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RAPHIOLEPIDIS ET ERIOBOTRYAE SPECIES SINO-JAPONICAE

T. NAKAI

Raphiolepis Lindley in Bot. Reg. vi. 468 (1820); Collect. 3 (1821).

Folia magis impresso-reticulata.

Folia 10–15 cm. longa, 3–3.5 cm. lata, grosse serrata. Panicula 12 cm. longa.
R. major.

Folia vix 8 cm. longa, non grosse serrata. Panicula brevis, circiter 2–3 cm. longa.
R. rugosa.

Folia plana vel venis impressis sed non distincte rugosa.

Rami robusti. Poma vulgo circiter 10 mm. lata.

Frutex regionum calidiarum incola, ramis erectis vel ascendentibus. *Folia* oblonga vel obovato-oblonga, integerrima vel crenata....*R. integerrima.*

Frutex regionum temperatarum incola, ramis divaricatis. *Folia* late obovata vel obovata vel fere rotundata.

Folia obovata vel oblongo-obovata, plus minus crenato-dentata.

R. umbellata.

Folia obovata vel late obovata vel fere rotundata, integra vel crenato-dentata.....*R. umbellata* f. *ovata.*

Rami graciles. Poma vix 8 mm. lata.

Frutex ramis erectis vel ascendentibus, fastigiatus vel fusiformis. *Folia* oblanceolata plus minusve elongata.....*R. liukiensis.*

Frutex plus divaricatus. Rami graciliores.

Folia salicaria. Petala lanceolata.*R. salicifolia.*

Folia non salicaria, latiora.

Rami gracillimi. *Folia* parva, oblanceolato-oblonga, supra venis impressis. Inflorescentia multiflora. Poma vix 5 mm. lata...*R. gracilis.*

Rami gracilis. *Folia* varia. Poma 5–8 mm. lata.

Folia vulgo in apice rami conferta.

Bracteae spirales.....*R. indica* var. *spiralis.*

Bracteae non spirales.

Inflorescentia racemosa vel subracemosa.

Petala obovata; stamina brevissima.....*R. indica* var. *typica.*

Petala lanceolata; stamina elongata..*R. indica* var. *phaeostemon.*

Inflorescentia corymbosa.

Petala lanceolata.....*R. indica* var. *crataegoides.*

Petala obovata vel ovata.....*R. indica* var. *Tashiroi.*

Folia vulgo sparsa.

Petala lanceolata. *Folia* latiora.

Inflorescentia bracteata.....*R. rubra* var. *typica.*

Inflorescentia foliosa.....*R. rubra* var. *foliosa.*

Petala ovata vel obovata.

Folia lanceolata.....*R. rubra* var. *lanceolata.*

Folia latiora.....*R. rubra* var. *minor.*

Raphiolepis major Cardot in Lecomte, Not. Syst. III. 380 (1918).

Raphiolepis indica var. *grandifolia* Franchet in Bull. Soc. Bot. France, XLVI. 207 (1899).

CHINA: Prov. Fokien, monte Kuantun.

Raphiolepis rugosa Nakai, sp. nov.

Frutex 0.5–1 m. altus (fide lectoris). Rami annotini glabrescentes. Folia in apice rami conferta, juvenilia rufo-pilosa, glabrescentia; petioli 2–3 mm. longi; lamina oblonga utrinque attenuata, glaberrima, supra venis impressis rugosa, infra pallida venis elevatis, margine subargute serrata, 3–6 cm. longa, 1.7–2.7 cm. lata. Racemus brevissimus, ferrugineo-tomentosus, pauciflorus; bracteae et bracteolae deciduae; flores bibracteolati; calycis tubus lobique ferrugineo-tomentosus, 5 mm. longus, apice subito amplicatus, lobi ovato-acuminati, apice glabri, 4 mm. longi; petala alba, obovata, apice carinata mucronata reflexa, margine denticulata, infra medium integra fimbriato-barbata, 7 mm. longa; stamina purpurea, corollae fere aequilonga, antherae rotundatae albae; styli 2 staminibus infimis brevissimis paulo breviores, glaberrimi.

CHINA: prov. Kiangsi, Woo Kung Shan, *H. H. Hu*, no. 711.

Raphiolepis integerrima Hooker & Arnott, Bot. Beechey Voy. 263 (1837–1840).—Walpers, Repert. II. 57 (1843).—Roemer, Syn. Monog. III. 114 (1847).

Raphiolepis Mertensii Siebold & Zuccarini, Fl. Jap. I. 164 in nota (1841); in Abh. Akad. Muench. IV. 2, 130 (Flor. Jap. Fam. Nat. I. 22) (1845).—Walpers, Rep. II. 57 (1843).—Roemer, Syn. Monog. III. 114 (1847).

Raphiolepis japonica var. *integerrima* Maximowicz in Bull. Acad. Sci. St. Pétersb. XIX. 181 (1877), pro parte; in Mém. Biol. IX. 181 (1870), pro parte.—Yatabe, Icon. Fl. Jap. II. pt. 2, 89 (1892), pro parte.—Non Hooker f.

Raphiolepis japonica A. Gray in Mem. Am. Acad. n. ser. VI. 387 (1859), pro parte.—Non Siebold & Zuccarini.

Raphiolepis umbellata var. *Mertensii* Makino in Tokyo Bot. Mag. XVI. 14 (1902), pro parte.—Koidzumi in Jour. Coll. Sci. Tokyo XXXIV. art. 2, 72. (Consp. Rosac. Jap.) (1913), pro parte.—Matsumura, Ind. Pl. Jap. II. pt. 2, 223 (1912), pro parte.

Opa integerrima Seemann in Jour. Bot. I. 281 (1863).

