 (1871) 140; --Merr., EPFP 2 (1923) 327.  
Java, Philippines, Moluccas, tropical Australia  
LUZON: Isabela, Quezon, LEYTE, MINDANAO: Lanao del Sur. Lowland and medium altitude forests and thickets.

**Zanthoxylum ovalifolium** Wight, Illustr. 1 (1831) 169; --Soejarto et al. (1995) Prelim. Checklist Fl. Pl. Palawan.  
**Extra-Philippine distribution?** PALAWAN: Mt Capoas, *Soejarto, Fernando & Reynoso* 7667 (A, F, PNH)

Non-naturalized:

**Ruta graveolens** L.

Occasionally cultivated in Baguio and elsewhere.