BLUMEA 21 (1973) 281—291

THE GENUS ROSA IN MALESIA

C. KALKMAN
Rijksherbarium, Leiden, Netherlands

The two indigenous species (both in the Mountain provinces of Luzon) are revised. *R. luzoniensis* Merr. is reduced to *R. transmorrisonensis* Hayata, *R. philippinensis* Merr. to *R. luciae* Crép. Five species, cultivated in Malesia (especially Java), are also keyed out, described, and annotated. Of these *R. multiflora* Thunb. and *R. moschata* J. Herrm. may occur escaped and ± naturalized.

INTRODUCTION

There are only two species of *Rosa* indigenous in Malesia, both in Luzon. As a result of my studies in preparation of the future treatment of *Rosaceae* in Flora Malesiana it appeared that both species have to be called by other names than those used up till now and so I decided to publish a precursory paper on the subject.

Roses are of course the most popular of garden plants and also in tropical climates some species and cultivars can successfully be grown. However, there is hardly any documented information on the kinds of roses which are in fact grown in Malesian countries. Backer (1911) enumerated a good many species as 'possibly cultivated in Java', but of the great majority of these I did not see any herbarium material. According to Bruggeman (Tuinboek voor de Tropen, 3rd ed. 1955) tea-hybrids (i.e. hybrids in the formation of which *R. odorata* has played a major part) and *polyantha*-roses (hybrids of *R. multiflora*) are the most successful in tropical climates, especially in Java. Mrs. R. D. J. Evans (M.A.H.A. Magazine 10, 1940, 53—54) mentioned only a number of tea-hybrids as suitable for ornamental planting in Malaya.

A number of cultivated species have been included in the key, and descriptions have been given. This seemed useful because there are indications that some of these species can be found escaped or even more or less naturalized. It is well possible that there are still other species and hybrids grown, but for identification of garden roses one is further referred to the books on European and North-American garden plants, mentioned below (Boom, Chittenden, Krüssmann, Rehder). Only for indigenous species the material seen has been cited.

The present study is based not only on the collections in Leiden, but I also had occasion to consult the collections present in Kew, British Museum (Natural History), and Utrecht. I want to extend my thanks to the keepers of these institutes for their cooperation.

ROSA

Rosa L., Sp. Plant. (1753) 491; Gen. Plant., ed. 5 (1754) 217; Redouté & Thory, Les Roses, 3 vols (1817—1824); Seringe in DC., Prod. 2 (1825) 597; B. & H., Gen. Plant. 1 (1865) 625; Baill., Hist. Pl. 1 (1869) 345, 461; Crépin, Bull. Soc. Roy. Bot. Belg. 8—21 (1869—1882); Hook. *f.*, Fl. Brit. Ind. 2 (1878) 363; Focke in E. & P., Nat. Pfl. Fam. 3, 3 (1888) 46; Boerl., Handl. I, 2 (1890) 433; Schneider, Ill. Handb. Laubholzk. 1 (1905) 536; Baker, J. Linn. Soc., Bot. 37 (1905) 70; Backer, Schoolfl. Java (1911) 460; Willmott, The genus Rosa, 2 vols (1914); Cardot in Lec., Fl. Gén. I.—C. 2 (1920) 659; Boulenger, Bull. Jard. Bot. Ét.

Brux. 9—14 (1933—1937); Rehder, Man. Cult. Trees & Shrubs (1940) 426; Mulligan in Chittenden, Dict. Gardening 4 (1951) 1809; Krüssmann, Handb. Laubgeh. 2 (1962) 410; Hutch., Gen. Flow. Pl. 1 (1964) 209; Backer & Bakh., Fl. Java 1 (1964) 519; Boom, Ned. Dendrol., ed. 5 (1965) 228; Vidal, Fl. Camb. Laos & Vietn. 6 (1968) 136; Fl. Thail. 2 (1970) 63.

Shrubs, erect, climbing, or prostrate, nearly always armed with straight or curved prickles, often with glands on vegetative and/or flower parts. *Leaves* spirally arranged, imparipinnate, with adnate stipules (rarely, not in Malesia: leaves unifoliolate, without stipules), leaflets pinninerved, usually serrate. *Flowers* solitary and terminal or in terminal thyrsi or racemes, large and showy, bisexual, nearly always 5-merous (cultivars often double), perigynous. *Bracts* often leaflike. *Hypanthium* usually globular to urceolate, throat almost closed by a thickened, annular disc. *Epicalyx* absent. *Sepals* imbricate, often foliaceous, at least the outer ones often pinnately incised, persistent or caducous. *Petals* imbricate, in different shades of red, white, or yellow. *Stamens* many, in several rows at the rim of the hypanthium. *Pistils* many (rarely few); ovaries superior, shortly stalked or subsessile, in the lower part of the hypanthium, upper part of the styles protruding through the hole in the disc, 1-celled; styles terminal (or lateral), free or upper part coherent to connate, with apical, thickened stigma; ovule 1 (rarely 2), pendant. *Achenes* included in the accrescent, ± fleshy, coloured *hypanthium (hip)*; pericarpium usually bony; seed 1, without endosperm.