Opa Mertensii Seemann, l. c.

BONIN: insula Chichijima, *H. Otomo*, *E. H. Wilson*, no. 8220, *Gonzales*.

FORMOSA: Botel Tobago, *S. Sasaki*.

This is a tree with ascending or upright branches though it becomes low and shrubby on wind-swept rocks. Unlike *Raphiolepis umbellata* it is not hardy in Tokyo and is easily distinguished from it by the mode of branching and by its leaves. The wood is hard and durable. The discovery of this species in Botel Tobago is interesting.

Raphiolepis umbellata Makino in Tokyo Bot. Mag. XVI. 13 (1902).—Schneider, Ill. Handb. Laubholz. I. 705, fig. 390 h–i, fig. 391 i (1906).—Fedde, Rep. Sp. Nov. III. 152 (1907).—Matsumura, Ind. Pl. Jap. II.

pt. 2, 222 (1912), pro parte.—Koidzumi in Jour. Coll. Sci. Tokyo, xxxiv. art. 2, 71 (Consp. Rosac. Jap.) (1913), pro parte.

Laurus umbellata Thunberg, Fl. Jap. 175 (1784).

Mespilus Sieboldii Blume, Bijdr. 1122 (1826).

Photinia Sieboldii G. Don, Gen. Syst. ii. 602 (1832).

Raphiolepis japonica Siebold & Zuccarini, Fl. Jap. i. 162, t. 75 (1841); in Abh.

Akad. Muench. iv. 2, 130 (Fl. Jap. Fam. Nat. i. 22) (1845).—Roemer, Syn.

Monog. iii. 114 (1847).—K. Koch in Ann. Mus. Lugd.-Bat. i. 250 (1863).—

Miquel in Ann. Mus. Lugd.-Bat. iii. 41 (Prol. Fl. Jap. 229) (1867).—

Wenzig in Linnaea, xxxviii. 104 (1874).—Decaisne in Nouv. Arch. Mus.

Paris, x. 133 (1874), pro parte.—Engler & Maximowicz in Bot. Jahrb. vi.

63 (1885).—Yatabe, Icon. Fl. Jap. i. pt. 2, 89 t. 25 (1892), pro parte.

Opa japonica Seemann in Jour. Bot. i. 281 (1863).

Raphiolepis Sieboldii Hasskarl in Hoeven & De Vries, Tijdschr. x. 196 (1843).

Banks, Icon. Kaempfer, t. 56 (1791), sine nomine.

KYUSHU: prov. Osumi, mt. Kirishima, *Z. Tashiro*; insl. Tanegashima, *E. H. Wilson*.

The branches of this species are more robust and more spreading than those of *Raphiolepis integerrima*, and the leaves are thicker and broader. This is hardy in Tokyo and is an important plant in Japanese landscape gardening.

Raphiolepis umbellata f. *ovata* Schneider, Ill. Handb. Laubholz.

iii. 706. fig. 291. k (1906).—Fedde, Rep. Sp. Nov. iii. 152 (1907).

Raphiolepis japonica var. *integerrima* Hooker f. in Bot. Mag. xci. t. 5510

(1865), excl. syn.—Maximowicz in Bull. Acad. Sci. St. Pétersb. xix. 181

(1873), pro parte; in Mém. Biol. ix. 181 (1873), pro parte.

Raphiolepis ovata Briot in Rev. Hort. 1870, 348. fig. 52.

Raphiolepis umbellata var. *Mertensii* Makino in Tokyo Bot. Mag. xiv. 14

(1902), pro parte.—Matsumura, Ind. Pl. Jap. ii. pt. 2, 222 (1912), pro

parte.—Koidzumi in Jour. Coll. Sci. Tokyo xxxiv. art. 2, 72 (Consp. Rosac.

Jap.) (1913), pro parte.

Raphiolepis japonica A. Gray in Perry Narr. Exp. China Jap. 311 (1856); in

Mem. Am. Acad. n. ser. vi. 387 (1859), pro parte.—Non Siebold & Zuc-

carini.

Raphiolepis Mertensii var. *ovata* Nakai in Tokyo Bot. Mag. xxx. 22 (1916);

Fl. Sylv. Kor. vi. 22, pl. 9 (1916).

Folia latiora quam in forma typica, integerrima vel rarius indistincte serrata.

HONDO: prov. Idzu, Shimoda, *Williams & Morrow*; ibidem, *C. Wright*; insula Hachijyo, *E. H. Wilson*, no. 8390; prov. Sagami, Kamakura, *E. H. Wilson*, no. 6625.

KYUSHU: prov. Osumi, insl. Tanegashima, *H. Sakurai*.

QUELPAERT: in littorale, *E. Taquet*, no. 5541.

KOREA: prov. Keisho austr., insl. Zetsueito, *T. Uchiyama*.

Raphiolepis liukiensis Nakai, sp. nov.

Raphiolepis umbellata var. *liukiensis* Koidzumi in Jour. Coll. Sci. Tokyo,

xxxiv. art. 2, 73 (Consp. Rosac. Jap.) (1913).—Nakai in Tokyo Bot. Mag.

xxx. 21 (1916); Fl. Sylv. Kor. vi. 31, pl. 8 (1916).

