SERIES OF REVISIONS OF APOCYNACEAE
PART XX

OLEANDERS
NERIUM L. AND THE OLEANDER CULTIVARS

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INTRODUCTION

The present paper, devoted to the genus *Nerium* L. covers taxonomic and other aspects of the wild oleander and of the oleander cultivars.

The first section deals with the wild oleander and includes a revision of the genus.

A precursor of the revision of *Nerium* L. was published by LEEUWENBERG in 1984 and has been completed by the present author under LEEUWENBERG's supervision. The study is based on several hundreds of herbarium specimens, most of them well prepared and richly provided with flowers and/or fruits. The genus *Nerium* L. is considered to be monotypic, its single species being *Nerium oleander* L.

A distribution map of the naturally occurring *Nerium oleander* L. is included.

The flower of *Nerium oleander* L. features a pistil with a highly differentiated pistil head. An experiment executed to pinpoint the location of the stigmatic area is described and the pollination mechanism is discussed.

Oleanders are known as poisonous and medicinal plants. BISSET discusses the phytochemistry of *Nerium* L.in the second section.

The third section deals with the cultivated oleander.

An inventory of the oleander cultivars has been compiled by the present author, resulting in the Tentative Checklist of Oleander Cultivars.

Oleander cultivars vary in form, colour and scent of the flowers, and in habit. Several cultivars have variegated leaves.

Oleanders are very popular ornamental plants and commonly cultivated in tropical and subtropical countries as a garden shrub and elsewhere as a pot plant. The history of the oleander in cultivation is discussed.

The phytochemistry chapter was written by N. G. BISSET; F. J. J. PAGEN authored the other chapters.

PART ONE
NERIUM OLEANDER

NERIUM L.

The genus was established by TOURNEFORT in 1700 as 'Nerion' and was adopted by LINNAEUS, who in 1737 named the genus 'Nerium'.

The name 'Nerium' is derived from the Greek 'nerion', used by DIOSCORIDES to indicate the oleander. This name supposedly refers to the Greek sea-god Nereus and his fifty daughters, the Nereides. The ancient Greek maintained holy forests, exclusively planted with oleanders, and garnished altars to honour the Nereides, who were considered to be infallible guides (DRAPIEZ 1835). It is often suggested also, that 'nerion' is derived from the Greek 'neros', meaning 'moist', alluding to the wet places where the oleander grows wild.

The genus *Nerium* contains only one species, *Nerium oleander* L., and belongs to the tribe *Nerieae* of the subfamily *Apocynoideae (Echitoideae)* of the family *Apocynaceae*.

The most closely related genus is *Adenium* (PLAIZIER 1980). Inflorescence and flower (corolla, corona, pistil, and especially the stamens with anthers extending into long hairy spirally twisted appendages) of *Adenium* and *Nerium* are quite similar. *Adenium* differs from *Nerium* mainly in having succulent stems, alternate leaves confined to the apices of the branchlets, colleters on the branchlets, slightly zygomorphic flowers, corolla lobes shorter than the corolla tube, obcordate and less prominent corona lobes, reflexed follicles, and glabrous seeds with tufts of hair at each end.

NERIUM OLEANDER L.

The binomial *Nerium oleander* was given by LINNAEUS in his Species Plantarum (1:209. 1753). The epithet 'oleander' is derived from the Latin 'olea', meaning 'olive tree' and the Greek 'dendron': 'tree' or 'shrub', as oleander and olive leaves look similar.

The oleander with odourless single flowers, as it is growing in the Mediterranean region, was the only kind known in Europe until about 1683, when VAN RHEEDE TOT DRAKESTEIN introduced in Holland an oleander from India (a cultivated plant), which attracted attention because of the powerful scent of its flowers. At the same time a double-flowered form of this 'Sweet-scented Oleander' was introduced into the Dutch gardens from Ceylon by BEVERNINGK. This was also a cultivated plant.

The Indian oleander, as it grows wild in Iran, Afghanistan, Pakistan, Northern India, Nepal and China, differs from the Mediterranean kind not only in having fragrant flowers: the flowers are larger and borne in much heavier clusters; the flowering period is much longer; the plants are less robust (needing more warmth and shelter in cultivation); the segments of the corona are longer and more finely divided, usually irregularly, in four to ten filiform lobes, whereas the corona lobes of the Mediterranean oleander are much less prominent: the segments of the corona are divided in three (sometimes four) lobes, the middle one short and triangular, with one linear lobe on either side (sometimes two on one side); the appendages of the anthers are protruding (scarcely protruding in the Mediterranean kind); the calyx lobes are erect (versus apically recurved in the Mediterranean oleander); finally, the leaves are longer, narrower and more widely spaced.

LEEUWENBERG also inspected specimens of oleanders, collected more recently in the Middle East, with small and fragrant flowers (Leeuwenberg, pers.comm.).

In 1737 the oleander of the Indian kind was taken up by LINNAEUS, in his Hortus Cliffortianus, as a variety of the common Mediterranean oleander. In his Species Plantarum (1753) LINNAEUS did no longer consider it as a separate variety, but united both plants as one and the same species: *Nerium oleander* L. In the thirteenth edition of Systema Vegetabilium (1774) he admitted the Indian oleander to the varietal status and listed it as variety β of *Nerium oleander* L. The double-flowered form was listed as variety γ.

The Indian oleander was first distinguished as a species by MILLER (1768). The plant was named *Nerium indicum* Mill., typified by a specimen in Herb. Miller: 'Nerium foliis lineari-lanceolatis rigidis acutis, Nerium indicum angustifolium, floribus odoratis, simplicibus. H.L.'.

Apart from that, MILLER also distinguished the double-flowered form as a separate species: *Nerium latifolium* Mill.. Later authors generally rejected this view and considered the double-flowered plant as a variety of the single-flowered Indian oleander.

It is worth mentioning that *Nerium oleander* L. is typified by a specimen (Phot. 1–2) cultivated in the Hortus Cliffortianus, which in fact is an oleander of the Indian kind: BM-Herb. Cliff. p. 76: 'Nerium indicum, angustifolium floribus odoratis simplicibus. H.L.' (lectotype designated by STEARN IN DAVIS, 1978).

In addition to the species mentioned above, several other Nerium species have been distinguished. However, from comparative studies of several hundreds of herbarium specimens including the type specimens cited below and many living plants in gardens, LEEUWENBERG (1984) concludes that they all should be considered as belonging to a single species: *Nerium oleander* L., a conclusion which makes the genus *Nerium* monotypic.

DESCRIPTION

LEEUWENBERG'S description of *Nerium oleander* L., including synonyms and typification, is reproduced below with his kind permission.

Nerium oleander L., Sp. Pl. 1: 209. 1753; Stearn in Davis, Fl. Turkey 6: 159. 1978.

Type: cultivated, Netherlands, near Haarlem, de Hartecamp = Hortus Cliffortianus (BM-Herb. Cliff. p. 76, designated by Stearn) (Phot. 1–2). Homotypic synonyms: *N. floridum* Salisb., Prod. 147. 1796. *N. lauriforme* Lam., Fl. Fr. 2: 299. 1805.

Heterotypic synonyms: *N. indicum* Mill., Gard. Dict. ed. 8 no. 2. 1768. Type: Herb. Miller, 'Nerium foliis lineari-lanceolatis rigidis acutis, Nerium indicum angustifolium, floribus odoratis simplicibus. H. L.' (BM, holotype). Homotypic synonym: *N. oleander* var. *indicum* (Mill.) Degener & Greenwell, Fl. Hawai. Fam. 305 (7/25). 1952.

N. latifolium Mill., op. cit. no. 3. 1768. Type: Herb. Miller, 'Nerium (latifolium) foliis lanceolatis longioribus flaccidis' (BM, holotype). Homotypic synonym: *N. odorum* Salisb., Prod. 147. 1796 (not of Soland.).

PHOT. 1. The lectotype specimen of Nerium oleander L., BM-Herb. Cliff. p. 76, designated by Stearn (phot. W. A. Brandenburg).

PHOT. 2. Label of the lectotype specimen of Nerium oleander L., BM-Herb. Cliff. p. 76: "Nerium indicum, angustifolium floribus odoratis simpicibus. H. L." (phot. W. A. Brandenburg).

N. *odorum* Soland. in Aiton, Hort. Kew. ed. 1. 1: 297. 1789; Willd., Sp. Pl. 2. 1: 1235. 1797. Type: Belutta-areli Rheed., Malab. 9: 3, t.2. 1689 (lectotype). Homotypic synonyms: *N. odoratum* Lam., Enc. 3: 456. 1792. *N. verecundum* Salisb., Prod. 147. 1796.

N. carneum Hort. ex Dum.-Cours., Bot. Cult. ed. 2. 3: 268. 1811 (published with this binomial as variety of N. *oleander*; type apparently not preserved).

N. flavescens Di Spino, Jard. de St. Sebastien 1812, ex Roem. & Schult., Syst. 4: 410. 1819. Type not yet traced. Homotypic synonym: *N. luteum* Nois. ex Steud., Nom. ed. 1: 553. 1821.

N. splendens Hort. ex Paxt., Mag. Bot. 3: 73. 1837. Type apparently not preserved.

N. thyrsiflorum Paxt., loc. cit., with plate (plate designated lectotype here).

N. mascatense A. DC., Prod. 8: 421. 1844. Type: Muscat, Aucher-Eloy 4925 (G-DC, holotype (microfiche seen); isotypes seen: BM, FI, FI-W, K, P).

N. kotschyi Boiss., Diagn. Ser. 1. 7: 21. 1846. Type: Iran: Kuh-Delu, Kotschy 558 (G, holotype, not yet seen; isotypes seen: BM, BP, C, FI, FI-W, K, P, UPS, W, WAG). Homotypic synonyms: *N. odorum* Soland. var. *kotschyi* (Boiss.) Boiss., Fl. Or. 4: 48. 1875. *N. indicum* subsp. *kotschyi* (Boiss.) Rech. f. Fl. Iran. 103: 3. 1974.

N. oleander subsp. *kurdicum* Rech. f., op. cit. 2. Type: Yugoslavia: Dalmatia, Rechinger 12141 (W, holotype).

Shrub or small *tree* 1–6 m high. *Trunk* 2–15 cm in diam. or more (?); bark smooth, pale to dark grey or pale grey-brown. *Branches* flexible, bearing a terminal inflorescence subtended by 3 equal branchlets, therefore candelabrum-shaped (model of LEEUWENBERG as described by HALLÉ & OLDEMAN, 1970, Essai sur l'architecture et la dynamique de croissance des arbres tropicaux, Paris); branchlets slightly triangular at the apex, furthermore terete, green, glabrous or obscurely puberulous at the apex, 3–6 mm in diam., with clear sticky sap. *Leaves* ternate (exceptionally some opposite or alternate), with a single row of colleters in the axils, those of a whorl equal, shortly petiolate; petiole 3–10 mm long, glabrous or puberulous; blade (often thickly) coriaceous, very narrowly elliptic, 4–8 × as long as wide, 5–21 × 1–3.5 cm, acuminate or acute at the apex, cuneate at the base or decurrent into the petiole, smooth when fresh, dull and with a more or less granular structure of impressed veins above when dry, revolute at the entire margin, glabrous on both sides or sometimes partly puberulous beneath; numerous straight rather obscure lateral veins.

Inflorescence terminal or in the forks, more or less thyrsoid, lax, especially in the first branchings, variable in size, often long-pedunculate. Peduncle, branches and pedicels angular, pubescent or glabrous. Bracts sepal-like, 1–2 × as long as them, with colleters in the axils, outside pubescent or glabrous.