Distribution. Probably more than 100 species, in temperate to subtropical regions of the Northern hemisphere, some in the montane parts of the tropics. In Malesia 2 species indigenous in Luzon, Philippines; several species and hybrids cultivated as ornamentals, some escaped and more or less naturalized.

KEY TO THE SPECIES IN MALESIA

For cultivated roses, see the introduction.

1. Styles distinctly coherent.
   2. Flowers usually solitary. Styles glabrous. Apical leaflets up to 1½ cm long **1. R. transmorrisonensis**
   2. Inflorescences of usually more than 3 flowers. Styles hairy. Apical leaflet up to 5 cm long.
      3. Closed flowerbuds gradually long-acuminate, sepals surpassing the petals. Sepals (incl. acumen) 18 mm or more long . . . . . **4. R. moschata**
      3. Closed flowerbuds globular to ovoid, mucronate or abruptly acuminate, sepals little surpassing petals. Sepals (incl. acumen) not more than *c.* 12 mm long.
         4. Pedicels and hypanthium glandular . . . . . **2. R. luciae**
         4. Pedicels and hypanthium without glands . . . . . **3. R. multiflora**
1. Styles free from each other.
   5. Prickles 2 under each leaf, otherwise twigs unarmed. Leaflets 9—15. Flowers usually solitary, sometimes 2 or 3 . . . . . **7. R. roxburghii**
   5. Place of prickles without apparent relation to leaves, prickles many or few. Leaflets 5—9. Flowers usually more than 2 in a raceme or thyrsus, sometimes solitary.
      6. Hypanthium and pedical glandular-bristly. . . . . **6. R. damascena**
      6. Pedical with glands, but not bristly. Hypanthium without glands **5. R. chinensis**