Raphiolepis japonica Maximowicz in Bull. Acad. Sci. St. Pétersb. xix. 183

(1873), pro parte; in Mém. Biol. ix. 181 (1873), pro parte.—Decaisne in

Nouv. Arch. Mus. Paris, x. 133. (1874), pro parte—Engler & Maximowicz

in Bot. Jahrb. vi. 63 (1885), pro parte.—Ito et Matsumura in Jour. Coll. Sci. Tokyo, xii. 191 (Tent. Fl. Lutch.) (1899).—Non Siebold & Zuccarini. *Raphiolepis umbellata* Nakai in Tokyo Bot. Mag. xxvi. 95 (1912); Report Veget. Isl. Quelpaert, 53 (1914); Report Veget. Isl. Wangto, 8 (1914); Chosenshokubutsu i. 290, f. 343, a. (1914).—Non Makino.

Frutex vel arbor usque 10 m. altus erectus, sed in rupibus ubi ventis perpetuis expositus nanus, ramosissimus. Rami rubro-purpurascens glaberrimi, vetusti cinerei. Folia distincte petiolata; petioli rubescentes, 2–20 mm. longi in parte superiore saepe decurrenti-alati; lamina lineari-oblonga vel oblanceolata, 4–11 cm. longa et 1–4.7 mm. lata, margine leviter crenato-serrata, apice obtusa vel acuta vel subacuminata, supra glabra lucida, infra pallida opaca costis prominentibus sed venis in viva obscuris; folia juvenilia pilis fuscescentibus caducissimis oblecta, aestivatione convoluta. Inflorescentia in apice rami annotini terminalis corymboso-racemosa primo pilis fuscescentibus caducis oblecta sed mox glabrescens; bracteae bracteolaeque lanceolatae 3–7 mm. longae, acuminatae, caducae; calycis tubus glaber vel rufo-pilosus, lobi lanceolati vel lineari-lanceolati vel latiores, intus pilosi, 3–5 mm. longi, apice acutissimi vel aristati, petala alba, oblonga vel subrotundata, acuminata vel obtusa, 8–10 mm. longa; stamina calycis lobis longiora vel breviora, antherae atro-purpureae; styli 2, stamina superantes. Fructus globosus vel ovoideus, apice cicatrice calycis umbilicatus, 8 mm. longus, niger.

QUELPAERT: in rupibus littoris, *U. Faurie*, Nos. 1562 (type), 1563, 552; in rupibus Hioton, *E. Taquet*, no. 2808; in parva insula Tyi-gito, *E. Taquet*, no. 2807; in rupibus littoris Syekeui, *E. Taquet*, no. 743; in rupibus insulae Saiseum, *E. Taquet*, no. 742.

KOREA: Mokpo, *H. Ueki*.

FORMOSA: Hiiranzan, *R. Kanehira*, no. 21.

LIUKIU: Okinawa Isl., in silvis circa Nago, *E. H. Wilson*, no. 8173.

KYUSHU: Isl. Sakurajima, *U. Faurie*, no. 3848.

I have collected this species also on the island of Wangto, on the islands Chinto, Chito and Hokitsuto, in Quelpaert and Kainan peninsula of Korea. Two sterile specimens from Liukiu, communicated by the Yokohama Nursery Co., are in the herbarium of the Arnold Arboretum. They have linear-lanceolate leaves tapering at both ends, and may represent a distinct variety.

Raphiolepis salicifolia Lindley, Collect., in nota sub tab. 3 (1821).—Ker in Bot. Reg. viii. t. 652 (1822).—De Candolle, Prodr. ii. 630 (1825).—G. Don, Gen. Syst. iii. 602 (1832).—Spach, Hist. Vég. ii. 79 (1834).—Roemer, Syn. Monog. iii. 114 (1847).—Decaisne in Nouv. Arch. Mus. Paris, x. 133 (1874).—Wenzig in Linnaea, xxxviii, 103 (1874).

Raphiolepis indica Lindley var. *angustifolia* Cardot in Lecomte, Not. Syst. iii. 380 (1918).

CHINA ET ANNAM.

Raphiolepis gracilis Nakai, sp. nov.

Frutex 2–3-metralis, ramosissimus (fide lectoris). Rami graciles, glaber-

rimi. Petioli 3–5 mm. longi, apice alati et sensim in laminam transientes; lamina oblonga vel lanceolata, 15–43 mm. longa et 5–17 mm. lata, glaberrima, supra leviter convexa, venis et costis impressis, infra leviter concava, venis costisque elevata, margine crenato-serrata. Flores ignoti. Infructescentia paniculata, ambitu ovata, 25–50 mm. longa, glaberrima; poma globosa, vix 5 mm. lata, apice umbilicata.

CHINA: prov. Chekiang, S. Yentang, *H. H. Hu*, Nos. 228, 220.

The collector states that this species grows in the open places and is very common in the locality cited. This seems to be an entirely glabrous plant, for the specimens collected in August bear still unfolding young leaves at the end of branches which are quite glabrous.

Raphiolepis indica Lindley apud Ker in Bot. Reg. vi. 465 (1820), descript. & tab. excl.—De Candolle, Prodr. ii. 630 (1825).—G. Don, Gen. Syst. ii. 601 (1832).—Spach, Hist. Vég. ii. 79 (1834).—Maximowicz in Bull. Acad. Sci. St. Pétersb. xix. 180 (1873), excl. syn. *R. salicifolia*; in Mém. Biol. ix. 181 (1873), excl. syn. *R. salicifolia*.—Wenzig in Linnaea, xxxviii. 101 (1874).—Decaisne in Nouv. Arch. Mus. Paris, x. 132 (1874).—Dunn et Tutchter in Kew Bull. Misc. Inform. add. ser. x. 97 (Fl. Kwangtung & Hongkong) (1912).

Crataegus indica Linnaeus, Spec. 477 (1753).—Willdenow, Spec. ii. 1005 (1779).—Loureiro, Fl. Cochinch. 319 (1790).—Sims in Bot. Mag. xli, t. 1726 (1815).—Schrank, Pl. Rar. Hort. Acad. Monac. ii. t. 60 (1819).