Flowers 5-merous, actinomorphic except for the subequal sepals, fragrant or not. *Sepals* pale green when corolla white or pale-coloured, suffused with dark red when corolla dark-coloured, free, narrowly triangular to narrowly ovate, 1.5–4 × as long as wide, 3–10 × 1–3 mm, acuminate, pubescent outside, inside

pubescent at the apex and with a single continuous row of colleters (0.5–0.8 × 0.15 mm), imbricate in bud, erect or apically recurved. *Corolla* white, pale pink, dark pink, wine-red, pale yellow or salmon, often with darker longitudinal lines in throat (double only seen in cultivated specimens), glabrous outside, inside with a (basally interrupted) belt of long recurved hairs from 3–7 mm above the base to the insertion of the stamens and from there to the apex of the corona sparsely pubescent (with ordinary and/or glandular hairs); tube 1.9–4.5 × as long as the calyx, 0.8–1.3 × as long as the lobes, 12–22 mm long, infundibuliform, at the base 2–4 mm and at the throat 8–12 mm wide, abruptly widened from the insertion of the stamens, lobes in the bud overlapping to the right, obovate or nearly so, 1.2–2 × as long as wide, 13–30 × 8–25 mm, rounded, entire, more or less spreading; corona in the corolla mouth composed of 5 truncate epipetalous parts each bearing 3–8 unequal or less often equal, in many cases partly united linear or triangular lobes (linear and triangular lobes often on a single corona part). *Stamens* barely included, inserted at 7–13 mm from the corolla base; filaments short, 1–2 mm long, with recurved long hairs inside, glabrous outside; anthers narrowly triangular, fertile at the sagittate base, introrse, 4–6 × 1.2–1.7 mm (except for appendages), with stiff upcurved hairs outside, glabrous inside, apically with a filiform densely hirsutulous 7–9 mm long appendage (the appendages of the 5 anthers usually twisted around each other); cells 2, dehiscent throughout with a longitudinal slit. *Pistil* 9–15 mm long; ovary broadly ovoid, often laterally compressed, 1.5–2 × 1.2–2 × 1–1.5 mm, retuse at the apex, pubescent, composed of 2 fused carpels, with 2 indented lines of dehiscence; style cylindrical, glabrous, about 0.5 mm in diam.; pistil head 1.2 × 1.2 mm composed of a basal ring (0.4 mm high and conical), a cylindrical 0.5 × 0.6 mm central part topped by 2 oblong erect 0.3 mm long lobes; apical lobes 0.4 mm long. The head adnate to or coherent with the connectives of the anthers by which the style and pistil head are shed with the corolla. Disk none. Ovules in each cell many. *Fruit* a bicarpellate follicle subtended by the persisting calyx, medium brown, narrowly or more frequently very narrowly oblong, (5.5)7.5–17.5 × 1–1.3 × 1–1.2 cm, glabrous, longitudinally striate, obtuse at the apex, narrowed towards both ends, bivalved, septicidal, many-seeded; wall fairly thick, woody. *Seed* medium brown, oblong, 4–7 × 1.5–2 × 1 mm, with a 9–12 mm long coma at the truncate apex (directed towards the apex of the fruit), acute at the base, tomentellous with upcurved hairs grading into the coma; endosperm about 0.3 mm thick, starchy, creamy, surrounding the embryo; embryo straight, spathulate; cotyledons about 1.5 × as long as the rootlet and about 3.5 × as long as wide, oblong, obtuse at the apex, truncate at the base (in a seed 6.5 × 1.5 × 1 mm: embryo 6 mm long; cotyledons 3.5 × 1 mm; rootlet 2.5 × 0.6 mm).

GEOGRAPHICAL DISTRIBUTION

The distribution map of *Nerium oleander* (Map 1) is prepared by the present author using the locality data of the several hundreds of herbarium specimens cited below.

The locality data of the specimens present in the following herbaria have been assembled by LEEUWENBERG: AAU, BP, BR, C, E, FI, FI-W, G, L, MO, NY, P, S, UPS, W, WAG, Z. The present author examined the specimens of the herbaria BM and K.

The oleander is widely cultivated and naturalizes very easily. Therefore, in many areas the occurrence of *Nerium oleander* is only subspontaneous. When a herbarium specimen was evidently or presumably not of truly wild origin, its data were not processed.

Distribution: Libya, Niger, Tunisia, Algeria, Morocco, Portugal, Spain, France, Italy, Malta, Yugoslavia, Albania, Greece, Cyprus, Turkey, Syria, Lebanon, Israel, Jordan, Ethiopia, Oman, United Arab Emirates, Iraq, Iran, Pakistan, Afghanistan, India (Kashmir, Punjab), Nepal and China (Yunnan).

ECOLOGY

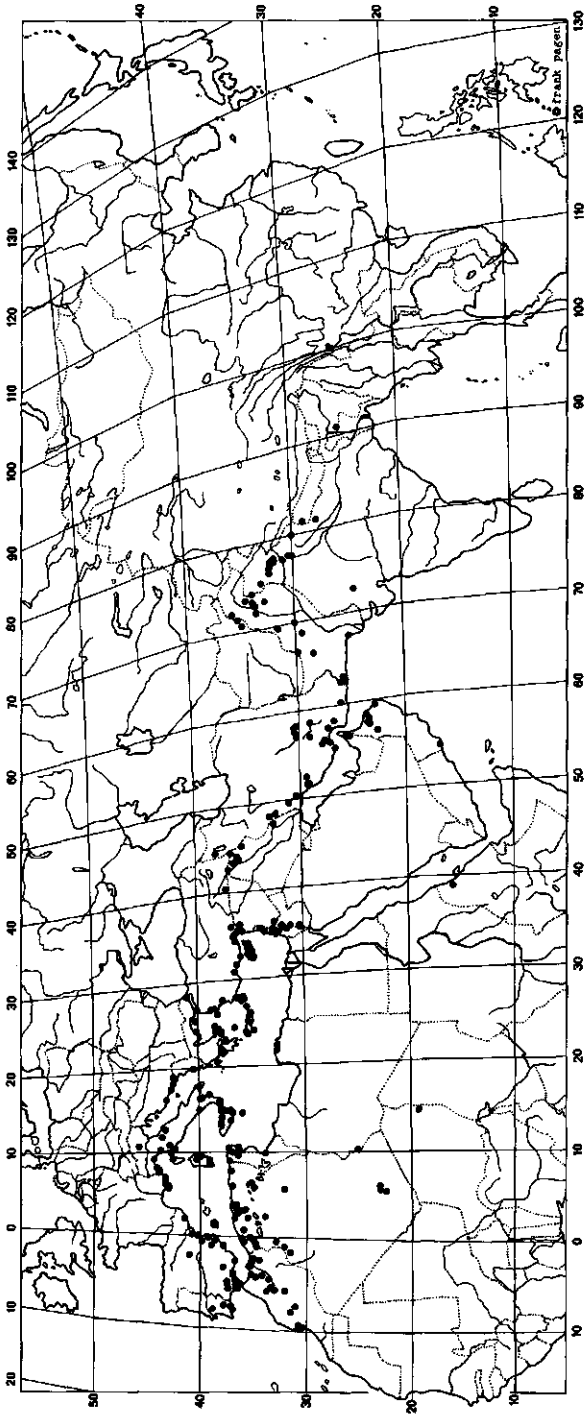
Nerium oleander is generally found in a wet habitat on sites well exposed to the sun. It occurs especially along the banks of streams and in the beds of streams and wadis that carry water during at least a part of the year, less often on lake or sea shores; on sand, clay, among stones and in rock crevices. Alt.: from –100 m (near the Dead Sea) to about 2500 m (in the Atlas Mountains).

The oleander is a very tolerant and adaptible plant, able to survive floods as well as longer periods of drought.

It can grow very well with its roots immersed. The flexible branches with the tenacious, narrow and smooth leaves and the extensive root system enable the plant to survive floods.

On the other hand, *Nerium oleander* has characteristics typical for non-succulent xerophytes. The leaf is tough and leathery, covered with a thick cuticle (sclerophyll). The stomata are sunk in depressions on the lower surface of the leaves (several stomates in each pit) to prevent excessive water loss in drying winds. Microscopic hairs in these pits reduce air movement around the stomata, and thus transpiration, even more. The long roots enable the plant to tap water from deep sources.

All parts of the plant are poisonous. Livestock, especially goats, usually appear to be aware of this and avoid the plant.



MAP 1. Geographical distribution of naturally occurring Nerium oleander L.

FLOWERING AND FRUITING PERIODS

Nerium oleander, a wide-ranging species, shows a variability in flowering time throughout its range. In this respect five zones can be distinguished.

	Flowering period
1. Southern France and northern Italy:	June–Sept.
2. Portugal, Spain, southern Italy, Malta, Yugoslavia, Albania, Greece, Turkey and Cyprus:	(Apr.) May–Sept.
3. Morocco, Algeria, Tunisia, Niger and Libya:	Mar.–Oct.
4. Syria, Lebanon, Israel, Jordan and Iraq:	Apr.–Nov.
5. Oman, United Arab Emirates, Iran, Afghanistan, Pakistan, India, Nepal and China:	almost year round

Fruits can be found on the plants at any time of the year in all regions. In spring and summer only dry fruits are present.

VERNACULAR NAMES

English:	Oleander, Rose Bay (USA; another plant called Rose Bay is Epilobium angustifolium), Rose Laurel.
Dutch:	Laurierroos, Lauwerroos, Oleander, Oleanderboom.
German:	Lorbeerrose, Oleander, Rosenlorbeer, Unholdenkraut.
French:	Belladonna (Corsica), Fleur de Saint-Joseph, Laurelle, Laurier, Laurier-Blanc, Laurier des Jardins, Laurier-Rose, Laurier-Tropical, Laurose, Nérier à Feuilles de Laurier, Nérion, Oléandre, Rosage, Rosagine.
Spanish:	Adelfa, Alendro, Baladre, Eleandro, Eloendro, Laurel Rosa, Oleandro, Rosa Francesa.
Catalan:	Baladra, Baladre, Ballestera, Biva, Diva, Llorer Rosa, Oleandre, Sanet.
Basque:	Epriotz-orri, Eriotz-orri, Eroitzorri, Erroitzorri.
Galician:	Adelfo, Loendreiro, Loendro, Nerio.
Portuguese:	Adelfa, Aloendro, Espirradeira, Landro, Loendreira, Loendro, Loureiro Rosa, Nério, Oleandro, Rosa Laura, Rosa de Ceilao, Sevadilha.
Italian:	Alessandrina, Alloro d'India, Alloro Indiano, Alloro Rosa, Ammazza l'Asino ('donkey killer'), Amnaya d'Assino, Erba da Rogna, Lauri Rosa (Sicily), Lauro Indiano, Lauro Rosa, Lauro Roseo, Leandro, Mazza

	di San Giuseppe, Nerio, Oleandro, Rosagine, Rosa Lauro.
Albanian:	Rhododaphne.
Greek:	Agriodaphne, Nerion, Pikrodaphne, Rhododaphne, Rhododendron, Sphaka (Crete).
Cyprian:	Orodaphne, Pikrodaphne, Rhododaphne.
Syriac:	Orodafni.
Hebrew:	Ardaf, Harduf.
Arabic:	Dafla, Defla, Diffla, Difla, Difli, Dufla, Somm el-himar, Sumelhimar, Summ Al-himar, Tiffla, Tofla, Ward el-himar.
Kurdish:	Zhala.
Persian:	Khar Zahr ('donkey poison', 'asses bane'), Kharzahrah.
Sanskrit:	Asvamaraka, Chandata, Hayamaraka, Karavira, Pratihasa, Virahuha, Vishavrykshanka.
Hindi:	Kanel, Kaner, Karber, Kuruvira.
Tamil:	Agam, Alari, Alarida, Aralee, Arali, Asuvabari, Irattaichivappalari, Kanaviram, Karaviram, Katturepatta, Kaviram, Kayiram, Sevvalari, Trattaichegappayalari, Urattaivellaiyalari, Vellalari, Vellaiyalari.
Bengali:	Karabi, Lal-kharubee, Pudma-kurubee.
Baluchistan:	Gandeli, Jaur, Jowari.
Bolan Hills:	Jaur.
Bombay:	Ganira, Kanher, Kanhera, Kanir.
Canarese:	Biligampuganagile, Biliganagile, Kanagile, Karavira, Kempuganagile, Paddali.
Deccan:	Kanirkejur.
Fort Sandeman:	Ganderae.
Gujerati:	Kanera, Karen, Lalkaren.
Khaisar:	Jaur.
Kumaon:	Kanur, Kanyur.
Las Bela:	Kuran.
Malayalam:	Alari, Arali, Chuvannarali, Kanaviram, Karaviram, Raktapushpam, Satraprasam, Veluttarali.
Mamu:	Jaur.
Marathi:	Kaneri, Kanher.
Mundari:	Kanaili.
Punjabi:	Ganera, Ganhira, Kaner, Kanira.
Pushtu:	Ganderai.
Ranikhet:	Kanpuri.
Sadani:	Kaner.
Santal:	Rajbaka.
Shahrig:	Gander.
Sibi:	Jaur.

Tang Masezai:	Gandher.
Telugu:	Ettaganneru, Ganneru, Karaviram, Kasturipatta.
Urdu:	Kanir.
Uriya:	Konero, Konioro, Koniyoro, Korobe, Korobiro, Korobyo.
Chinese:	Kap chukt'o ('mingle – bamboo – peach blossom'), Kia Tchou T'ao.
Japanese:	Kjotikto, Kjotjeksto.
Sundanese (W.Java):	Djoerè, Jurè.
Philippine Is.:	Adelfa, Baladre.
Tagalog:	Baladri.
Fiji Is.:	Vasa.
Tonga Is.:	Lolie.
Hawaiian:	Oleana, Oliana, Oliwa.
West Indies:	South Sea Rose.
Dominican Republic:	Flor del Peru, Laurel Rosado, Martinica, Piruli, Rosa del Peru.
Puerto Rico:	Adelfa, Alelia, Alheli Extranjero, Laurel, Laurel Rosado, Oleander, Sea-side Rose.
Antilles:	Rosa Francesa.
Mexico:	Laurel, Laurel Rosa, Oleanda, Rosa Laurel.
Guatemala:	Narciso.
Venezuela:	Rosa de Berberia, Berberia.
Colombia:	Azucena de la Habana, Flor de la Habana, Laurel de Judea.
Argentina:	Laurel Rosa.