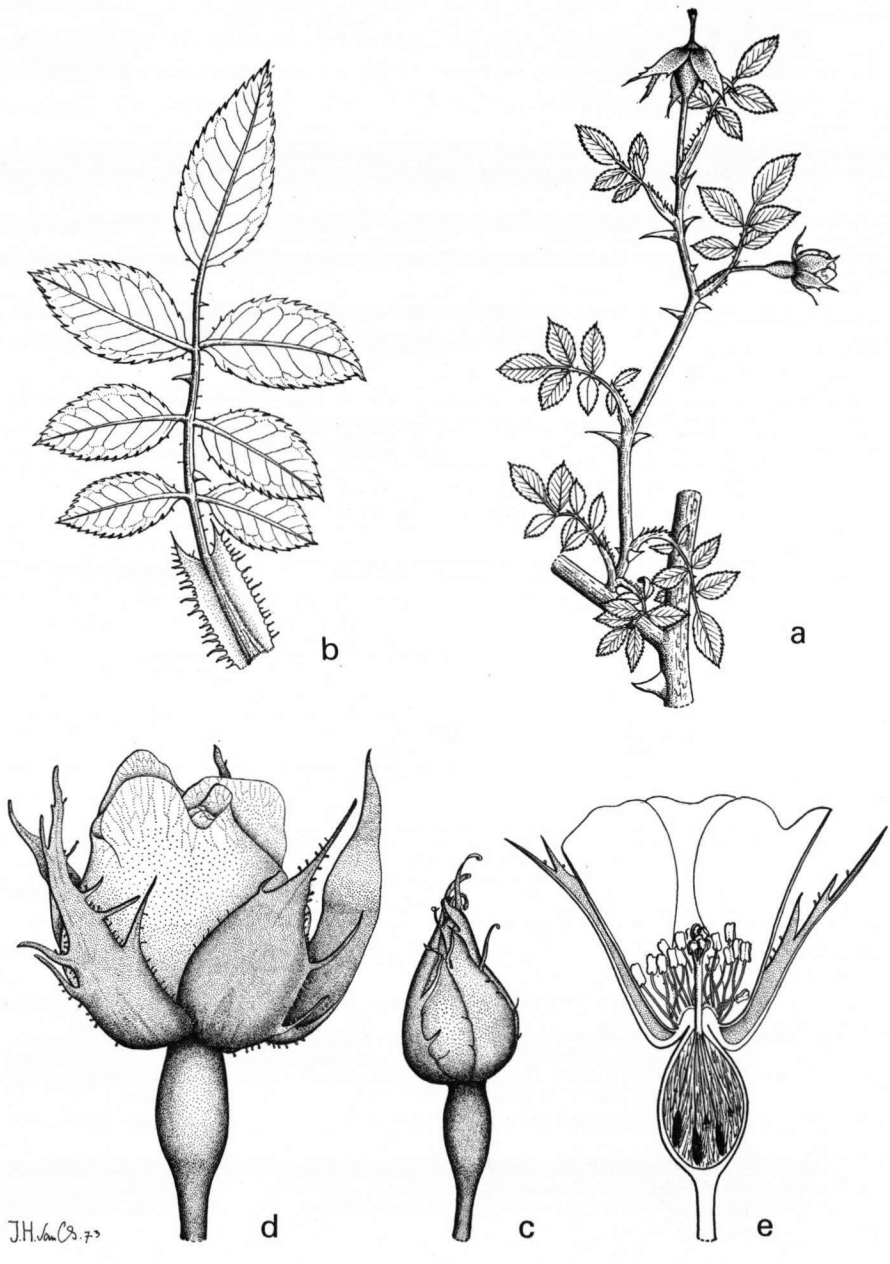

Fig. 1. *Rosa transmorrisonensis* (*Mearns BS 4300*). — a. Leaf- and flower-bearing lateral, ×1. — b. leaf from above, ×2½. — c. closed flowerbud. — d. opening bud. — e. flower halved lengthwise, in anthesis. — (c—e: ×3½).

1. **Rosa transmorrisonensis** Hayata — **Fig. 1.**

R. transmorrisonensis Hayata, Ic. Pl. Formos. 3 (1913) 97; Li, Woody Fl. Taiwan (1963) 300. — T y p e: *Mori s.n.* from Mt. Morrison, Taiwan, not seen.

R. luzoniensis Merr., Philip. J. Sc. 17 (1921) 259; Enum. Philip. 2 (1923) 231; Steenis, Bull. Jard. Bot. Btzg. III, 13 (1934) 243. — T y p e: *Santos BS 31876* (dupl. in K, sterile; BM); paratypes: *Mearns 4300* (L), *McGregor BS 8336*, n.v.

Climbing shrubs with thin, glabrous twigs. Prickles 2 under each leaf, slightly curved, compressed, up to 7 mm long. *Leaves* up to 5 cm, quite glabrous. Stipules adnate over *c.* 5 mm, wings *c.* 1¼ mm wide, free tips triangular, *c.* 3 mm long, margins fimbriate, the glandular teeth up to *c.* 1 mm. Free part of petiole 1—4 mm long, petiole and rachis with some small prickles and some glands. *Leaflets* (5 or) 7; lateral ones elliptic, basal one smallest, gradually larger towards tip, shortly (—1 mm) petioluled, base acute, apex acute, finely serrate with 1—1½ teeth per mm; apical leaflet larger than uppermost lateral ones, 8—15 by 4—6 mm, elliptic to ovate with acute to acuminate apex, on petiolule up to 4 mm long. *Flowers* solitary, terminal on usually short but leafy lateral twigs, rarely also one or two in the uppermost leaf axils of the latter. Pedicel up to 1 cm, glabrous, not glandular. Closed flowerbuds globular, mucronate, sepals little longer than petals. *Hypanthium* ellipsoid, *c.* 4 by 2½ mm, glabrous outside and glandless, hairy inside. *Sepals* 5, reflexed during anthesis, ovate to elliptic, abruptly acuminate, 6—7 by 2½—3¼ mm not included the 1—3 mm long acumen which is not widened at the apex; covered margins woolly, otherwise glabrous outside, woolly-pubescent inside, exposed margins with glands and with 1 to 3 side-lobes. *Petals* obovate, up to 11 mm long, retuse, glabrous, white. *Stamens c.* 100; filaments up to 5½ mm, glabrous; anthers *c.* 1¼ mm long. *Pistils c.* 12; ovary spindle-shaped, *c.* 1½ mm long, with a coma of long, silky hairs near apex; styles *c.* 5 mm, firmly cohering, glabrous. *Hips* not seen.

D i s t r i b u t i o n. Taiwan, Luzon (Mountain Prov.).

H a b i t a t. In thickets, *c.* 1200 m alt. and higher.