Opa Metrosideros Loureiro, Fl. Cochinch. 309 (1790), excl. syn.—Seemann in Jour. Bot. i. 280 (1863).

Raphiolepis indica is not a native of India but is widely distributed in China and Cochinchina where there are many varieties and forms. Owing to its polygamy the stamens are longer or shorter than the calyxlobes or equal to them in length. The petals are roundish or acute at the apex. The serration and broadness of the leaves are individually different.

Raphiolepis indica var. *typica* Nakai.

Inflorescentia racemosa vel subracemosa; petala obovata; stamina brevissima.

CHINA.

Raphiolepis indica var. *spiralis* Nakai, var. nov.

Raphiolepis spiralis G. Don, Gen. Syst. ii. 602 (1832).—Walpers, Rep. ii. 57 (1843).—Roemer, Syn. Monog. iii. 113 (1847).

Mespilus spiralis Blume, Bijdr. 1102 (1826).

Crataegus spiralis Steudel, Nomencl. ed. 2. i. 434 (1841).

Opa spiralis Seemann in Jour. Bot. i. 281 (1863).

Folia cuneato-oblonga, serrata. Flores racemosi; bracteae spirales.

CHINA.

Raphiolepis indica var. *phaeostemon* Nakai.

Raphiolepis indica Ker in Bot. Reg. vi. 465 (1820), excl. syn. *Crataegus indica*.—Sprengel, Syst. Veg. ii. 508 (1825). Non Lindley.

Raphiolepis phaeostemon Lindley, Collect., in nota sub tab. 3 (1821).—De

Candolle, Prodr. II. 630 (1825).—G. Don, Gen. Syst. II. 601 (1832).—Spach, Hist. Vég. II. 79 (1834).

Raphiolepis pheostemonia Saint-Lager in Ann. Soc. Bot. Lyon, VII. 133 (1880).

Folia lanceolata v. ovato-lanceolata serrata. Inflorescentia fere racemosa. Petala lanceolata. Stamina elongata.

CHINA.

Raphiolepis indica var. *crataegoides* Nakai, var. nov.

Raphiolepis crataegoides Roemer, Syn. Monog. III. 113 (1847), excl. syn.

Inflorescentia corymbosa; petala lanceolata.

CHINA.

Roemer referred Linné's *Crataegus indica* here, but there is no testimony that this plant had lanceolate petals. Linnaeus says "Corymbis squamosis" but nothing about the shape of petals. Loureiro says "Petala 5, subrotunda." Roemer's conception may have been induced from the remarks of Ker under *Raphiolepis salicifolia* in Botanical Register, tab. 652. Lindley thought that Linnaeus's *Crataegus indica* was the same as Loureiro's plant which has roundish petals. This may or may not be so but the shape of the petals is not a specific character, and both Ker's and Lindley's plant belong to *Raphiolepis indica* or *Crataegus indica*.

Raphiolepis indica var. *Tashiroi* Hayata in Jour. Coll. Sci. Tokyo, XXII. 129, (Enum. Pl. Formos.) (1906).

Crataegus indica Loureiro Fl. Cochinch. 319 (1790).

Raphiolepis sinensis Roemer, Syn. Monog. III. 104 (1847).

Raphiolepis indica Hayata, Icon. Pl. Formos. I. 248 (1911).—Koidzumi in Tokyo Bot. Mag. XXIII. 171 (1919); in Jour. Coll. Sci. Tokyo, XXXIV. art. 2, 71 (Consp. Rosac. Jap.) (1913).

Raphiolepis umbellata Matsumura, Ind. Pl. Jap. II. pt. 2, 222 (1912), pro parte.—Koidzumi in Jour. Coll. Sci. Tokyo, XXXIV. art. 2, 71 (1913), pro parte.—Non Makino.

Folia cuneiformi-ovata. Petala ovata vel obovata.

CHINA ET FORMOSA.

Raphiolepis rubra Lindley, Collect. tab. 3 (1821).—De Candolle, Prodr. II. 630 (1825).—G. Don, Gen. Syst. II. 601 (1832).—Lindley in Bot. Reg. XVII. t. 1407 (1831).—Roemer, Syn. Monog. III. 114 (1847).

Crataegus rubra Loureiro, Fl. Cochinch. 319 (1790).

Mespilus sinensis Poiret, Encycl. Méth. Suppl. IV. 70 (1816).

Folia secus ramos plus minus sparsim disposita.

Raphiolepis rubra var. *typica* Nakai.

Folia ovata vel elliptica. Stamina calycis lobis breviora vel eos superantia; petala lanceolata.

CHINA AUSTR. ET COCHINCHINA.

Raphiolepis rubra var. *foliosa* Nakai, var. nov.

Crataegus sinensis Loiseleur-Deslongchamps, Herb. Gén. Amat. IV. 247, t. (1820).

Inflorescentia foliosa. Cetera ut antea.

CHINA.

Raphiolepis rubra var. **lanceolata** Nakai, var. nov.

Raphiolepis Loureiri Sprengel, Syst. Veg. II. 508 (1825), excl. syn.—Roemer Syn. Monog. III. 114 (1847), excl. syn.

Folia lanceolata. Petala ovata vel subrotundata.

Sprengel considered this to be the *Crataegus indica* of Loureiro and wrote that this species had lanceolate leaves and Roemer followed him, but Loureiro's description—"Folia cuneiformi-ovalia—apice ovata basi attenuata"—shows that this (his) type is different and belongs to *Raphiolepis indica*.

CHINA?

Raphiolepis rubra var. **minor** Nakai, comb. nov.