SPECIMENS EXAMINED

A selection of the specimens seen by LEEUWENBERG and/or PAGEN

LIBYA: Derna (fl., fr.) Gregory 23.VII.1908 (BM, MO); ibid. (fl. May) Pampanini & Pichi-Sermolli 6142 (FI, K); ibid. (fl., fr.) Palma 10.IV.1926 (FI); ibid. (fl., fr. Mar.) Davis 50372 (K); 24 kms. W. of Derna (fr. Jan.) Loufty Boulos 1204 (S); El Barcat (fr. Mar.) Corti 20, 21, 22 (FI).

NIGER: Araka (fl., fr. Mar.) Meniertzhagen 176 (K).

TUNISIA: Qabis (buds, fr. Mar.) Pitard 190 (K, MO, WAG); ibid. (fl.) Kralik 9.V.1854 (FI-W); Bou Arada (fl., fr.) Le Testu 7.IX.1898 (BM); Zaghwan (fl.) Kralik 3.VIII.1854 (FI-W); Al Hammamat (fr. Oct.) Gandoger 106 (K, MO); Nabul (fr. Oct.) Gandoger 106 (C, K, Z); Tunis (fl.) Aberg anno 1848 (S); Jazirat Zambrah (buds) Ochsenius IX.1865 (Z); Tabarqah (fl., fr. July) Jansen 620 (WAG): ibid. (fl. May) Davis & Lamond D.57848 (BM).

ALGERIA: Annaba (fl., fr.) Decaisne 7145 (BR); ibid. (fl., fr.) Dukerley s.n. (BR); between El Aouana and Jijel (fl. May) Davis 52792 (BM); Alger (fl., fr.) Gandoger 155 (BM, C, FI); ibid. (fl.) Woelmont s.n. (BR); Hammam Melouane (fr. Oct.) Kramer 5321 (Z); Blida (fl., fr.) Bellot 14.VIII.1869 (FI); ibid. (fl.) Chabert VI.1871 (FI); ibid. (fl. May, fr. Nov.) Jamin 59 (FI-W, K,

WAG); ibid. (fl. July) Salle 129 (C, P, WAG); ibid. (fr.) Bommer s.n. (BR); between Blida and Chiffa (fl.) Thoren III.1881 (S); Médéa (fr.) Chabert 5.X.1871 (FI); Berrouaghia (fl.) Luizet 6.X.1886 (MO); Boghar (fl.) Debaux VI.1856 (NY); ibid. (fr.) Debaux X.1856 (NY); ibid. (fl.) Debaux 2.VII.1856 (BM, BR, FI, S, WAG); ibid. (fr.) Debaux 25.XII.1855 (BM, BR, FI, S, WAG); ibid. (fl., fr.) Gandoger anno 1906–1907 (NY); Cherchell (fl.) Hafstrom 10.V.1925 (S); Theniet El Had (fr.) Chabert 24.IX.1871 (FI); Djebel Maïz (fl.) Uggla 18.IV.1936 (S); Kristel (fl., fr.) Debaux 4.VIII.1881 (S); Oran (fr.) Debaux anno 1892 (FI); ibid. (fr.) Gandoger anno 1909 (FI, K, MO); ibid. (fr., fr.) Romain VII. 1849 (BM); Sig (fl., fr.) Durando anno 1850 (FI-W); Lauriers Roses (fl.) Faure 20.VI.1912 (BM, FI, Z); Sidi Bel Abbes (fl., fr.) Warioy 1.VII.1876 (FI); Tlemcen (fl.) Faure 25.VIII.1932 (S); between Rhoufi and Biskra (fl. May) Davis 52377 (BM); Biskra (fl.) Balansa IV.1853 (FI-W); ibid. (fr.) Chevallier VI.1897 (FI, WAG); ibid. (fl.) de Geer V. 1891 (S, UPS); ibid. (fl.) Rouseau V.1927 (BR); between Laghouat and Aflou (fr. May) Urwi 62 (Z); Aïn Sefra (fl. May) Chevallier 342 (FI, WAG); ibid. (fl. May) Hochreutinger 523 (Z); Beni Ounif (fl.) Sandermann Olsen 25.V.51 (C); Béchar (fl.) Andreánszky 22.IV.1928 (BP); ibid. (fl. July) Harshberger 1127 (NY); Ahaggar (veg. July) James 11 (BM); Guelta Afilale (fl., fr. Aug.) Van Impe 32 (BR); Garet Rouba (fl., fr.) Faure 2.VIII.1933 (BR, MO); 72 kms. N.W. of Tamanrasset (fr.) Croston 6.II.1978 (MO);

Morocco: 25 kms. N. of Agadir (fl., fr. Mar.) Miller et al. 408 (BM, MO); Tamri (fl., fr. Mar.) Davis 48461 (BM, NY); Oued Tamri (fl) Bannerman 2.III.1952 (BM); Tachdirt (fl.) Andreánszky 27.VI.1930 (BP); Oumenast (fl. Aug.) Williamson 519 (BM); Tislit Valley (fl., fr. Aug.) Newbould 184 (BM); Jemaa de Mrirt (fl. July) Davis 55161 (BM, MO); Ifrane (fl. May) Jahandiez 447 (BM); Oued Kroumane (fl. July) Woodell 105 (BM); Bab Bou Idir (fl. Aug.) Fry 42 (BM); Taza (fl.) Andreánszky 17.V.1930 (BP); Targuist (fl. June) Font Quer 486 (BM); Al Hoceima (fl., fr. Aug.) Heath 378 (BM, K); Cap des Trois Fourches (fl.) Gandoger IV.1908 (MO); Melilla (fl.) Sennen & Mauricio 18.V.1931 (BM); Sebkha Bou Areg (veg.) Gandoger IV.1909 (NY); Berkane (bud Apr.) Wilczek et al. 873 (MO); Taforalt (veg.) Faure 2.V.1930 (FI).

Portugal: Mora (fl. June) Raiuha 3603 (S); between Mertola and Pomarao (fl. June) Moller 1286 (COI, Z); Tavira (fl. May) Welwitsch 229 (FI-W, K); Faro (fl. July) Bourgeau 1952 (BP, BR, C, FI-W, K, WAG).

Spain: Alcala de los Gazules (fl. June) Bourgeau 326 (BM, FI-W, K, P, WAG, Z); Algeciras (fl., fr.) Winkler 12.V.1873 (BP); ibid. (fl.) Reverchon 26.VI.1987 (BM); ibid. (fl. Aug.) Ellman & Hubbard 395 (K); San Roque (fr.) Regnell 27.XII.1938 (S); Ronda (fl.) Reverchon 20.VII.1889 (BM); Ojén (fl.) D.B.L. 5.V.57 (BM); Monda (veg.) Thornberg 30.IV.1968 (C); Malaga (fl. Apr.) Brandt 950 (S); ibid. (fl.) Cyrén 4.V.1924 (S); ibid. (fl.) Erlandsson 23.VII.1952 (S); ibid. (fl., fr.) Lange I.1872 (C, UPS); between Canillas de Aceituna and Sedella (fl. Aug.) Goyder & Jury 452 (BM); Almunécar (fl.) Roivainen 25.IV.1952 (UPS); Almeria (fl. Apr.) Glanville 197 (BM); ibid. (fl. Apr.) Stace 141A (BM); ibid. (fl. June) Ball et al. 222 (BM); 4 kms. W. of Almeria (fl., fr. Apr.) Gardner 1694 (BM); Alcolea del Rio (fl.) Anonymus 1810 (FI); between Cordoba and Sevilla (fl.) Garnett V.1932 (BM); between La Carlota and Cordoba (fl. May) Dandy 1473 (BM); between Arquillos and Canena (fl. May) Pedersen 10363 (C); Murcia (fr.) Lange 19.XI.1851 (C); Alcoy (fr. May) Dechamps & Doutrelepont 2188 (BM); Chiva (fl.) St.-Lager 15.VI.1890 (K, NY); Valencia (fl., fr.) Bicknell 1.IX.1905 (BM); Segorbe (fl.) Pau 2.VII.1887 (BP, FI); ibid. (fl. Aug.) Willkomm 484 (BM, C); Benicarló (fr. Jan.) Sennen 3984 (BM); ibid. (fl. Aug.) Gédéon 4229 (BM); Roquetas (fl. May) Nilssen 539 (BM, UPS); Tranquera (fl., fr.) Galathea Exp. 1845–1847 (C); Barcelona (fr. Dec.) de Sequenza 274 (FI); ibid. (fl.) Sennen 19.VI.1929 (BM); Ibiza; San Antonio Abad (fl., fr.) Lindahl 21.VI.1870 (S, UPS); Santa Eulalia del Rio (fl. June) Welti-Hug 694 (Z); Es Cana (fl. June) Cannon 3287 (BM).

France: Toulon (bud, fr. Sept.) Koehler 4926 (BR); ibid. (fl.) Loiseleur s.n. (S); ibid. (fl.) Tholin 7.VI.1880 (Z); La Londe-les-Maures (fl., fr. June) Coraze 1358 (BR); ibid. (fl.) Mercurin 6.VI.1934 (BR); La Garde-Freinet (fr.) Desplantes VIII.1926 (S); Roquebrune (fl.) Bertrand VI.1899 (FI); Agay (fl.) de Maupassant 24.VI.1885 (Z); ibid. (fl.) Vidal 3.VI.1888 (S); ibid. (fr.) Vidal 24.X.1888 (S); Corsica: St. Florent (fl.) Hafstrom 10.VI.1930 (S); ibid. (fl., fr.) Autheman 11.I.1874 (BP); ibid. (fl. Aug.) Gabriel 1358 (BM, Z); ibid. (fl., fr. Aug.) Kralik 692 (FI-W, K, WAG); ibid. (fl., fr.) Levier 3.VII.1880 (FI); ibid. (fl. July, fr. Oct.) Mabille 158 (BM, BR, FI, K); ibid. (fl.) Pelgrims

VII.1956 (BR); ibid. (fl.) Rauch 14.VIII.1922 (Z); ibid. (fl. July) Segal 232 (WAG); ibid. (fl.) Schinz 27.IX.1922 (Z).

ITALY: Tignale (fl.) Rigo 12.VII.1878 (BR, UPS, Z); Dolceacqua (fl.) Hesselman 18.V.1896 (UPS); Ventimiglia (fl. June, fr. Oct.) Pollini 2318 (BM, BP, FI, K, Z); between Bordighera and Ventimiglia (fl.) Barla VI.1847 (FI); Bordighera (fl.) Bicknell 11.VII.1892 (BR, FI, NY); ibid. (fl., fr.) Bicknell 19.VI.1890 (AAU, S, UPS); ibid. (fl.) Seiffert 16.VII.1890 (BM, BP); ibid. (fl.) Bicknell 12.VI.1906 (S); ibid. (fl.) Bicknell 30.VII.1890 (BM); Imperia (fl.) Corradi VIII.1938 (FI); Andora (fl., fr.) Lacaita 27.VIII.1882 (BM); between Andora and Capo Mele (fl.) Piccone 1.VI.1873 (FI); Genova (fl.) Woods 540/1 (BM); Pisa (fl.) Van Heurck anno 1868 (BR); Sansepolcro (fl.) Pichi-Sermolli 17.VII.1932 (FI); Antignano (fl.) Tani VII.1930 (FI); Istia (fl.) Marchesetti 2.VII.1866 (FI); Tortora (fl.) F.Q. 24.VI.1917 (BM); Nova Siri (fr. Oct.) Gavioli 28291 (FI); Trebisacce (fl.) St.-Lager 4.VII.1891 (BM, NY); Gallipoli (fl.) Bradford 1926 (BM); Neto R. (fl.) Fiori 26.VII.1883 (FI); Palizzi (fl.) Biondi 5.V., 4.VI., 7.VI.1877 (FI); Reggio di Calabria (veg.) Caruel 25.X.1883 (FI); Capraia (fl.) Bavazzano 23.VI.1969 (FI); ibid. (fr.) Bavazzano 30.III.1969 (FI); ibid. (fr.) Béguinot & Donia 6.I.1898 (FI); ibid. (fr.) Requien 28.X.1847 (FI-W); ibid. (fl., fr.) Sommier 23-29.V.1910 (FI); Isola del Giglio (fl., fr.) Flaru Gulio 26.IX.1894 (FI); ibid. (fl.) Tonina anno 1894 (FI); Sardinia: Orune (fl.) Martelli 7.VI.1899 (FI); Dorgali (fl.) Martelli 19.VI.1895 (FI); Arbatax (fl.) Martelli 26.V.1895 (FI, S); Iglesias (fl. July) Müller 1828-4 (BP, BR, K); ibid. (lg. Mar.) Fiori 120 (BM); Cagliari (fl.) Sommier 12.V.1872 (FI); Alcamo (fl.) Fleming 5.X.1843 (BM); Mondello (fl.) Sommier 3.VI.1873 (FI); ibid. (fl.) Strollz 4.VII.1873 (BP); Palermo (fl.) Todaro anno 1849 (S); ibid. (fl., fr. July) Todaro 472 (BM, BP, BR, FI, K, S); ibid. (fr.) Todaro 2.XII.1921 (BM); 15 kms. E. of Cefalú (fl. May) Davis & Sutton 64032 (BM); Mazzarra (fr.) Borzi XI.1875 (FI); Mandanici (fl.) Aiuti V.1872 (FI); Messina (fl.) Sequenza IV.1865 (FI); Alcantara R. (fr.) Karpati 12.X.1961 (BP); 10 kms. N.E. of Taormina (fl., fr. July) Akeroyd et al. 3585 (BM); Taormina (fl.) Borzi VI.1881 (FI); ibid. (fl.) Borzi 6.VII.1884 (BP); ibid. (fl.) Groves 29.V.1926 (BM); Brucoli (fl. Apr.) Larsen et al. 35721 (AAU); Ragusa (fl. June) Kundise 629 (AAU); Camastra (fl., fr.) Martelli 11.VII.1906 (BP).