PHILIPPINES. L u z o n. Benguet subprov., Pauai: *Mearns BS 4300, Santos BS 31876.*

R e m a r k. *Rosa luzoniensis* cannot be compared with any other member of the *Synstylae*, except with *R. transmorrisonensis*. The fimbriate stipules suggest a relationship of *R. luzoniensis* with *R. multiflora* but, as Merrill already pointed out, it is strongly deviating by its solitary flowers. I saw one specimen of the Formosan *R. transmorrisonensis (Van Steenis 20637)* and from this and from the descriptions published I have become convinced that the two are conspecific.

2. **Rosa luciae** Franch. & Rochebr. *ex* Crépin — **Fig. 2.**

R. luciae Franch. & Rochebr. *ex* Crépin, Bull. Soc. Roy. Bot. Belg. 10 (1871) 324; Boulenger, Bull. Jard. Bot. Ét. Brux. 9 (1933) 261; Ohwi, Fl. Japan, Engl. ed. (1965) 540. — T y p e: a *Savatier* specimen (*herb. Franchet*) from Yokohama, Japan, not seen.

R. wichuraiana Crépin, Bull. Soc. Roy. Bot. Belg. 15 (1876) 204, *nomen, in syn.*; ibid. 25 (1887) 189, *descr.*; Ohwi, l.c. — *R. luciae* var. *wichuraiana* Koidzumi, J. Coll. Sc. Imp. Univ. Tokyo 34, art. 2 (1913) 232; Boulenger, o.c. 264. — T y p e: not indicated.

R. luciae var. *formosana* Card. in Lec., Not. Syst. 3 (1910) 266; Li, Woody Fl. Taiwan (1963) 298. — T y p e: *Faurie 130* from Taiwan, not seen.

R. philippinensis Merr., Philip. J. Sc. 17 (1921) 260; Enum. Philip. 2 (1923) 231; Steenis, Bull. Jard. Bot. Btzg. III, 13 (1934) 243. — T y p e: *Elmer 5794* (K, iso); several paratypes, i.a. *Mearns BS 4290, Vanoverbergh 50.*

R. philippinensis var. *depauperata* Merr., Philip. J. Sc. 17 (1921) 261; Enum. Philip. 2 (1923) 231, sphalm. var. '*parvifolia*'. — T y p e: holotype not indicated, many syntypes, i.a. *Elmer 8416, Ramos BS 5821.*

R. multiflora auct. non Thunb.: Vidal, Rev. Pl. Vasc. Filip. (1886) 123; Merr., Philip. J. Sc. 5 (1910) 352.

Fig. 2. *Rosa luciae*. — a. Inflorescence, ×1 (*Ramos & Edaño BS 37920*). — b. closed flowerbud, ×3½ (*Jacobs 7595*). — c. opening bud. — d. flower halved lengthwise, in anthesis. — (c & d: ×3½; *Conklin & del Rosario PNH 72379*). — e. infrutescence with ripe hips, ×1 (*Jacobs 7595*).

Suberect to straggling and ± scandent shrubs, up to 4 m. Twigs glandular, sometimes only scarcely so, otherwise glabrous, rarely sparsely pubescent. Prickles 2 under each leaf (usually no others present), curved, laterally compressed, up to 4 mm long. *Leaves* 4—10(—12) cm long. Stipules adnate over (3½—)8—11 mm, wings ¾—1½ mm wide, free tips triangular, 1—2½ mm long, the margins with stalked glands and also with scattered teeth or regularly dentate, the teeth up to 1 mm, sparsely pubescent outside and on margins, glabrous inside. Petiole (free part) up to 1(—1½) cm; petiole and rachis grooved above, with some hairs and glandular, on dorsal side also with some small prickles. *Leaflets* 7—9; lateral ones elliptic to elliptic-ovate or elliptic-oblong, basal ones smallest, gradually enlarging towards tip and up to 12—32 by 7—20 mm, subsessile (petiolule rarely exceeding 1 mm), base obtuse to rounded, apex obtuse to acute, margin serrate (4—7 teeth per cm), glabrous or with few hairs on midrib above and below, midrib below sometimes with few glands and small prickles; apical leaflet larger than uppermost lateral ones, ovate to ovate-oblong, up to 18—40 by 8—21 mm, on petiolule up to 1 cm. *Flowers* 7—30, rarely more, in a terminal raceme or thyrsus, the lower flowers or partial inflorescences in axils of small leaves, upper ones in axils of bracts. Bracts and bracteoles linear or with expanded apex, more or less hairy, glandular on margins. Pedicels 1—2½ cm, glandular, glabrous or slightly hairy. Flowers strongly fragrant. Flowerbuds globular, mucronate to abruptly acuminate, the sepals in closed bud little longer than the petals. *Hypanthium* ellipsoid to obovoid, 3—4½ by 2—3½ mm in anthesis, with few hairs to glabrous, always distinctly glandular outside, long-silky inside. *Sepals* 5, reflexed during and after anthesis, ovate to elliptic-ovate, gradually or ± abruptly acuminate, (6½—)8—11 by 2½—4 mm including the acumen which is up to 4 mm (but usually shorter) and not widened at apex, outer sepals with 1 or 2 side-lobes on each of the exposed margins, outer surface glandular and very sparsely pubescent, exposed rims glandular, inner surface woolly pubescent. *Petals* obovate to broadly obovate, 11—18 by 9—11 mm, retuse, glabrous, white. *Stamens* 100 or more; filaments up to 7 mm; anthers up to 1½ mm long. *Pistils* 12—25; ovary with a coma of long, stiff hairs on one side at apex; styles 5½—7 mm, cohering, hairy. *Hips* globular, 6—8(—10) mm, smooth, bluish-black, sepals caducous. *Achenes* angular, ± ovoid, *c.* 4½ by 2½ mm, with hairs on one side, pericarpium thick and woody.