Raphiolepis umbellata var. *minor* Makino in Tokyo Bot. Mag. XVI. 14 (1902).

Raphiolepis minor Koidzumi in Tokyo Bot. Mag. XXIII. 171 (1907); in Jour.

Coll. Sci. Tokyo, XXXIV. art. 2, 73 (Consp. Rosac. Jap.) (1913).

Inflorescentia contracta; petala obtusa.

This is known only in Japanese gardens, especially in temple grounds near Kyoto. I suspect that it was brought from China as *Ginkgo biloba*, *Magnolia denudata*, *Magnolia liliiflora*, *Forsythia suspensa* and other plants have been, but the history is unknown. It is strange that this form only was introduced into Japan when there are so many varieties of both *Raphiolepis indica* and *R. rubra* in China.

Plantae mihi ignotae:

1. *Raphiolepis indica* var. *latifolia* Cardot in Lecomte, Not. Syst. III. 380 (1818).

2. *Raphiolepis indica* var. *mekongensis* Cardot l. c.

Berthold Seemann adopted *Opa* as the generic name of *Raphiolepis* for reason of its priority. *Opa* includes two species: *Opa odorata* Loureiro which is *Eugenia Millettiana* Hemsley and *Opa Metrosideros* Loureiro which is *Raphiolepis indica*. The type specimens are said to be in the British Museum. From the generic description of *Opa* "calyx lacinis rotundatis, petala subrotunda, filamenta corolla duplo longiora," we can readily understand that it was based on both plants. Now *Opa odorata* is the first species, so we must take it for the type of the genus. The generic name *Opa* is thus a synonym of *Eugenia* (or *Szygium* in a restricted sense) partly and that of *Raphiolepis* partly.

Eriobotrya Lindley in Trans. Linn. Soc. XII. 102 (1822).

Folia adulta subtus pilosa vel tomentosa, juvenilia pilis longioribus tomentosa.

Inflorescentia calyce excepto glabra, ampla. Flores distincte pedicellati, ita inflorescentia laxiflora. Folia oblanceolata cum petiolis 10–22 cm. longa

adulta subtus tantum pilis fusciscentibus pilosella. Fructus rubri. E. Bracklei.

Inflorescentia tomentosa, ampla. Flores sessiles vel subsessiles, ita inflorescentia densiflora. Fructus flavi.

Folia vulgo lanceolata vel oblanceolata, adulta infra tomentosa. Calyx 6–8 mm. longus. Fructus 2–5 cm. longi. E. japonica.

Folia vulgo oblonga vel elliptica, adulta infra subglabrescentia. Calyx circiter 5 mm. longus. Fructus vix 1 cm. longus.

Folia obovata. Petala obovata integra; styli 3. E. obovata.

Folia oblonga vel elliptica. Petala emarginata bifida; styli 2. E. prinoides.

Folia adulta subtus glaberrima, juvenilia saepe rufo- vel rufescenti-lanata.

Folia maxima vix 10 cm. longa.

Inflorescentia laxa quam 5 cm. longior.

Folia initio rubiginoso-tomentosa, oblanceolata, obtuse acuminata.

E. luzoniensis.

Folia ab initio glaberrima obtusa vel oblongo-lanceolata, minute crenata.

E. oblongifolia.

Inflorescentia contracta vix 5 cm. longa.

Folia obovato-oblonga, obtusata vel obtuse acuminata, cum petiolo 3-6 cm.

longa et 1.2-2 cm. lata. *E. pseudo-Raphiolepis.*

Folia lineari-oblonga vel oblanceolata vel lanceolata, acuminata vel attenuata,

cum petiolo 3-9 cm. longa et 1-2.5 cm. lata. *E. Henryi.*

Folia vulgo quam 10 cm. longiora.

Flores omnes sessiles ita in apice ramorum inflorescentia glomerata. Fructus

sessiles. Folia late oblanceolata vel oblongo-obovata.

Folia 4-11 cm. lata. *E. bengalensis.*

Folia 2.5-3.5 cm. lata. *E. bengalensis* var. *angustifolia.*

Flores partim distincte pedicellati. Fructus stipitati.

Flores parvi, calyce 3-6 mm. longo. Folia juvenilia rufa.

Inflorescentia contracta 3-4 cm. longa, fusciscenti-pilosa vel glabrescens;

calyx circiter 6 mm. longus. Folia lineari-oblonga vel obovata vel

lanceolata, crenato-serrata vel subintegra. *E. buisanensis.*

Inflorescentia quam 5 cm. longior, rufa. Folia oblanceolata.

Panicula elongata, 15 cm. longa. Folia oblongo-obovata.

E. tengyuehensis.

Panicula quam 10 cm. brevior. Folia oblanceolata.

Folia fere integra rarius apice dentata. Calyx 3-4 mm. longus.

E. philippinensis.

Folia grosse crenato-serrata. Calyx 5-6 mm. longus.

E. acuminatissima.

Flores magni, calyce 7-9 mm. longo.

Folia apice indistincte serrata. Inflorescentia rufa. *E. fragrans.*

Folia toto vel fere tota serrata. Inflorescentia rufescenti-lanata.

Inflorescentia calyce excepto glabra. *E. Brackloi* var. *atrichophylla.*

Inflorescentia rufescenti-lanata.

Folia tota grosse serrata. *E. deflexa.*

Folia fere tota crenato-serrata. *E. deflexa* var. *grandiflora.*

Eriobotrya Brackloi Handel-Mazzetti in Anzeiger Akad. Wiss. Wien, No. XII. (Pl. Nov. Sin. Fortsetz. 16, p. 2) (1922).