MALTA: Malta (fl.) Parlatore 15.IX.1834 (FI).

YUGOSLAVIA: Split (fl.) Prior VI.1843 (K); Cannosa (fl.) Vetter 28.V.1926 (S); Ombla (fr.) Adomovic VII.1907 (BP); ibid. (veg.) Lengyel 13.IV.1909 (BP);Dubrovnik (fl.) Barrat VIII-420 (NY); ibid. (fl.) Pichler V.1872 (BP, K); ibid. (fl.) Schlijters 9.VI.1880 (AAU, BM, S, UPS, WAG); 4 kms. E. of Morinje (fl., fr. Aug.) Forst-Olsen 1444 (AAU); Herceg Novi (fl.) Lenander 16. VI.1938 (S).

ALBANIA: Vlorë (fl., fr. Sept.) Alston & Sandwith 2779 (BM, K); ibid. (fl.) Baldacci 1902 (BM).

GREECE: Kefallinia (fr.) Schimper & Wiest X-XI.1834 (FI, K); Kalavrita (fl.) Bornmüller 1105 (Z); Patras (fl. May) Mattfeld 141 (K, MO); Dhiakopton (fl., fr.) St.-Lager 20.VII.1899 (BM, K, NY); Argos (fl.) St.-Lager 26.VII.1899 (C, G); Poros (fl.) Heard 1924 (BM); Mt. Imittos (fl. June, fr. Sept.) De Heldreich 960 (BM, C, FI, K, P, S, UPS, Z); ibid. (fl. Aug., fr. Oct.) Atchley 368 (K); Marathon (fl.) Walker 5.VI.1882 (BM); ibid. (fl.) Rogers 433 (K); Kimi (fr. Aug.) Rechinger 37867 (AAU); Skiros (fl. Apr.) Rechinger 744 (BM); Athos (fl.) Trivaleszky 731 (BP); Samothraki (fl.) Cyrén 13.VI.1932 (S); ibid. (fl. June) Rechinger 9935 (BM); Khios (fl. May) Rechinger 5353 (BM); ibid. (fl. July) Platt 338 (K); Sifnos (fl., fr.) Royal Liberty School 22.VIII.1963 (K); Karpathos (fl. June) Greuter 5819 (Z); ibid. (fl. June) Rechinger 8112 (BM); Tilos (fr.) Desio 14.X.1922 (FI); Crete: Kastelli (fl. June) Baldacci 186 (BM, MO); Platanias (fl.) Reverchon 4.VII.1883 (BP, FI, K, UPS); Gavdhos (fl. June) Rechinger 13641 (K, S); Khersonisos Akrotiri (fl.) Gandoger 6.VI.1914 (K. MO); Iraklion (fl.) Wall 27.VII.1930 (S); Kavousi (fl., fr. June); Lemperg 637 (K); Sitia (fl. May) Rechinger 12673 (BM); Rhodes: Kattavia (fl.) Jannone 17.VIII.1934 (FI); ibid. (fl.) Muzzocchi-Alemanni 26.IV.1922 (FI); Lindos (fl. June) Rechinger 8440 (BM, K).

CYPRUS: Paphos (fl. July) Stavros 42 (BM); Kalavasos (fl. May) Holmboe 621 (C); Kyrenia (fl. July) Atherton 222 (K); ibid. (fl. July) Atherton 189 (K); ibid. (fl. June) Mapple 86 (K); Nicosia (fl.) Lindberg 6.VI.1939 (K); ibid. (fl. June) Syngrassides 414 (K); Kythrea (fl.) Sintenis V.1880 (S); Ayia Napa (fl.) Lindberg 10.VII.1939 (S).

TURKEY: Büyükdere (fl.) Berggren s.n. (UPS); Canakkale (fl. Aug.) Sintenis 814 (BM, BR, K, P, S); between Bergama and Izmir (fl. May) Dudley D34850 (K); Izmir (fl. May) Bornmüller 9764 (P); Aydin (fl. Febr.) Stutz 444 (NY); Marmaris (fl., fr. July) Khan et al. 34 (K); Antalya (fl. May) Tengwall 627 (K, S); ibid. (fl. June) D.E.S.T. 79 (K); Alanya (fl. Sept.) Baytop 10602 (BM); Anamur

(fl.) Peronin 83 (K); Mersin (fl. May) Hennipman et al. 1080 (K, WAG); Adana (fl. May) Balls 1191 (BM, K); Yumurtalik (fl., fr. Sept.) McNeill 806 (K); Osmaniye (fl. May) Davis 42251 (K); Belen (fl., fr. July) Gombault 439 (P); Iskerendun (fl. Apr.) Davis & Hedge D26941 (BM, K); Yayladagi (fl. May) Dinsmore 16987 (S); Mardin (fl., fr. May) Davis 42659 (K).

SYRIA: between Aleppo and Antakaya (fl., fr.) Rufish s.n. (BM); Saïda (fl. June) Blanche 692 (P); ibid. (fl., fr.) Gaillardot 5.VII.1855 (BM, BR, C, FI, K, P. S, WAG).

LEBANON: Al Majdal (fl., fr.) Lowne 1863-4 (BM, K); Bhamdun (fl.) Wall 30.V.1934 (S).

ISRAEL: Lake Hula (fl. Oct.) Jones 224 (BM); Ayyelet Hashahar (fr. July) Eig 10552 (BM); ibid. (fl., fr. Apr.) Steinberg & Bavazzano 2539 (FI); ibid. (fl., fr. July) Eig 10538 (K); between Lake Hula and Lake Tiberias (fl., fr. Nov.) Taylor MEG (K); Tiberias (fl.) Osborne 271 (K); Teverya (fl., fr.) Linder anno 1912 (UPS); Har Karmel (fl. Apr.) Steinberg & Bavazzano 3298 (FI); Sha'ar Ha'amaqin (fl., fr. Oct.) Zohary & Amdursky 456 (AAU, BM, BR, C, FI, K, MO, NY, P, S, UPS, WAG, Z): Jerusalem (fl. May) Meyers & Dinsmore B2987 (S).

JORDAN: Jordan Valley (fr.) Berggren 25.X.1821 (UPS); ibid. (fr.) Michon 5.III.1851 (P); Wadi At Tayyibah (fl. Apr.) Steinberg & Bavazzano 2992 (FI); Jarash (fl.) Crowfoot 70 (BM); between Amman and Jarash (fl. Nov.) Carr 15 (NY); Al Mazra'ah (fl. Apr.) Dinsmore 18987 (K, S, Z); Petra ruins (fr. Apr.) Davis 8771 (K); Wadi Musa (fl. Apr., fr. Oct.) Dinsmore 10987 (K, S); ibid. (fl.) Marsh 4–10.VI.1854 (MO); Jabal Abu Khushaybah (fr.) Hart XI.1883, II.1884 (BM).

ETHIOPIA: Gheleb (fl.) Rodén 1912–20 (S).

OMAN: Salalah (bud) Sammicheli I-II.1974 (FI); Sur (fl., fr. Mar.) Radcliffe-Smith 3924 (K); Ghawrab (fl. Apr.) Lee-Oldfield 36 (BM); Wadi Sahtan (fl., fr. Apr.) Mandaville 6142 (BM); Bidbid (fl. Mar.) Mandaville 3433 (BM); Muscat (fr. Jan.) Bornmüller 501 (BM, BR, K, P, Z); ibid. (fl., fr. Jan.) Bornmüller 502 (BM, BP, BR, FI, K, P, Z); ibid. (fl.) Leclancher 32 (P); ibid. (fl.) Aucher-Eloy 4925 (BM, FI, FI-W, K, MO, P); Jabal al Akhdar (fl. Mar.) Edmondson 3479 (E); Ar Rustaq (fr. Oct.) Miller & Whitcombe 2779 (E).

UNITED ARAB EMIRATES: Al Fujayrah (fl. Feb.) Edmondson 3133 (E); between Al Khatt and Daba (fl. May) Western 177 (E).

IRAQ: Zakho (fl. July) Rechinger 12141 (AAU); ibid. (fl., fr. June) Yusuf Lazar 815 (MO); 5 kms. S. of Zakho (fl. July) Rawi 23117 (K); Rost (fl., fr. Oct.) Guest 278 (Z); ibid. (fl., fr.) Yusuf Lazar 21.X.1932 (MO); between Arbil and Rawandiz (fl. June) Bornmüller 1541 (BR, K, P); Arbil (fr.) Guest 22.III.1930 (K); 13 kms. S.W. of Sylaymaniyah (fl. June) Rawi 21710 (K); between Mosul and 'Aqrah (fl. Sept.) Lizzi & Omar 35280 (K); Abu Ghurab (fl.) Hikmat Abbas 31.VII.1961 (K).

IRAN: Shahpur (fr.) Bélanger 720 (P); Sheshom (fl. June) Jacobs 6800 (E, GRO, K, L, MIN, W); between Khorramabad and Andimeshk (fl. Apr.) Wright & Bent 425–101 (K); Dezful (fl. May) Koie 1253 (C); ibid. (fl. June) Loftus 33 (BM); Behbehan (fl.) Hausknecht VI.1868 (BM, K, P); Kazerun (fr. Feb.) Koie 44 (C); Konar Takhted (fr. Dec.) Bornmüller 513 (K); Shiraz (fr. Dec.) Bornmüller 3849 (BM, BP, BR, K, Z); ibid. (fr. Nov.) Grant 15091 (MO); ibid (fr. Oct.) Pravitz 356 (S); Kerman (fr. Sept.) Bornmüller 2402 (BP, WAG); ibid. (fr.) Gandoger VII.1906 (MO); between Shahdab and Kerman (fr. Sept.) Bornmüller 3850 (BM, BP, BR, C, FI, K, P, S, UPS, WAG); Shahdab (fl.) De Bunge IV.1859 (FI, P); Gudiz (fl. May) Léonard 6248 (BR); between Bam and Jiroft (fr. Apr.) Léonard 5615 (B); ibid. (fr. Apr.) Léonard 5616 (K); Halil Rud (fl. June) Assadi et al. 1790 (NY); Tarom (fl. Apr.) Rechinger 3282 (S); 240 kms. S. of Sa'idabad (fl. May) Léonard 5924 (BR, K); Manujan (fl. Apr.) Léonard 5883 (BR, K); Bandar'Abbas (fl., fr.) Fariab 1.XII.06 (K); Minab (veg.) Collet VIII.1886 (K); Bandar-e-Lengeh (fl., fr. Mar.) Davis & Bokhari D.56161 (K, MO); Nikshahr (fl. Mar.) Faraughi 10665 (E).

PAKISTAN: Gwadar (fl. Apr.) Rechinger 27785 (S); between Mand and Suntsar (fl., fr. Feb.) Ali et al. 1085 (MO); Kalat (fr. Apr.) Rechinger 27379 (AAU, S); between Turbat and Gwadar (fl., fr. Apr.) Lamond 425 (E); Khadeji (fl., fr. Apr.) Lamond 761 (E); Sibi (fl. July) Andersen & Petersen 479 (AAU, C, K); between Nushki and Quetta (fl. May) Sultan ul Abedin 3236 (NY); Fort Munro (fl.) Wilson 30.VIII.1921 (P); Fort Sandeman (fl. May) Duthie 20588 (K); Ara (fl. May) Bis Ram 443 (NY); Rawalpindi (fl. Apr.) Aitchison 464 (K); between Attock and Khushalgarh (fl. May) Rechinger 30417 (AAU); Shakar Parian (fl.) Manzoor 24.X.77 (MO); Malpur (fl. Aug.) Akram & Dilawar 32 (MO); ibid. (fl.) Manzoor & Javeed 21.X.74 (MO); between Murree and Rawalpindi (fl.) Bellew 19.VI.1873 (K); Siran Valley (fl. June) Inayat 19938 (K); Chitral (fl., fr.July) Harriss 16364 (K); ibid. (veg. Oct.) Toppin 817 (K).

AFGHANISTAN: Barikowt (fl., fr. July) Edelberg 1627 (C); Chigha Sarai (fl. July) Lamond 2541 (E).