Distribution. Japan, Korea, Ryukyu Is., Eastern China, Taiwan, Luzon (several places in the Mountain Prov.).

Habitat. Hardly any information available. According to Merrill (1923) growing in thickets, from 1200 to 1700 m altitude.

PHILIPPINES. Luzon. Bontoc subprov.: *Ramos & Edaño BS 37920, BS 38080, Vanoverbergh 50*; Ifuga subprov., Banaue: *Conklin & del Rosario PNH 72379*; Benguet subprov., several localities: *Elmer 5794, 8416, Jacobs 7595, Loher 2248, Mearns BS 4290, Merrill 882, 11672, Ramos BS 5821, Ramos & Edaño BS 45093, Vidal 1357, 1358*; Mt. Data: *Alcasid PNH 1877, Merrill 4643, Micholitz s.n.*; Mt. Pulog: *Celestinó PNH 4375*.

Remarks. Merrill already observed a close relationship of his *Rosa philippinensis* to *R. wichuraiana*. In agreement with Boulenger (1933) and Li (1963) I consider the last-named species to be conspecific with *R. luciae*. Both authors reduce *R. wichuraiana* to varietal rank, but they are not very unanimous about the differential characters. From literature only (see also Ohwi, 1965) it is impossible to be certain that a distinction on the varietal level can indeed be made, but from what I have seen and read this does not seem very likely to me.

The material from Luzon falls entirely within the range of variability shown by *R. luciae* in its wider sense. The description given above is drawn from the Luzon material only.

See also below, under *R. multiflora*.

3. Rosa multiflora Thunb.

R. multiflora Thunb., Fl. Japon. (1784) 214; Seringe in DC., Prod. 2 (1825) 598; Backer, Schoolfl. Java (1911) 461; Koorders, Exk. Fl. Java 2 (1912) 334; Boldingh, Zakfl. (1916) 153; Backer & Bakh., Fl. Java 1 (1964) 520.

Shrubs, up to 5 m, with zigzag, long-hairy, glabrescent twigs. Prickles 2 under each leaf, some scattered on the internodes, curved, compressed, up to 5 mm. *Leaves* 8—10 cm long. Stipules adnate over *c.* 9 mm, wings 1½ mm wide, free tips narrowly triangular, 3—4 mm long, upper surface glabrous, margins and lower surface hairy, margins dentate (teeth up to 1 mm), glandular. Free part of petiole 4—10 mm long; petiole and rachis flattened to slightly channeled above, rather densely hairy, also the part adnate to the stipules, without glands. *Leaflets* 7; lateral ones elliptic, basal pair smallest, uppermost pair 25—35 by 12—18 mm, sessile or up to 1 mm petioluled, base obtuse to rounded, apex acute, margin serrate, sparsely hairy above, hairy below, especially on midrib, nerves, and veins; apical leaflet larger than uppermost lateral ones and more ovate, up to 42 by 22 mm, petiolule 8—12 mm. Terminal thyrsus of 8—18 *flowers*, lower partial inflorescenses in axils of leaves, upper ones and flowers in axils of bracts. Bracts with dentate margins, pubescent above, sparsely so below. Pedicels 2—2½ cm, hairy, eglandular. Flowers slightly fragrant. Closed flowerbuds ovoid, acuminate, sepals little longer than petals. *Hypanthium* obovoid, 3½—4 by 3 mm, sparsely hairy and without glands outside, with long hairs on bottom inside. *Sepals* 5, reflexed during and after anthesis, ovate-triangular, *c.* 10 by 4 mm including the distinct cuspis (1½—2½ mm long, tip slightly broadened or not), the exposed margins with 1 or 2 rather large side-lobes, pubescent and with or without glands on outer surface and on margins, appressed-hairy inside. *Petals* 5 in simple flowers, many in double ones, normally obovate, *c.* 14 by 11—12 mm, glabrous, red, pink, or white. *Stamens* more than 100; filaments up to 8 mm, glabrous; anthers c. 1½ mm long, *Pistils* 18—40; ovary with one-sided coma of long hairs; styles up to 7 mm, cohering, long-hairy or glabrous (see remark). *Hips* not seen.