CHINA: prov. Kwantung; jugo Tsatmukngao prope oppidum Lienping ad bor.-orient. urbis Kwangtung, 800 m., *Rud. Mell*, No. 659.

Eriobotrya Brackloi var. *atrichophylla* Handel-Mazzetti, l. c.

CHINA: prov. Hunan austr.-occid.; in monte Yun-schan prope urbem Wukang, in silva elata frondosa umbrosa, 1300 m., *H. Handel-Mazzetti*, Nos. 12032, 12060.

Eriobotrya prinoides Rehder & Wilson in Sargent, Pl. Wilson. I. 194 (1912).—Schneider, Ill. Handb. Laubholzk. II. 999 (1912).

Eriobotrya bengalensis Dunn in Jour. Linn. Soc. XXXIX. 446 (1911).—Non Hooker f.

CHINA: prov. Yunnan, *A. Henry*, no. 9878; silvis Tsin siang cheou prope Peyentsin, *Simeon Ten*, no. 13; inter Siao makai et Schinlung, Yunnan fu, septent. versus, *C. Schneider*, no. 4047; prov. Szechuan, Tung Valley, *E. H. Wilson*, no. 3507.

Eriobotrya japonica Lindley in Trans. Linn. Soc. XIII. 102 (1822).—De Candolle, Prodr. II. 631 (1825).—Blume, Bijdr. 1103 (1826).—G. Don, Gen. Syst. II. 602 (1832).—Spach, Hist. Vég. II. 81 (1834).—Wight, Icon. Pl. Ind. Or. I. t. 222 (1840).—Siebold & Zuccarini, Fl. Jap. I. 182, t. 97 (1841); in Abh. Akad. Muench. IV. 2, 131 (Fl. Jap. Fam. Nat. I. 23) (1846).—Roemer, Syn. Monog. III. 147 (1847).—K. Koch in Ann. Mus. Lugd.-Bat. I. 250 (1863).—Miquel in Ann. Mus. Lugd.-Bat. III. 41, 208; Prol. Fl. Jap. 229, 372 (1867).—Maximowicz in Bull. Acad. Sci. St. Pétersb. XIX. 177 (1873); in Mém. Biol. IX. 175 (1873).—Wenzig in Linnaea, XXXVIII. 98 (1874).—Decaisne in Nouv. Arch. Mus. Paris, X. 145 (1874).—Hemsley in Jour. Linn. Soc. XXIII. 261 (1886).—Pritzel in Bot. Jahrb. XXIX. 388 (Fl. Centr. Chin.) (1900).—Matsumura & Hayata in Jour. Coll. Sci. Tokyo, XXII. 129 (Enum. Pl. Formos.) (1906).—Brandis, Ind. Trees, II. 290 (1906).—Schneider, Ill. Handb. Laubholzk. I. 711, fig. 386 a, 394 a-b (1906).—Hayata, Icon. Pl. Formos. I. 248 (1911).—Rehder & Wilson in Sargent, Pl. Wilson. I. 193 (1912).—Rehder in Bailey, Stand. Cycl. Hort. II. 1134 (1914).—Bean, Trees & Shrubs Brit. Isles, I. 525 (1914).—Nakai in Tokyo Bot. Mag. XXX. 18 (1916).

Pipa Boym, Fl. Sin. J, fig. [8] (1656).

Mespilus japonica Thunberg, Fl. Jap. 206 (1784).—Vitman, Summa Pl. III. 230 (1789).—Banks, Icon. Kaempfer, t. 19 (1791).—Willdenow, Spec. II. pt. 2, 1010 (1799).—Ventenat, Jard. Malmaison Pl. 19 (1803).—Jacquin, Fragm. Bot. 85, t. 136, f. 2. (1809).—Poiret in Nouv. Duhamel, ed. 2, IV. 147, t. 39 (1809).—Ker in Bot. Reg. v. t. 365 (1819).—Loiseleur-Deslongchamps, Herb. Gén. Amat. IV. 229, t. (1820).—Bagot in Trans. Hort. Soc. III. 299, t. 40 (1820); in Allg. Deutsch. Gart.-Mag. VII. 238, t. 16 (1823).—Sprengel, Syst. Veg. II. 505 (1825).—Geel, Sert. Bot. III. t. (1831).

Crataegus Bibas Loureiro, Fl. Cochinch. 391 (1793).

CHINA: Hupeh, Ichang, *E. H. Wilson*, no. 3000, ibidem, *A. Henry*, no. 5343, Hunan; prope urbem Tschangsha culta, *H. Handel-Mazzetti*, no. 471. Kwangtung, Liu Dist., *C. O. Levine*, no. 3317; prope Canton, *C. O. Levine*, no. 1932. Szechuan, inter Te chang et Huanglien po, *C. Schneider*, no. 810. Kweichow, prope urbem Kutschou in silvis, *H. Handel-Mazzetti*, no. 10892.

This is widely cultivated throughout the warmer regions of both China and Japan. It is a common wild plant on cliffs round Ichang and elsewhere in central China; also it is wild in Japan on cliffs and mountains, especially where lime-stone prevails as in prov. Bungo, prov. Nagato, prov. Tosa.

Eriobotrya obovata W. W. Smith in Notes Bot. Gard. Edinb. x. 29 (1917).

CHINA: Yunnan, circa Yunnan fu, *E. E. Maire*, no. 2450.

Eriobotrya luzoniensis Nakai, comb. nov.

Photinia luzoniensis Merrill in Philipp. Bur. Governm. Labor. Bull. XVII. 18 (1904); in Philipp. Jour. Sci. I. 60 (1906); II. 276 (1907).

PHILIPPINES: Isl. Luzon, mt. Mariveles, prov. Bataan, *T. E. Borden*, no. 269.