INDIA: Punch (fl., fr. Nov.) Schlagintweit 12606 (BM); between Doda and Ramnagar (fr. July) Saran et al. 29908 (Z); Pathankot (fl.) Drummond 989 (K); Dharmsala (fl. Sept.) Gammie 18752 (K); Bhadwar (fl. Apr.) Koelz 4286 (MO, NY); Baijnath (fl. May) Koelz 4607 (NY); Mandi (fl. May) Koelz 8326 (NY); Larji (fl., fr. Nov.) Koelz 3125 (NY); Kotla (fl. May) Stewart 1816 (NY); Simla (fl. Sept.) Drummond 23559 (K, P); ibid. (fl.) Drummond 22622 (K); Sirmur (fr. Dec.) Drummond 20625 (K); Kapkot (fl.) Strachey & Winterbottom s.n. (BR); Saharanpur (fr. Aug.) Gamble 25664 (K); Kheri (fl. Apr.) Inayat 22148 (K); Abu (fl. Oct.) Gamble 6662 (K); Someswari R. (fl. May) Legge 63 (K).

NEPAL: Silgarhi (fl. Apr.) Bis Ram 275 (NY).

CHINA: Yunnan: Yangpi Pass (fl. Sept.) Ducloux 4432 (P); Chi-tsu Shan (fl. Mar.) McLaren 153C (E).

NOMEN NUDUM

Nerium grandiflorum Desf., Tab. ed. 2: 92. 1815 = *N. oleander* L.

EXCLUDED SPECIES

Not those published in synonymy only.

Nerium antidysentericum Lepech., Reise 1: 270. 1800 = *Apocynum venetum* L. = *Trachomitum venetum* (L.) Woodson (ex Woodson Ann. Miss. Bot. Gard. 17: 159. 1930).

N. antidysentericum L., Sp. Pl. 209. 1753 = *Wrightia antidysenterica* (L.) R. Br.

N. *caudatum* (L.) Lam., Encycl. 3: 458. 1789 = *Strophanthus caudatus* (L.) Kurz.

N. caudatum Roxb., Hort. Beng. 84. 1814, nomen; Fl. Ind. 2: 9. 1832 = *Strophanthus wallichii* A. DC.

N. chinense Hunter ex Roxb., Hort. Beng. 84. 1814, nomen; Fl. Ind. 2: 9. 1832 (as *chinensis*) = *Wrightia religiosa* (Teijsm. & Binnend.) Benth. ? (= supposed by Leeuwenberg, pers. comm.).

N. coccineum Roxb., Hort. Beng. 19. 1814, nomen; Fl. Ind. 2: 2. 1832 = *Wrightia coccinea* (Roxb.) Sims.

N. coraia Buch.-Ham. ex A. DC., Prod. 8: 407, 421. 1844, in syn. and nomen = *Wrightia arborea* (Dennst.) Mabberley.

N. coronarium Jacq., Coll. 1: 138. 1787 = *Tabernaemontana divaricata* (L.) R. Br. ex Roem. & Schult.

N. divaricatum L., Sp. Pl. 209. 1753 = *Tabernaemontana divaricata* (L.) R. Br. ex Roem. & Schult.

N. divaricatum Lour., Fl. Cochinch, 1: 142. 1790 = *Tabernaemontana divaricata* (L.) R. Br. ex Roem. & Schult. (as for the name) and *Wrightia antidysenterica* (L.) R. Br. (as for the description and the pre-Linnean synonyms).

N. divaricatum Thunb., Fl. Jap. 110. 1784 = *Tabernaemontana divaricata* (L.) R. Br. ex Roem. & Schult. (as for the name) and *Trachelospermum jasminoides* (Lindl.) Lem. (as for the description).

N. grandiflorum Roxb., Hort. Beng. 19. 1814, nomen; Fl. Ind. 2: 10. 1832 = *Cryptostegia grandiflora* (Roxb.) R. Br. ex Lindl. (Asclep.).

N. guineense Brongn. ex Perrot & Vogt in Trav. Mat. Méd. Paris 1912, 9: 61 (1913) = *Strophanthus gratus* (Wall. & Hook.) Baill.

N. obesum Forssk., Fl. Aegypt. Arab. 205. 1775 = *Adenium obesum* (Forssk.) Roem. & Schult.

N. piscidium Roxb., Hort. Beng. 19. 1814, nomen; Fl. Ind. 2: 7. 1832 = *Melodinus monogynus* Roxb.

N. reticulatum Roxb., Hort. Beng. 19. 1814, nomen; Fl. Ind. 2: 8. 1832 = *Cryptolepis buchananii* Roem. & Schult. (Asclep.).

N. salicinum Vahl, Symb. Bot. 45. 1791 = *Breonadia salicina* (Vahl) Hepper & Wood, Kew Bull. 36: 860. 1982.

N. scandens Lour., Fl. Cochinch. 143. 1790 = *Strophanthus caudatus* (L.) Kurz.

N. scandens Thonn., in Schum. & Thonn., Beskr. Guin. Pl. 148. 1827 = *Alafia scandens* (Thonn.) De Wild.

N. sibiricum Medic., Beobacht. 15. 1780 = *Apocynum venetum* L. = *Trachomitum venetum* (L.) Woodson (ex Woodson Ann. Miss. Bot. Gard. 17: 159. 1930).

N. sinense Hunter ex Ridley, in Journ. As. Soc. Straits 53: 81. 1909 = *Wrightia antidysenterica* (L.) R. Br. (deduced here from Ridley's text).

N. tinctorium Roxb., Hort. Beng. 19. 1814, nomen; Fl. Ind. 2: 4. 1832 = *Wrightia tinctoria* R. Br.

N. tomentosum Roxb., Hort. Beng. 84. 1814, nomen; Fl. Ind. 2: 4. 1832 = *Wrightia tomentosa* (Roxb.) Roem. & Schult. = *W. arborea* (Dennst.) Mabberley.

N. undulatum (Lam.) Salisb., Prod. 148. 1796 = *Pittosporum senacia* Putterl.

N. zeylanicum L., Centur. Pl. 2: 12. 1756 ex L. Amoenitates 4: 309. 1759 (as *N. zeylonicum)* = *Wrightia antidysenterica* (L.) R. Br. (ex Ngan Ann. Miss. Bot. Gard. 52: 166. 1965).

POLLINATION OF THE OLEANDER

LOCATING THE STIGMATIC AREA ON THE PISTIL IN NERIUM OLEANDER L. BY MEANS OF FLUORESCENCE MICROSCOPY

INTRODUCTION: The flower of *Nerium oleander* features a pistil with a morphologically highly differentiated pistil head (Fig. 1).

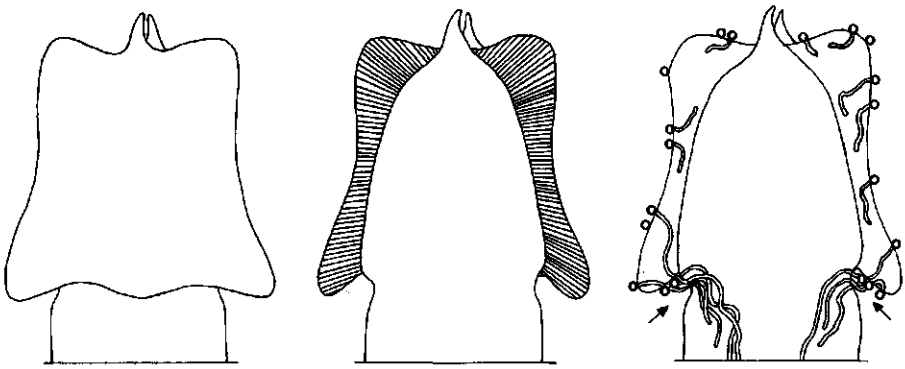


FIG. 1. Diagram of the pistil head of Nerium oleander L. a. as visible without enlargement; b. in transverse section as revealed by microscopy: the specific shape appears to be determined by the length of the hairs, as suggested by the hatched lines; c. pollen grains will germinate on any part of the pistil head, but penetration is exclusively possible in the area indicated by arrows.

The entire pistil head is covered with bristly hairs, which determine, by their length, the specific shape of the pistil head. The central cylindrical part of the pistil head is covered with rather short hairs, inserted on a glandular epithelium which produces an adhesive. At the upper edge of the cylindrical part the hairs are longer, pointing outward and upward, thus forming a ring or wreath. On the lower part of the pistil head long hairs, pointing downward, are arranged in a sinuous line around the cylinder, forming a collar. Below this collar, which hangs down from the pistil head, is a circular depression marking the transition to the style. The pistil head is topped by two short erect appendages.

This morphological differentiation is accompanied by an analogous functional differentiation. Only specific areas on the pistil head have a stigmatic function and are receptive for pollen tubes.

An experiment was executed 1) to pinpoint the exact location of the receptive area, and 2) to test compatibility of self-pollinations and of cross-pollinations between cultivars.

With fluorescence microscopy and a clearing-squash technique the pollen tubes in the pistil can be made clearly visible.

MATERIALS AND METHODS: Living plants of fourteen single-flowered oleander cultivars (one of each) were available, most of them carrying several inflorescences. The plants were provided by the Dutch Oleander Society. The 50 cm tall plants were grown in pots of 14 cm diameter, placed on tables in a greenhouse at a temperature of 21 °C (glasshouse room provided by the Department of Horticulture of the Wageningen Agricultural University).

About a hundred pollinations were executed by hand, self-pollinations as well as cross-pollinations between cultivars. Precautions were taken to avoid un-

wanted natural pollination: the flowers were emasculated and protected with cheese cloth covers.

Two days after pollination the pistils were removed from the flowers and placed in Herr's clearing fluid during 24 hours to make the tissues transparent. The clearing fluid is composed of lactic acid (85%), chloral hydrate, phenol, clove oil, and xylene (2:2:2:2:1, by weight) (HERR 1971). After washing in ethanol and water the pistils were macerated during 1 hour in 1 n NaOH at 60 °C, washed in water and placed in a solution of 0.1% aniline w.s. dissolved in 0.1 n K_3P0_4. The material was kept in the aniline solution for at least 30 minutes. Then the pistils were placed on a slide in a drop of glycerin and covered with a glass slip. Squashing was hardly necessary as the weight of the cover slip spreads the cells of the pistil sufficiently.

The preparations were examined with a Zeiss Standard WL microscope which had been made suitable for fluorescence observations by mounting a Zeiss UV HBO 50 Watt high pressure mercury vapour lamp, and the filter combination BP 365 (Exciter filter)/FT 420 (Dichromatic beam splitter)/LP 425 (Barrier filter). A Neofluar 16X/0.5 objective and 12X oculars were used. Photographs were taken with a built-on Zeiss M35 camera.

Fluorescence microscopy is based on secondary fluorescence: the selective uptake of fluorescent substances by certain parts of the microscopic preparation (KHO & BAËR 1968). Callose, a substance present in the walls of the pollen tubes but absent in the surrounding tissue, takes up aniline selectively and consequently fluoresces when illuminated by blue or ultraviolet light. A mercury vapour lamp supplies short-wave radiation. Filters between light source and microscope select the desired light waves, which illuminate the preparation from above. A filter between objective and oculars absorbs the short waves again, only the long waves of the fluorescent parts of the tissue being transmitted. The pollen tubes are now visible in bright yellow-green, contrasting with a dark background.

OBSERVATIONS AND CONCLUSIONS: The technique described worked very well with *Nerium oleander*. In all preparations the pollen tubes were clearly perceptible.

The receptive stigmatic area evidently is located on the circular depression, right below the collar on the lower part of the pistil head, as shown in Fig. 1c. and in the Photos 11 and 12. Pollen grains will germinate on other parts of the moist surface of the pistil head as well, but the pollen tubes will grow along this surface without penetrating it. Penetration is exclusively possible in the indicated area (Fig. 1c.).

In most cases the pollen tubes could be followed from the point of penetration in the stigmatic area through the style until they entered the ovules, as shown in the Photos 12–14.

Nerium oleander appears to be self-compatible. After self-pollination no disturbance of pollen tube development has been observed. The pollen tubes reach the ovary and enter the ovules. However, in nature self-pollination rarely occurs, as is described in the next chapter.

All cross-pollinations between cultivars appeared to be compatible. In every combination of cultivars tested, the pollen tubes reached the ovules without difficulty.

POLLINATION MECHANISM

The *Nerium oleander* flower has an intricate construction (Fig. 2), connected with a refined pollination mechanism.

Dark, usually carmine red, longitudinal lines in the corolla throat point to the nectaries around the ovary at the base of the funnel-shaped corolla tube. However, much of the passage is blocked by the corona lobes and by the woolly plug formed by the intertwisted appendages of the anthers. The short-stalked stamens are inserted at the middle of the corolla tube. The anthers have firm sagittate plates outside and are introrse, adhering to the pistil head, thus forming a cone in the center of the flower. The pollen is shed inside the cone of anthers and collects on the top of the pistil head, completely isolated from the stigmatic area below the collar at the lower part of the pistil head.