Distribution. The species is native to China and Japan. It has been hybridized with several other species and is one of the parents of several cultivars of many-flowered climbing garden roses. It is extensively cultivated, also in Java and certainly also in other parts of Malesia, although on the latter no information is available.

Habitat. Cultivated. In Java also collected in hedges and at least part of these specimens may be spontaneous (escaped). According to Backer & Bakhuizen van den Brink (1964) the species occurs at altitudes from 1000 to 2500 m.

Remarks. The description given is made from a few specimens collected in Java. Only one specimen, a garden plant *(Bakhuizen van den Brink 158)*, seems to be true *R. multiflora*. The other specimens differ from the latter by their hairy styles. They may be of hybrid origin, *R. luciae (R. wichuraiana)* being the other parent. From the last-mentioned species they differ by their pubescent leaflets and eglandular hypanthia.

4. Rosa moschata J. Herrm.

R. moschata J. Herrm., Diss. inaug. de Rosa (1762) 15; Mill., Gard. Dict., ed. 8 (1768) nr. 13; Seringe in DC., Prod. 2 (1825) 598; Backer, Schoolfl. Java (1911) 461; Koorders, Exk. Fl. Java 2 (1912) 335; Cardot in

Lec., Fl. Gén. I.—C. 2 (1920) 667; Boulenger, Bull. Jard. Bot. Ét. Brux. 9 (1933) 222; Backer & Bakh., Fl. Java 1 (1964) 520.

Straggling shrubs. Twigs sparsely hairy, without (? or with) glands. Prickles usually sparse, 1 or 2 under each leaf, absent on the flowering twigs, stout, slightly curved, compressed, up to 6 mm long. *Leaves* 7—13 cm long. Stipules adnate over *c.* 8 mm, wings *c.* 1 mm wide, free tips triangular, up to 4½ mm long, almost glabrous, margins entire, ciliate, and glandular. Free part of petiole 3—25 mm long, flattened or grooved above; petiole and rachis pubescent, with or without glands, dorsally often with some small prickles. *Leaflets* 5—7; lateral ones elliptic, basal pair smallest, upper pair 25—45 by 15—28 mm, subsessile, base rounded to acute, apex acute or acuminate, margin serrate (5—8 teeth per cm) and with few glands, sparsely hairy on both surfaces, glabrescent, leaving only some hairs on the midrib below and above; apical leaflet larger than the upper lateral ones and often more ovate, up to 50 by 32 mm, petiolule 5—15 mm. Terminal raceme or thyrsus of 2—6 (rarely many?) *flowers*. Bracts and bracteoles ± membranous, with glandular-serrate margins, pubescent on outer surface, margins, and midrib inside. Pedicels 2—3½ cm, pubescent, glandular. Flowers often double. Closed flower-buds gradually long-acuminate, sepals much surpassing petals. *Hypanthium* obovoid to ellipsoid, 4½—5 by 2½—3 mm, hairy outside and eglandular or with few glands mainly at base, with long hairs inside. *Sepals* 5, reflexed during and after anthesis, narrowly triangular to ovate-lanceolate, 18—22 by 3—5 mm, gradually long-acuminate, acumen not or slightly broadened at apex, exposed margins with 1 to 4 side-lobes, not glandular except on the margins of the side-lobes, hairy outside, appressed-woolly inside. *Petals* 5 in simple flowers, many in double ones, obovate, up to 2½ by 2 cm, glabrous, white. *Stamens* up to 100 or more; filaments up to 8 mm, glabrous; anthers up to 1¾ mm. *Pistils* 15—20; ovary spindle-shaped, shortly stalked, 1—1½ mm long, with a coma of long stiff hairs at apex on the dorsal side; styles up to 8 mm, connate into a column which is (during anthesis) shorter than the longest stamens, long-hairy at base, with scattered hairs in apical part. *Hips* not seen.