Eriobotrya oblongifolia Merrill & Rolfe in Philipp. Jour. Sci. III. 102 (1908).

PHILIPPINES: Isl. Mindanao, mt. Malindang, prov. Misamis, *Mearns & Hutchinson*, No. 4680.

Eriobotrya pseudo-Raphiolepis Cardot in Lecomte, Not. Syst. III. 371 (1918).

CHINA: Kweichow; prope Ou-k-gay et Hoang-ko-chou, *Sequin & Bodinier*, nos. 2262, 2617.

Eriobotrya Henryi Nakai, sp. nov.

Frutex vel arbor 1-7-metralis (fide Henry); rami adulti cinerei, glabrescentes, juveniles tomentosi. Folia juvenilia rufo-tomentosa, glabrescentia; petioli 5-11 mm. longi, subglabrescentes sed saepe pilis emortuis atratis obtecti; lamina lineari-oblonga vel oblanceolata vel lanceolata, 3-8.3 cm. longa et 7-27 mm. lata, serrata, utrinque acuminata vel attenuata, supra lucida. Inflorescentia rubiginoso-tomentosa, dense corymboso-racemosa, 2.5-4.5 cm. longa; bracteae et bracteolae fuscae, deciduae; flores brevipedicellati; calyx oblongus vel obovoideus, rubiginoso-tomentosus, tubo 2-3 mm. longo, lobis lanceolatis 2.5 mm. longis dorso glabro excepto rubiginoso-tomentosis; petala alba, obovata, obtusa vel acuta, integra vel dentata, 7-8 mm. longa; stamina 10, petalis breviora, longissima 6 mm. longa; antherae rotundatae; styli 2, stamina paulo superantes; ovarium 2-loculare. Infructescentia ferrugineo-tomentosa; poma 1-sperma, ovoidea, 7-9 mm. longa, calyce persistente reflexo coronata, rubra esse videntur, glabra; semina magna, testa membranacea; cotyledones magis incrassati hemisphaerici.

CHINA: Yunnan; Szemao, *A. Henry*, nos. 13018, 11644, 11644A.

Eriobotrya bengalensis Hooker f., Fl. Brit. Ind. II. 371 (1878).—Brandis, Ind. Trees, 290 (1906).

Mespilus bengalensis Roxburgh, Cat. Hort. Bengal. 38 (1814), nom. nud.; Fl. Ind. ed. 2, II. 510 (1832).

Photinia dubia Wallich, Cat. 6682-6684 (1829).

Eriobotrya dubia Decaisne in Nouv. Arch. Mus. Paris, x. 145 (1874), pro parte.—Kurz, Forest Fl. Brit. Burma, I. 443 (1877).—Franchet, Pl. Delavay, I. 224 (1890).

CHINA: prov. Yunnan, Szemao, *A. Henry*, no. 12842, 12139.

Eriobotrya bengalensis var. *angustifolia* Cardot in Lecomte, Not. Syst. III. 371 (1918).

CHINA: Yunnan; Hay-y, *Paul Nguenou; Ducloux*, no. 4719.

Eriobotrya buisanensis Kanehira, Formos. Trees, 218, (1918), pro syn. *Photinia buisanensis*.

Photinia buisanensis Hayata, Icon. Pl. Formos. III. 100 (1913).

Eriobotrya deflexa f. *buisanensis* Nakai in Tokyo Bot. Mag. xxx. 18 (1916).

Arbor; rami robusti glabri. Petioli 5-23 mm. longi, juvenilia fuscescente pilosi sed glabrescentes, lamina juvenilia utrinque rufo-tomentosa, adulta 5.5-13.3 cm. longa et 2.1-4.5 cm. lata, anguste oblonga vel lanceo-

lata, apice obtusa vel acuta aequaliter grosse crenato-serrata vel dimidio integra, coriacea lucida. Inflorescentia 3–4 cm. longa, adpresse fusco-pilosa. Bracteae et bracteolae lanceolatae, caducae; calycis tubus turbidatus, fusco-pilosus; lobi obtuse ovati vel oblongi dorso glabri vel subglabri margine et intus fusco-pilosi; petala alba late obovata apice bifida 7 mm. longa; styli bifidi, basi pilosi. Poma matura, 1.5 cm. lata, aurea edulia fragrantia.

FORMOSA: circa Kuraru prov. Koshun, *E. H. Wilson*, no. 11055; South Cape, *A. Henry*, nos. 282, 1333; Takao, *A. Henry*, no. 1026.

Eriobotrya tengyuehensis W. W. Smith in Notes Bot. Gard. Edinb. x. 30 (1917).

CHINA: prov. Yunnan, *G. Forrest*, nos. 9857, 9847, 12298.

Eriobotrya philippinensis Vidal, Rev. Pl. Vasc. Philip. 123 (1886).

PHILIPPINES: Isl. Luzon, mt. Umingan prov. Nueva Ecija, *M. Ramos* & *G. Edano*, no. 26443.

Eriobotrya acuminatissima Nakai, sp. nov.

Photinia luzoniensis var. *acuminatissima* Merrill in sched.

Differt ab *Eriobotrya luzoniensi* foliis majoribus longius acuminatis grossius serratis, floribus majoribus.

Rami cinerei, supra cicatrice foliorum rufo-tomentosi. Petioli 1.5–2.0 cm. longi, rubiginoso-tomentosi, lamina foliorum oblanceolata, 8–14 cm. longa et 2.7–4.7 cm. lata, apice acuminata, basi sensim attenuata, margine grosse incurvato-serrata, primo rubiginoso-tomentosa sed demum glabrescentia et supra lucida. Inflorescentia in apice rami conicopaniculata rubiginoso-tomentosa; bracteae deciduae; calyx dense rubiginoso-tomentosus; flores aperti non vidi.