Between the five triangular anthers are chinks, narrowing to the top of the cone. The insect's tongue can be inserted in the tube through these chinks or through the openings between the filaments. In either case, when the tongue is withdrawn it gets jammed between adjacent anthers. A powerful pull is necessary to release the tongue and in this action the tongue moves along the cylindrical part of the pistil head, where it gets covered with adhesive, and then through the pollen chamber, where pollen grains are glued to the tongue. The insect is probably disturbed and leaves the flower. In another oleander flower the procedure is repeated and when the tongue is withdrawn it brushes past the collar hanging down from the pistil head. Thus, the pollen is deposited below the collar, exactly on the receptive stigmatic area. Moving upward the tongue passes again along the cylindrical part of the pistil head and through the pollen chamber. The tongue is covered again with pollen and the insect is ready to pollinate another oleander flower.

The *Nerium oleander* flower is adapted to pollination by *Lepidoptera* (butterflies and moths). Only these insects have a tongue long enough to reach the bottom of the corolla tube and have the strength and endurance needed to release their tongue from the trap and establish pollination of the oleander flower. The oleander hawkmoth (*Deilephila nerii* L., *Sphingidae*), the larvae of which feed on oleander leaves, is often mentioned in this respect but it is definitely not the only oleander pollinator and the insect also pollinates other flowering plants.

Diptera and *Hymenoptera* often are found trapped in oleander flowers. Trying to collect nectar, their mouthparts become lodged between adjacent anthers or get entangled in the hairy appendages of the anthers. These insects cannot pollinate oleander flowers.

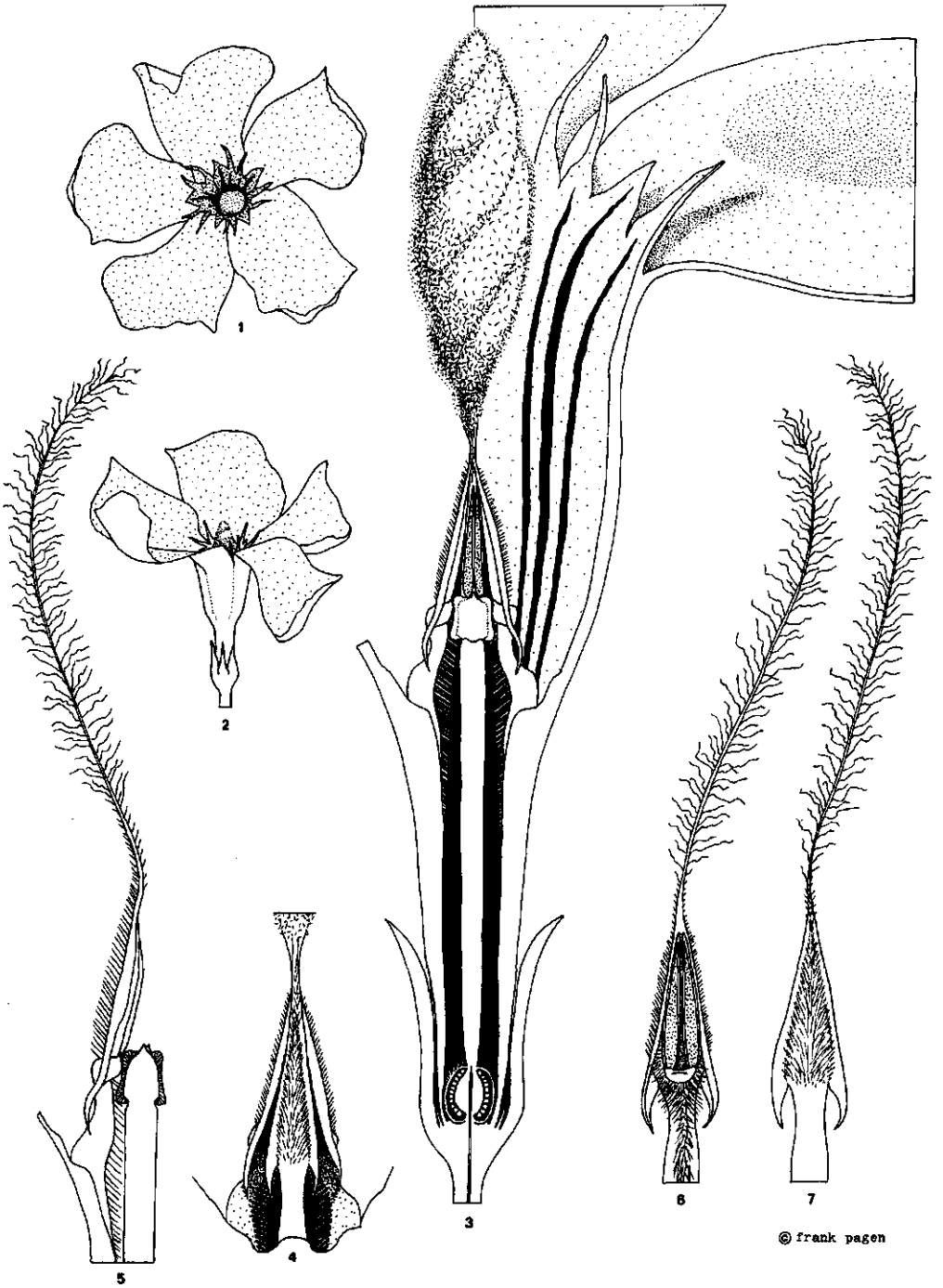


FIG. 2. The flower of Nerium oleander L. 1. corolla from above × 3/4; 2. lateral view × 3/4; 3. lengthwise section of the flower tube, 2 anthers removed × 6; 4. cone of anthers × 7; 5. position of anther and pistil head × 7; 6. anther, adaxial view × 7; 7. id., abaxial view × 7 (drawn from living plants).

A POISONOUS PLANT

All parts of the oleander contain toxic active principles. The plant is extremely poisonous to livestock and other animals, but the shrub is generally left untouched by them. However, there are records of animals having been killed by eating a few oleander leaves. THEOPHRASTUS mentions the poisoning of pack-animals during Alexander The Great's campaign (334–323 B.C.). DIOSCORIDES states that oleander leaves and flowers will kill dogs, donkeys, mules and other four-footed animals. Sheep and goats are killed even by drinking water in which oleander leaves are steeped, according to PLINY (Historia Naturalis 24. 90). In several vernacular names the oleander is referred to as a 'donkey-killer'. In Australia six cows out of a dairy herd of seventeen died: they were fed with a load of grass taken from a lawn near which oleanders were growing. Some leaves were mixed with the grass (Gardeners' Chronicle 1878). The New York Tribune reports that a healthy mare who ate a single tuft of leaves from a branch of an oleander had partially lost control of her hind limbs the next morning, and died before assistance could be obtained (Gardener's Chronicle 1881). A veterinary laboratory in the Dutch East Indies received in 1921 the report that buffaloes had died within a few hours after eating some oleander leaves (HEYNE 1927).

PLINY mentioned that honey made by bees of the nectar of oleander flowers has poisonous properties (op. cit. 21. 77). The same is stated by THEOBALD (1883 ex PERRY 1980) in reference to oleanders in Burma.

Many cases of oleander poisoning of human beings have been reported. The symptoms are depression, dizziness, fever, nausea, bloody diarrhoea, irregularity of heartbeat, weakened pulse, paralysis, loss of consciousness, and death through heart failure. In 1796, some French soldiers in Corsica died immediately after eating meat skewered on an oleander branch, and during the war in North Africa, the majority of a group of soldiers who slept on pallets made from oleander branches either died or were seriously poisoned, according to Loiseleur-Deslongchamps. The Annals of the Peninsular War states that in 1808 in Spain French soldiers cut some oleander branches and, having stripped them of the bark, used the branches as skewers. Out of twelve who ate of the roast seven died, and the rest were dangerously ill (Gardeners' Chronicle 1880). In a supplement to a herbarium specimen from South Africa (Capetown (cult.) Burtt Davy III. 1847 (K)), a record is given of the death of a four-months-old baby after drinking milk from a cow that had been eating oleander leaves. Children had been picking oleander flowers and had thrown some of the leaves carelessly into the hay. In California a boy died from the poison in an oleander branch that he had used to skewer hotdogs over a campfire (Time, Mar. 1. 1976). Oleander roots have been used in cases of suicide in India.

See also the Phytochemistry chapter.

MEDICINAL USES

Nerium oleander is known as a medicinal plant since ancient times. DIOSCORIDES states that the poison of the oleander, taken with wine and rue (*Ruta graveolens*), acts as an antivenin for snake bites.

In pharmacy the fresh or dried leaves, an infusion, decoction, plaster or salve made from the leaves, the powdered bark or a decoction of the bark, a paste made from the roots, and the dried flowers or a tallow cataplasm of the flowers are used.

Internally the drug is used with caution as a cardiac stimulant with an action comparable to *Digitalis*, to provoke menstruation, as an abortivum, as an antispasmodic in the treatment of angina pectoris, to break the opium-smoking habit, and to build up declining strength.

As an external medicine it is used against all kinds of skin diseases: rash, scabies, ringworm, lice, leprosy and boils, to treat skin eruptions or irritations in herpes, and to destroy maggots in wounds. The powdered leaves are used as a sneezing-powder.

Nerium oleander has also been used in the treatment of cancer: the flowers, leaves, leaf juice or latex, bark, and roots have been used against corns, warts, cancerous ulcers, hard apostemes, carcinoma, epithelioma, and indurated, ulcerating or hard tumors (HARTWELL 1967).

See also the Phytochemistry chapter.

OTHER USES

The latex or sap is used as an arrow poison, the bark as a rodenticide. Dried oleander leaves are laid between papers and documents to keep insects away, and are also used to expel fleas. The flowers are among those chosen by Hindus to offer to the God Siva. In India, Italy and Greece the oleander is associated with and used at funerals. The oleander was among the flowers used by the Romans in making garlands. The flowers are used for perfume. It is the floral emblem of Saint Joseph, and the oleander is popular for making temporary shelters used in the observance of the Jewish Feast of the Tabernacles. *Adenium* spp. can be grafted on a *Nerium oleander* rootstock to produce profusely flowering plants.

Above all, *Nerium oleander* is appreciated as an ornamental plant, as will be discussed in Part three: The oleander cultivars.

PART TWO
PHYTOCHEMISTRY OF NERIUM L.

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Chemical studies on the oleander have been reported under the three names *N. oleander* L., *N. indicum* Miller, and *N. odorum* Sol. Here, only an outline of the findings can be given, and the references to the literature should be consulted for further details.

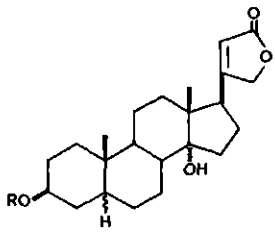
CARDIAC GLYCOSIDES

Extensive research has shown that the plant contains a complex mixture of cardenolide glycosides, with the quantitatively most important ones being derived from the following four aglycones: oleandrigenin (**2a**), digitoxigenin (**1a**), adynerigenin (**3a**), and oleagenin (**4a**). The sugars attached directly to the aglycones are mostly D-diginose (**5**), D-digitalose (**6**), and L-oleandrose (**7**), and the di- and tri-glycosides contain additionally one or two D-glucose residues. See: JÄGER *et al.* (1959), JANIAK *et al.* (1963), YAMAUCHI *et al.* (1975, 1983), and TITTEL and WAGNER (1981).

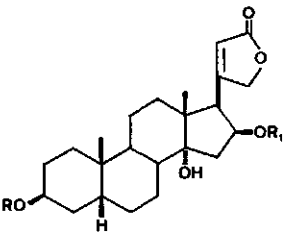
YAMAUCHI *et al.* (1976b) found that uzarigenin (**1b**) glycosides predominated in the **root bark**, the main component being odoroside B (**1h**). In the mixture of glycosides from the **stem bark**, on the other hand, digitoxigenin glycosides were the chief representatives, there being roughly equal amounts of odorosides A (**1c**), H (**1e**), and G (**1g**), as well as of odoroside B (**1h**).

It is the **leaves** that have received the most attention, because they are the source of the glycoside oleandrin, which has long been in use clinically (see below). The mixture of glycosides obtained depends very much on the origin of the material investigated and on its treatment prior to extraction. Early work on industrial residues led to the isolation of four glycosides: the main one oleandrin (**2k**), and deacetyl-oleandrin (**2e**), adynerin (**3c**), and neriantin (see: JÄGER *et al.*, 1959). Subsequent chromatographic studies on Dalmatian material, by TURCOVIC (1959c), showed the presence of many more glycosides. The principal triglycosides, present in approximately equal amounts, were the digitoxigenin and uzarigenin derivatives odorotrioside G (**1g**) and K (**1i**), respectively; the main diglycoside was the gitoxigenin derivative digitalinum verum (**2d**); and the major monoglycoside was again the oleandrigenin glycoside oleandrin (**2k**).