Distribution. Native to Western Asia, early introduction to Europe, much cultivated and hybridized with other species. Cultivated in Java and most probably also in other places in Malesia. In Java escaped and naturalized in at least one place, near Ngadisari on the Tengger Plateau, *c.* 2000 m alt. *(Koorders 37740β, 37742β, Went s.n.).*

Remarks. Although the specimens mentioned above differ slightly from wild *R. moschata*, I think they do belong to this species. The main difference is, as Koorders also noted, that in the naturalized Java population the hypanthium is hardly glandular, whereas in true *R. moschata* it is densely glandular.

The description is made from the Ngadisari specimens and from two doubtful specimens from the Moluccas.

5. **Rosa chinensis** Jacq.

R. chinensis Jacq., Obs. Bot. 3 (1768) 7, pl. 55; Boulenger, Bull. Jard. Bot. Ét. Brux. 14 (1936) 189; Vidal, Fl. Camb. Laos & Vietn. 6 (1968) 142; Fl. Thail. 2 (1970) 65.
R. semperflorens Curtis, Bot. Mag. 8 (1794) pl. 284; Backer, Schoolfl. Java (1911) 464.
R. indica auct. non L.: Backer, Schoolfl. Java (1911) 464; Cardot in Lec., Fl. Gén. I.—C. 2 (1920) 664.

Erect? shrubs, with glabrous twigs. Prickles scarce or absent on flowering twigs, placed without apparent relation to the leaves, stout, up to 1 cm, compressed, not strongly curved (upper side ± straight, lower side concave). *Leaves* 7—14 cm long. Stipules adnate

over 1—2 cm, wings 1—2 mm wide, free tips triangular, up to 4 mm long, margins entire, sometimes with few teeth, with many glands, quite glabrous or with few hairs near margin. Free part of petiole 5—16 mm long; petiole and rachis grooved, glabrous or with few hairs, glandular on the edges, dorsally often with some prickles. *Leaflets* 5, very rarely 7; lateral ones ovate-oblong to ovate or elliptic, basal pair smaller than upper pair, the latter (2½—)4—6 by (1½—)2—3½ cm, base rounded to acute, often oblique, apex acute to shortly acuminate, margin serrate (3—5 teeth per cm), petioluled (petiolule ½—2½ mm, basal pair usually longer than upper pair), both surfaces glabrous; apical leaflet larger than upper lateral ones, (3—)5—7 by (1½—)2—4 cm, with grooved, 9—15 mm long petiolule. *Flowers* solitary and terminal, or up to 5 in a terminal raceme, rarely up to 6 in a thyrsus. Bracts leafy; bracteoles in lower half of pedicel, rather large, leafy. Flowers usually double. Closed flowerbuds ovoid, with a long abrupt acumen, tips of sepals far surpassing the petals. Pedicels 2½—7 cm, glabrous, glandular. *Hypanthium* ± ellipsoid, 5—8 by 3½—5 mm, glabrous outside and eglandular (few glands sometimes near the base), long-hairy inside. *Sepals* 5, reflexed during and after anthesis, ovate-triangular to ovate-lanceolate, 13—30 by 3½—6 mm including the cuspis, tip usually definitely broadened and leafy, sometimes only gradually long-acuminate, without the terminal extension *c.* 11—20 mm long, exposed margins with 1 or 2 side-lobes each, glandular, covered margins woolly, outer surface (sub)glabrous, eglandular (rarely with few glands), inner surface appressed-woolly. *Petals* more than 5, outer normal ones 19—35 by 16—35 mm, ?emarginate, glabrous, pink, red, or whitish. *Stamens* from *c.* 60 to more than 100; filaments up to 12 mm, glabrous; anthers up to 2 mm. *Pistils* 25—50; ovary spindle-shaped, up to 2 mm long, with one-sided coma of long hairs near apex; styles free, the diverging bundle above the disc shorter than the stamens, up to 10 mm long, widening towards stigma, distinctly hairy to glabrous. *Hips* not seen.

Distribution. Of Chinese origin, not known in a wild state, since long cultivated as an ornamental.

Remarks. I have seen several specimens from Indonesia (Java, Sumatra, Borneo) but from the labels it is mostly not clear whether they represent cultivated plants or escaped ones. Koorders (1912) does not mention the species as naturalized; Backer & Bakhuizen van den Brink (1964) do not mention the species at all, but obviously include it in their '*Rosa hybrida Hort.*' It is remarkable, however, that the specimens I have seen are rather homogeneous and do not show evidence of hybridization with *R. odorata*. For the greater part they will belong to cv. '*Semperflorens*', bearing rather few prickles. Also cv. '*Viridiflora*', a form with green petals, has been collected (E. Java).