PHILIPPINES: Isl. Luzon, mt. Salibongbong Capiz, prov. Panay, *A. Martelino* & *G. Edano*, no. 35622.

Eriobotrya fragrans Champion in Hooker, Kew Jour. Bot. iv. 80 (Fl. Hongkong.) (1852).—Bentham, Fl. Hongk. 108 (1861).—Walpers, Ann. iv. 670 (1857).—Maximowicz in Bull. Acad. Sci. St. Pétersb. xix. 177 (1873); in Mém. Biol. ix. 176 (1873).—Decaisne in Nouv. Arch. Mus. Paris, x. 145 (1874).—Hemsley in Jour. Linn. Soc. xxiii. 261 (1886).—Dunn & Tutchter in Kew Bull. Misc. Inform. add. ser. x. 97 (Fl. Kwangtung & Hongkong) (1912).

CHINA: prov. Kwangtung, mt. Lah Jan circa Canton, *C. O. Levine*, no. 1557; Isl. Hongkong, *Ford*.

Eriobotrya deflexa Nakai in Tokyo Bot. Mag. xxx. 18 (1918), in nota.

Photinia deflexa Hemsley in Ann. Bot. ix. 153 (1895).—Henry in Trans. As. Soc. Jap. xxiv. suppl. 141 (List Pl. Formosa) (1896).—Matsumura & Hayata in Jour. Coll. Sci. Tokyo, xxii. 129 (Enum. Pl. Formos.) (1906).—Hayata, Icon. Pl. Formos. i. 246 (1911).—Koidzumi in Jour. Coll. Sci. Tokyo, xxxiv. art. 2, 65 (Consp. Rosac. Jap.) (1913).—Kanehira, Formos. Trees, 215, cum fig. (1918).

FORMOSA: Herinbi, prov. Taihoku, *E. H. Wilson*, no. 10185A; Taihei, prov. Giran, *E. H. Wilson*, no. 10185; Takow, *A. Henry*, no. 1026; Sozan, prov. Taihoku, *E. H. Wilson*, no. 10796; Hso-kei-ben, prov. Kagi, *E. H. Wilson*, no. 9805; Bankinsing, *A. Henry*, no. 498.

***Eriobotrya deflexa* var. *grandiflora* Nakai.**

Eriobotrya grandiflora Rehder & Wilson in Sargent, Pl. Wilson. i. 193 (1912).—Schneider, Ill. Handb. Laubholzk. ii. 999 (1912).

CHINA: prov. Szechuan, *E. H. Wilson*, no. 3506; Mupin, *E. H. Wilson*, no. 2999.

Eriobotrya ambigua Merrill (in Philipp. Bur. Governm. Labor. Bull. xxxv. 19 [1904]) has a bony endocarp and an ovary of 5 (3–4) cells, each cell containing 2 suprabasifix ovules. It should be removed to the genus *Stranvaesia* as ***Stranvaesia ambigua* Nakai, comb. nov.**

Eriobotrya Griffithii Franchet, Pl. Delav. i. 224 (1899), *E. lasiogyne* Franchet l. c. 225 and *E. prionophylla* Franchet l. c. belong to *Photinia*.

Eriobotrya has affinities with *Photinia* on one side and with *Raphiolepis* on the other. It has a persistent calyx though Decaisne described it as "Calyx 5-dentatus, marcescens vel deciduus." All known species of *Eriobotrya* have a persistent calyx. This persistency of the calyx is an important character in this genus and in *Photinia* and *Pourthiaea*, though it is not important in other genera of Pomaceae such as *Pyrus*, *Malus* and *Sorbus*.

SOME NEW AND NOTEWORTHY LIGNEOUS PLANTS OF EASTERN ASIA

T. NAKAI

***Smilax japonica* A. Gray in Perry, Narr. Exp. China Jap. 320 (1856).**

Coprosmanthus japonicus Kunth, Enum. v. 268 (1850).

Smilax trinervula Miquel in Versl. Med. Kon. Akad. Weten. ser. 2, ii. 867 (1867); in Ann. Mus. Lugd.-Bat. iii. 150 (1867); Prol. Fl. Jap. 314 (1867).—Maximowicz in Bull. Acad. Sci. St. Pétersb. xvii. 171 (1871); in Mém. Biol. viii. 408 (1871).—Franchet et Savatier, Enum. Pl. Jap. ii. 50 (1879).—A. & C. de Candolle, Monog. Phaner. i. 207 (1878).—Makino in Tokyo Bot. Mag. ix. (112) (1895).

Smilax china var. *trinervula* Makino in Tokyo Bot. Mag. xiv. 184 (1900).
HONDO ET HOKKAIDO.

This is a more slender plant than *Smilax china* and has narrower leaves. The cells of the ovary have only one ovule each. There are two sheets of type specimens of *Smilax japonica* in the Gray Herbarium; one consists of two flowering specimens collected at Hakodate by S. W. Williams and Dr. J. Morrow and the other of two flowering specimens and one fruiting specimen collected on Webster Island near Shimoda (province Idzu) by C. Wright.

***Chosenia eucalyptoides* Nakai, comb. nov.**

Salix eucalyptoides F. N. Meyer in litt. apud Schneider in Sargent, Pl. Wilson. iii. 99 (1916).



Nakai, T. 1924. "Raphiolepidis et Eriobotryae Species Sino-Japonicae." *Journal of the Arnold Arboretum* 5(2), 61–72. <https://doi.org/10.5962/p.317985>.

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