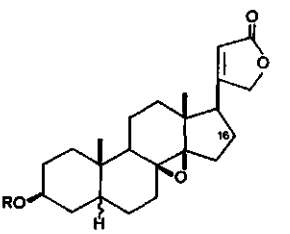
YAMAUCHI *et al.* (1975) in a more detailed study of air-dried leaves of Japanese origin obtained the triglycoside corresponding to oleandrin (**2l,m**) and the diglycoside corresponding to nerigoside (**2g**) as the chief glycosides present. In addition, the triglycosides corresponding to odoroside A (**1i**), adynerin (**3d**), and Δ^{16}-dehydro-adynerin (**3h**) were also isolated, as well as the diglycosides 16-*O*-



1a Digitoxigenin, R = H, R_1 = 5β–H
1b Uzarigenin, R = H, R_1 = 5α–H
1c Odoroside A, R = D-Diginose, R_1 = 5β–H
1d Odorotrioside A, R = D-Diginose-Gentiobiose, R_1 = 5β–H
1e Odoroside H, R = D-Digitalose, R_1 = 5β–H
1f Odorobioside G, R = D-Digitalose-D-Glucose, R_1 = 5β–H
1g Odorotrioside G, R = D-Digitalose-Gentiobiose, R_1 = 5β–H
1h Odoroside B, R = D-Diginose, R_1 = 5α–H
1i Odorotrioside K, R = D-Diginose-Gentiobiose, R_1 = 5α–H

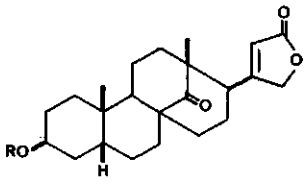


2a Oleandrigenin, R = H, $R_1 = CH_3CO$
2b Gitoxigenin, R = R_1 = H
2c Strospeside, R = D-Digitalose, R_1 = H
2d Digitalinum verum, R = D-Digitalose-D-Glucose, R_1 = H
2e Deacetyl-oleandrin, R = L-Oleandrose, R_1 = H
2f Nerigoside, R = D-Diginose, $R_1 = CH_3CO$
2g Glucosylnerigoside, R = D-Diginose-D-Glucose, $R_1 = CH_3CO$
2h Neritaloside, R = D-Digitalose, $R_1 = CH_3CO$
2i Glucosyloleandrigenin (= Oleandrigenin β-D-glucoside), R = D-Glucose, $R_1 = CH_3CO$
2j Glucosylneritaloside (= 16-*O*-Acetyl-digitalinum verum) R = D-Digitalose-D-Glucose, $R_1 = CH_3CO$
2k Oleandrin, R = L-Oleandrose, $R_1 = CH_3CO$
2l Glucosyloleandrin, R = L-Oleandrose-D-Glucose, $R_1 = CH_3CO$
2m Gentiobiosyloleandrin, R = L-Oleandrose-Gentiobiose, $R_1 = CH_3CO$

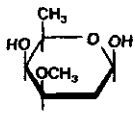


3a Adynerigenin, R = H, R_1 = 5β–H
3b Δ^{16}-Adynerigenin, R = H, R_1 = 5β–H, 16,17-double bond
3c Adynerin, R = D-Diginose, R_1 = 5β–H
3d Gentiobiosyladynerin, R = D-Diginose-Gentiobiose, R_1 = 5β–H
3e 5α-Adynerin, R = D-Diginose, R_1 = 5α-H
3f Δ^{16}-Dehydro-adynerin, R = D-Diginose, R_1 = 5β–H, 16, 17-double bond
3g Glucosyl-Δ^{16}-dehydro-adynerin, R = D-Diginose-D-Glucose, R_1 = 5β–H, 16,17-double bond
3h Gentiobiosyl-Δ^{16}-dehydro-adynerin, R = D-Diginose-Gentiobiose, R_1 = 5β–H, 16,17-double bond

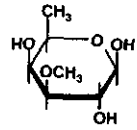
acetyldigitalinum verum (**2j**) and Δ^{16}-dehydro-adynerigenin D-glucosyl-β-D-digitaloside (**3g**) and the monoglycosides oleandrigenin β-D-glucoside (**2i**) and odoroside H (**1e**). Strangely enough, while the triglycoside corresponding to oleandrin is present, the nerigoside congener is absent; and the reverse is the



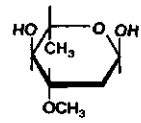
4a Oleagenin, R = H
4b Oleaside A, R = D-Diginose
4c Oleaside E, R = D-Diginose-Gentiobiose



5 D-Diginose



6 D-Digitalose



7 L-Oleandrose

case with the corresponding diglycosides. YAMAUCHI *et al.* (1973) consider the Δ^{16}-compounds, which in the past have usually been regarded as artefacts arising during the extraction process, to be genuine constituents of the plant material.

YAMAUCHI and EHARA (1972) and YAMAUCHI *et al.* (1973) observed, on the other hand, that leaf material oven-dried at a temperature $>80\,^{\circ}C$ yielded a preponderance of simpler glycosides. Among the more important ones were oleandrin (**2k**) (0.13%), odoroside A (**1c**) (0.03%), adynerin (**3c**) (0.035%), and Δ^{16}-dehydro-adynerin (**3f**). ABE and YAMAUCHI (1978) isolated 5α-adynerin (**3e**) as one of the minor constituents of the mixture. It is the first glycoside with an aglycone having a *trans*-A/B ring junction to be obtained from the leaves; no uzarigenin derivatives have yet been detected in them.

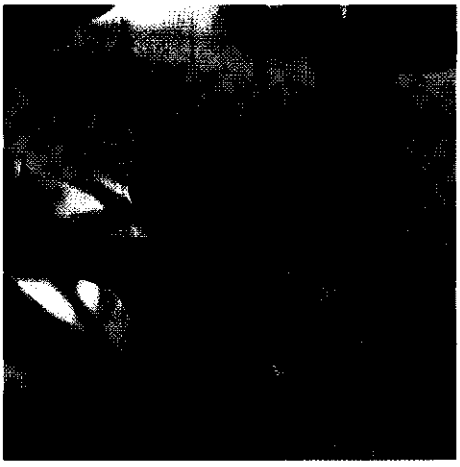
ABE and YAMAUCHI (1979) also obtained small amounts of a new series of new glycosides, among them oleaside A (**4b**) and E (**4c**), based on the abnormal aglycone oleagenin (**4a**). The fact that material containing a large amount of oleaside A had very little adynerin, and *vice versa*, suggests that the two types of glycoside are related biogenetically, and ABE and YAMAUCHI have been able to realize the chemical conversion of adynerigenin acetate to oleagenin acetate.

On thin-layer chromatographic examination of extracts from fresh **latex** and leaves of three Indian varieties of oleander, those having single and double pink flowers and single white flowers, DE and SHARMA (1980) noted qualitative and quantitative differences in their cardenolide composition. The variety with single pink flowers appeared to have the greatest oleandrin content (0.12%) and the variety with single white flowers the least (0.06%); the proportions of oleandrin in the total glycoside mixtures differed less and ranged between ca. 16% and 26%.

TITTEL and WAGNER (1981) have reported on the qualitative and quantitative high-pressure liquid chromatographic (HPLC) analysis of commercial *Nerium* leaf samples of different origins. They found that refluxing the leaf material

Phot. 3

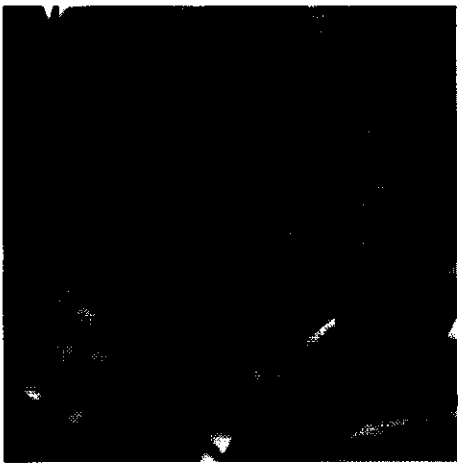
Phot. 4



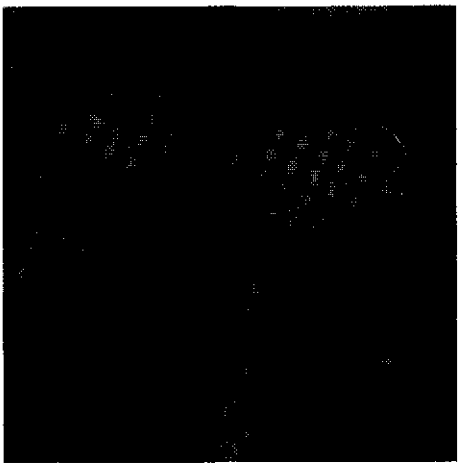
Phot. 5

Phot. 6

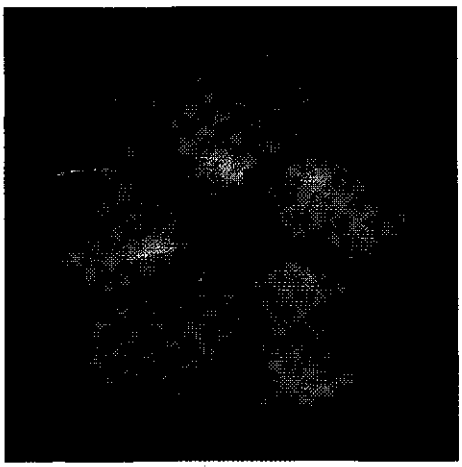
PHOT. 3. Sibthorp & Smith. 1819. Flora Graeca. 3 t. 248. Nerium oleander. Painted by Ferdinand Lukas Bauer.
PHOT. 4–6. Oleander cultivars. 4. 'Magaly'; 5. 'Marie Gambetta'; 6. 'Virginie'.



Phot. 7



Phot. 8



Phot. 9

Phot. 10

PHOT. 7–10. Oleander cultivars. 7. 'Jannoch'; 8. 'Soleil Levant'; 9. 'Minouche'; 10. 'Amboïna'.

with methanol, with or without further purification, yielded extracts that were sufficiently pure to be analysed directly. All the samples contained more than 1% glycosides. Carefully dried material contained very much higher concentrations of the tri- and di-glycosides corresponding to oleandrin (**2l,m**) than of the mono-glycosides such as oleandrin itself (**2k**) and odoroside A (**1c**). The oleandrin content varied from 0.013% to 0.12%, and in no case was it the main glycoside present. TITTEL and WAGNER did not detect any oleasides in the materials they examined – a difference which may be due to local ecological conditions or to the existence of chemical races within the species. Samples with an elevated monoglycoside content had only traces of higher glycosides; these findings, as will be understood from the discussion above, must be due to differences in the drying and storage conditions to which the commerical material is subjected. Thus, in addition to providing a quantitative analysis of the sample, the HPLC analysis furnishes a chromatographic fingerprint that can yield information about the previous treatment of the sample.

More recently, YAMAUCHI *et al.* (1983) have quantitatively analysed oven- and shade-dried leaf samples of 20 horticultural and wild varieties of *Nerium* from various parts of the world by a combination of column and thin-layer chromatography. Again, in most of the oven-dried samples oleandrin (**2k**) was the major glycoside, being present in amounts varying from 0.007% to 0.425%, but occasionally oleaside A (**4b**), nerigoside (**2f**), or Δ^{16}-adynerin (**3f**) was the principal component. In the shade-dried samples, gentiobiosyloleandrin (**2m**) dominated, with some samples containing over 0.6%.

The oven-dried samples could be divided into two groups, depending on whether there was more adynerin (**3c**) than oleaside A (**4b**) present, or *vice versa*; similarly, in the shade-dried samples, either gentiobiosyladynerin (**3d**) or oleaside E (**4c**) was present in greater amount. Most Pakistan, Turkish, Greek, and Indian samples were found to belong to the adynerin group, but the fact that in a few samples the oleaside content was greater suggests the presence of an enzyme able to catalyse the adynerin-oleaside transformation.

It was concluded that overall there is no correlation between the morphology – flowers: single, semi-double, or double; colour: white deepening through yellow and pink to red – and the chemistry of the plants. The horticultural strains showed considerable variation in their oleandrin content, indicating perhaps that it might be possible to raise the yield of this glycoside through a selective breeding programme.

According to TURCOVIC (1959c), examination of the **flowers** by paper-chromatography showed that they contained a mixture of digitoxigenin and gitoxigenin glycosides, with odorobioside G (**1f**) as the main constituent.

The **seeds** likewise have a complicated mixture of glycosides in them. After (incomplete) enzymatic hydrolysis of material from Israel, JÄGER *et al.* (1959) were able to isolate the digitoxigenin derivatives odoroside A (**1c**) and H (**1e**) as the principal components; a considerable amount of the oleandrigenin glycosides neritaloside (**2h**) and nerigoside (**2f**) was also present, but only a little oleandrin (**2k**). Adynerin (**3c**) was absent. According to paper-chromatographic stu-

dies on unfermented seeds from Dalmatia by TURCOVIC (1959a), the triglycoside fraction, quantitatively the most important one, consisted almost entirely of the digitoxigenin glycoside odorotrioside G (**1g**); the diglycoside fraction was dominated by digitalinum verum (**2d**), a derivative of gitoxigenin (**2b**); and the monoglycosides included odoroside H (**1e**) and strospeside (**2c**). Oleandrin was not detected.

Interestingly, the composition of the glycoside mixture from the **pericarp** of the follicles is quite different from that of the seeds. TURCOVIC (1959b) found that odorotrioside K (**1i**), a derivative of the aglycone uzarigenin (**1b**), the 5α-isomer of digitoxigenin (**1a**), was the main glycoside, while odorotrioside G (**1g**) was present only in traces and there was more odoroside A (**1e**) and B (**1h**) than in the seeds. JANIAK *et al.* (1963) found the pericarp to be a relatively rich source of adynerin (**3c**).