The species was collected in Java as early as 1770 during Cook's first voyage (specimen in BM).

The description given is made from Indonesian specimens only.

6. **Rosa damascena** Mill.

R. damascena Mill., Gard. Dict. ed. 8 (1768) nr. 15; Seringe in DC., Prod. 2 (1825) 620; Backer, Schoolfl. Java (1911) 464; Backer & Bakh., Fl. Java 1 (1964) 520.

Robust erect shrubs. Prickles usually many, unequal, straight to slightly curved. Stipules ± entire. *Leaflets* 5—7(—9), ± elliptic, 2—7 by 1½—5 cm, usually hairy below, not glandular. *Flowers* 3—10, rarely more, in a terminal raceme or thyrsus, up to 8 cm across, often double, fragrant. Pedicels up to 7 cm, with many glandular bristles. *Hypanthium* glandular-bristly outside, hairy inside. *Sepals* ± triangular with more or less

broadened cuspis, reflexed during anthesis, caducous afterwards, glandular. *Petals* red to white. *Pistils* many; styles free, hairy. *Hips* to 2½ cm long, bristly, red.

Distribution. Early introduction from Asia Minor into Europe, possibly of hybrid origin. In the Mediterranean region and in the Balkans cultivated as a source of rose oil *(Otto of Roses)*, and elsewhere cultivated as an ornamental.

Remarks. According to Backer & Bakhuizen van den Brink (1964) occasionally cultivated in Java, but I saw only one such specimen. A somewhat dubious specimen from Bangka *(Kurz=J. Amand s.n.)*, with flowers very much damaged by insects, was according to the label escaped from cultivation.

The description was mainly made from literature and extra-Malesian material.

7. Rosa roxburghii Tratt.

R. roxburghii Tratt., Ros. Monogr. 2 (1823) 233, *'Roxbourgii'*; Boulenger, Bull. Jard. Bot. Ét. Brux. 14 (1936) 210; Backer & Bakh., Fl. Java 1 (1964) 520.

R. microphylla Roxb. [Hort. Beng. (1814) 38, *nomen*] *ex* Lindl., Mon. (1820) 9, 144, non Desf., Fl. Atlant. 1 (1798) 401; Roxb., Fl. Ind. ed. 2, 2 (1832) 515; Backer, Schoolfl. Java (1911) 463.

Erect shrubs. Prickles 2 under each leaf, straight. Stipules narrow, entire or finely dentate. *Leaflets* 9—15, elliptic to oblong, up to 2—(3) cm long, finely serrate, glabrous or almost so. *Flowers* usually solitary, sometimes 2 or 3 at the end of short lateral shoots, 5—8 cm across, slightly scented, often double. Pedicels up to 1 cm, with many straight prickles. *Hypanthium* with many straight prickles, hairy inside. *Sepals* broad and leafy, triangular to obovate, prickly outside, persistent. *Petals* 5 or many, pink to red. *Pistils* many; styles free, hairy. *Hips* globular, *c.* 2 cm diam., prickly.

Distribution. Native in China and Japan, often cultivated in simple- or double-flowered forms.

Remarks. According to Backer & Bakhuizen van den Brink (1964) in Java occasionally cultivated as an ornamental (always double). I did not see any material, the description has been drawn from literature and extra-Malesian specimens.

INDEX TO SPECIMENS CITED

The number behind the colon indicates the number of the species in the present paper.

Alcasid PNH 1877: 2.
Bakhuizen van den Brink 158: 3
Celestinó PNH 4375: 2. *Conklin & del Rosario PNH 72379*: 2
Elmer 5794, 8416: 2
Jacobs 7595: 2
Koorders 37740β, 37742β: 4. *Kurz s.n.*: 6
Loher 2248: 2
Mearns BS 4290: 2; *BS 4300*: 1. *Merrill 882, 4643, 11672*: 2. *Micholitz s.n.*: 2
Ramos BS 5821: 2. *Ramos & Edaño BS 37920, BS 38080, BS 45093*: 2
Santos BS 31876: 1. *Van Steenis 20637*: 1
Vanoverbergh 50: 2. *Vidal 1357, 1358*: 2
Went s.n.: 4.

INDEX TO SPECIFIC NAMES

Accepted names in roman, synonyms in italics. The number indicates the species number in the present paper.