Toxicology

That *Nerium* is toxic to man and animals was known to the ancients and the plant was mentioned by THEOPHRASTUS, DIOSCORIDES, PLINY, and GALEN, among others. An oleander wine was used against the bite of poisonous snakes, but in general the plant was only employed externally. The symptoms of poisoning in animals include vomiting, diarrhoea, stupor, trembling, convulsions, and paralysis. As little as 15–20 g of fresh leaf is the fatal dose for a horse and 1–5 g for a sheep. In human beings the symptoms of poisoning are nausea, vomiting, colic, dizziness, staggering gait, dilatation of the pupil, bloody diarrhoea, cardiac weakness, and death preceded by coma. The nectar of the plant is said to render honey poisonous (WATT and BREYER-BRANDWIJK, 1962).

In 1808, 8 soldiers who ate meat roasted on a skewer made from oleander wood died, while 4 others became seriously ill. It is said that people who had eaten hare stuffed with oleander leaves also died as a result (MADAUS, 1938). The plant has also been used as an abortifacient and to commit suicide. It appears in the statistics of the Poison Control Centres, but in cases where the leaves or flowers have been ingested, it seems that serious symptoms have not been registered. No doubt, the intense bitter taste of the cardenolides is an effective deterrent, preventing excessive consumption of the plant, and the spontaneous vomiting which often occurs limits the amount of poison absorbed (FROHNE and PFÄNDER, 1984).

Under the Sanskrit name *karavira,* the plant is mentioned in the early Indian medical treatises by Caraka, Suśruta, and Vaghbata (SINGH and CHUNEKAR, 1972). The roots and root bark, and also the leaves and flowers, are the parts used – mostly in external preparations – for treating scorpion and snake bites, for dealing with a wide variety of skin complaints, ulcers, haemorrhoids, fevers, headaches, and for reducing swellings, etc. (NADKARNI, 1954). As *jiazhutao (chia chu t'ao)*, the leaves have a minor role in Chinese traditional medicine; the remedies are used both internally and externally for heart conditions, bruises and swellings, ringworm, and resistant fungal infections, as well as an insecticide (HUNAN, 1978).

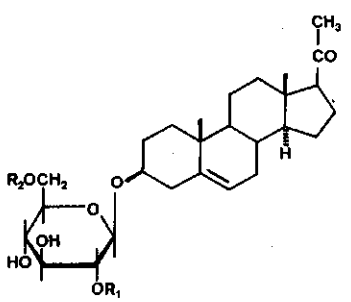
Clinical use

Interest has centred round the monoglycoside oleandrin (**2k**), which was originally marketed under the name 'folinerin' (MADAUS, 1938; JANIAK *et al.*, 1963). Other early preparations such as 'cortenerin', 'foliandrin', and 'cornerin' are briefly discussed by WATT and BREYER-BRANDWIJK (1962). Oleandrin is still official in the Russian pharmacopoeia (REYNOLDS, 1982). Adynerigenin and oleagenin glycosides are largely devoid of activity.

OTHER CONSTITUENTS

From the root bark and stem bark of Japanese material, YAMAUCHI *et al.* (1972b) have obtained several pregnenolone glucosides (**8a–d**), known to be biogenetic precursors of cardenolides. YAMAUCHI *et al.* (1974) and ABE and YAMAUCHI (1976) have also isolated various 12-hydroxypregnanes containing a 4,6-dien-3-one system, including the ichthyotoxic neridienones A (**9a**) and B (**9b**); similar compounds are present in *Kibatalia (Paravallaris) microphylla* (Pitard) Woods. The occurrence of these compounds in *Nerium* is somewhat unexpected, for 12-hydroxycardenolides are not otherwise known to occur in the plant.

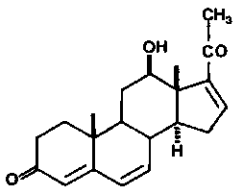
Other steroids isolated by YAMAUCHI *et al.* (1976a) are the intense yellow-coloured neriumosides (**10a–e**), which are present in the root bark. They are di- and tri-glycosides of 3β-hydroxy-5β-carda-8,14,16,20(22)-tetraenolide with or without an additional 21-hydroxy function; the extended system of conjugated double bonds is responsible for the colour of these substances. Another unusual steroid derivative, neriaside (**11**), has been obtained by YAMAUCHI and



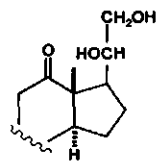
8 Pregn-5-en-3β-ol-20-one (= Pregnenolone), R = R_1 = H
R = H, R_1 = D-Glucose
R = D-Glucose, R_1 = H
R = R_1 = D-Glucose

ABE (1978) as a minor constituent of the leaves; it is the D-diginoside of a novel 8,14-*seco*-cardenolide. The corresponding triglycoside is also present and both substances appear to be genuine constituents of the plant.

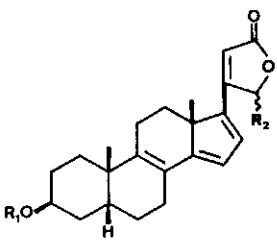
The triterpenoid oleanolic (**12a**) and ursolic (**12b**) acids have been extracted from the flowers, leaves, latex, and fruit pericarps (TURCOVIC, 1959b,c; cf. HEGNAUER, 1964). The coumarin derivative scopoletin (**13a**) and its β-D-glucoside, scopolin (**13b**), have been obtained from the stem bark and fruit pericarp. The leaves have yielded as much as 0.3–0.4% of the branched-chain pentose apiose (**14**) (DUFF and KNIGHT, 1963); the leaves and bark also contain the cyclitol



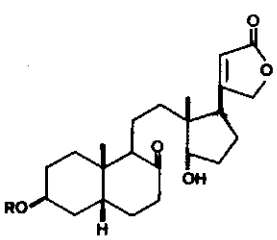
9a Neridienone A



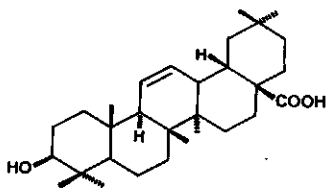
9b Neridienone B



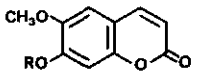
10a Neriumoside A–1, R_1 = D-Digitalose-Gentiobiose, R_2 = OH
10b Neriumsoide A–2, R_1 = D-Digitalose-D-Glucose, R_2 = OH
10c Neriumoside B–1, R_1 = D-Digitalose-Gentiobiose, R_2 = H
10d Neriumoside B–2, R_1 = D-Digitalose-D-Glucose, R_2 = H
10e Neriumoside C–1, R_1 = D-Diginose-Gentiobiose, R_2 = H



11 Neriaside

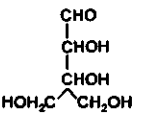


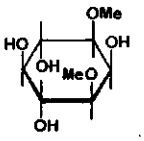
12a Oleanolic acid
12b Ursolic acid



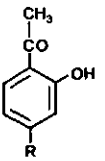
13a Scopoletin, R = H
13b Scopolin, R = D-Glucose

14 Apiose

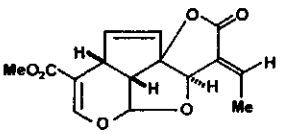




15 Dambonitol



16a 2-Hydroxy-acetophenone, R = H
16b 2,4-Dihydroxy-acetophenone, R = OH

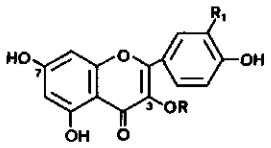


17 Plumericin

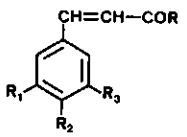
dambonitol (**15**) (see: HEGNAUER, 1964; NISHIBE *et al.*, 1971). From the root bark and heart-wood, YAMAUCHI *et al.* (1972a) have separated very small amounts of 4-hydroxy- and 2,4-dihydroxy-acetophenone (**16a,b**), a type of compound also found in *Apocynum* and *Trachomitum* species (cf. HEGNAUER, 1964). The antibiotic plumericin (**17**), which, as its name indicates, was first isolated from a *Plumeria* species, occurs in *Nerium* as such and in glycosidic form (BASU and CHATTERJEE, 1973).

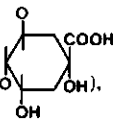
Rutin (**18a**) and nicotiflorin (**18b**) have been identified in the mixture of flavonoid glycosides present in the leaves (1–3%, depending on the time of collection). The phenolic caffeic, *p*-coumaric, and chlorogenic acids (**19a–c**) and syringic acid (**20**) have also been detected in the leaves (DURET and PARIS, 1972; PARIS and DURET, 1974).

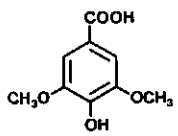
The plant contains about 17% fat in its seeds. Other constituents reported



18a Rutin, R = L-Rhamnose-D-Glucose, R_1 = OH
18b Nicotiflorin, L-Rhamnose-D-Glucose, R_1 = H



19a Caffeic acid, R = R_2 = R_3 = OH, R_1 = H
19b *p*-Coumaric acid, R = R_2 = OH, R_1 = R_3 = H
19c Chlorogenic acid, R = Quinyl (= ),
R_1 = R_3 = OH, R_2 = H



20 Syringic acid

to be present are ascorbic acid and traces of rubber and volatile oil (WATT and BREYER-BRANDWIJK, 1962). Reports indicating the presence of traces of alkaloid in the plant may be based on false positive alkaloid tests caused by the cardiac glycosides present (BISSET, 1961).

CONCLUSION

The outstanding phytochemical feature of the plant is, of course, the presence of the cardenolide glycosides. It is a character shared by several other genera of the sub-family *Apocynoideae*, e.g. *Vallaris, Beaumontia, Strophanthus*, etc., but unique to *Nerium* is the combination of aglycones – principally digitoxigenin, uzarigenin, gitoxigenin, and oleandrigenin* – and specific sugars – mainly D-diginose and D-digitalose. The isolation of the novel oleasides and neriumo-

* Very recently, SIDDIQUI *et al.* (1987) have isolated two new cardiac glycosides, kaneroside and neriumoside (not to be confused with the neriumosides **10a–e** obtained by YAMAUCHI *et al.* (1976a)), from fresh undried winter leaves from Pakistan, which are formulated as the β-D-diginosides of cardenolide aglycones containing a 2α-hydroxy function.

sides, as well as of the *seco*-cardenolide neriaside, raises the question whether they really are peculiar to *Nerium* or whether re-examination of the cardenolide mixtures present in related genera might bring to light additional substances belonging to these groups. The occurrence of the neridienones A and B, pregnane derivatives with a somewhat unusual 4,6-dien-3-one system, may point to a connection with the genera of the *Apocynoideae* that contain steroid alkaloids, in particular *Kibatalia*.

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PART THREE
THE OLEANDER CULTIVARS

TENTATIVE CHECKLIST OF OLEANDER CULTIVARS

There is no special international registration authority assigned to *Nerium* yet. However, international registration would be highly desirable. Oleanders are very popular ornamental plants and commonly cultivated in all tropical and subtropical countries as a garden shrub and elsewhere as a pot plant. Many oleander cultivars are available and new cultivars are added from time to time, but the naming of oleander cultivars leaves much to be desired. Nomenclature of older cultivars available in the trade today is unstable, not uniform, and often inaccurate. In many cases newly released cultivars are given names that are contrary to recommendations or articles of the International Code of Nomenclature for Cultivated Plants (ICNCP).

To establish a basis, an inventory of oleander cultivars has been compiled by the present author, resulting in the Tentative Checklist of Oleander Cultivars.

An important source of information for the inventory has been the unique and large catalogue collection of the Government Institute for Research on Varieties of Cultivated Plants (R.I.V.R.O.) in Wageningen. This collection of original nursery and seed catalogues from all over the world includes many recent catalogues as well as old ones from the nineteenth century, thus representing an invaluable source of information on cultivar names and descriptions.

Especially useful was the discovery of a set of catalogues, published in the second half of the nineteenth century, of Claude Sahut's Nursery in Montpellier, France, for Sahut has developed a large number of the oleander cultivars. Additional information was found in other kinds of literature, or obtained by personal communication. All information has been entered into a data base computer file. The checklist was generated using this computer file.

A total of 599 different cultivar names, including 157 misspellings and 41 synonyms, were encountered in the inventory, representing 401 distinct cultivars. Of these 401, about 175 are available in the trade today.

Oleander cultivars vary in form, colour and scent of the flowers, and in habit. Several cultivars have variegated leaves.

FLOWER FORMS: With regard to the flower form three types of oleander flowers can be distinguished: single, superposed corollas, and double (Fig. 3).

1. SINGLE: This flower form consists of a calyx of five sepals, a corolla tube, five corolla lobes and a corona, as described for the species. Every corolla lobe is asymmetrical and can be divided in two areas (see Fig. 3: 1b). A small strip (with a darker colour underneath) stretching outward, ending in a pointed apex, and a much broader area stretching out to the right and beyond the pointed

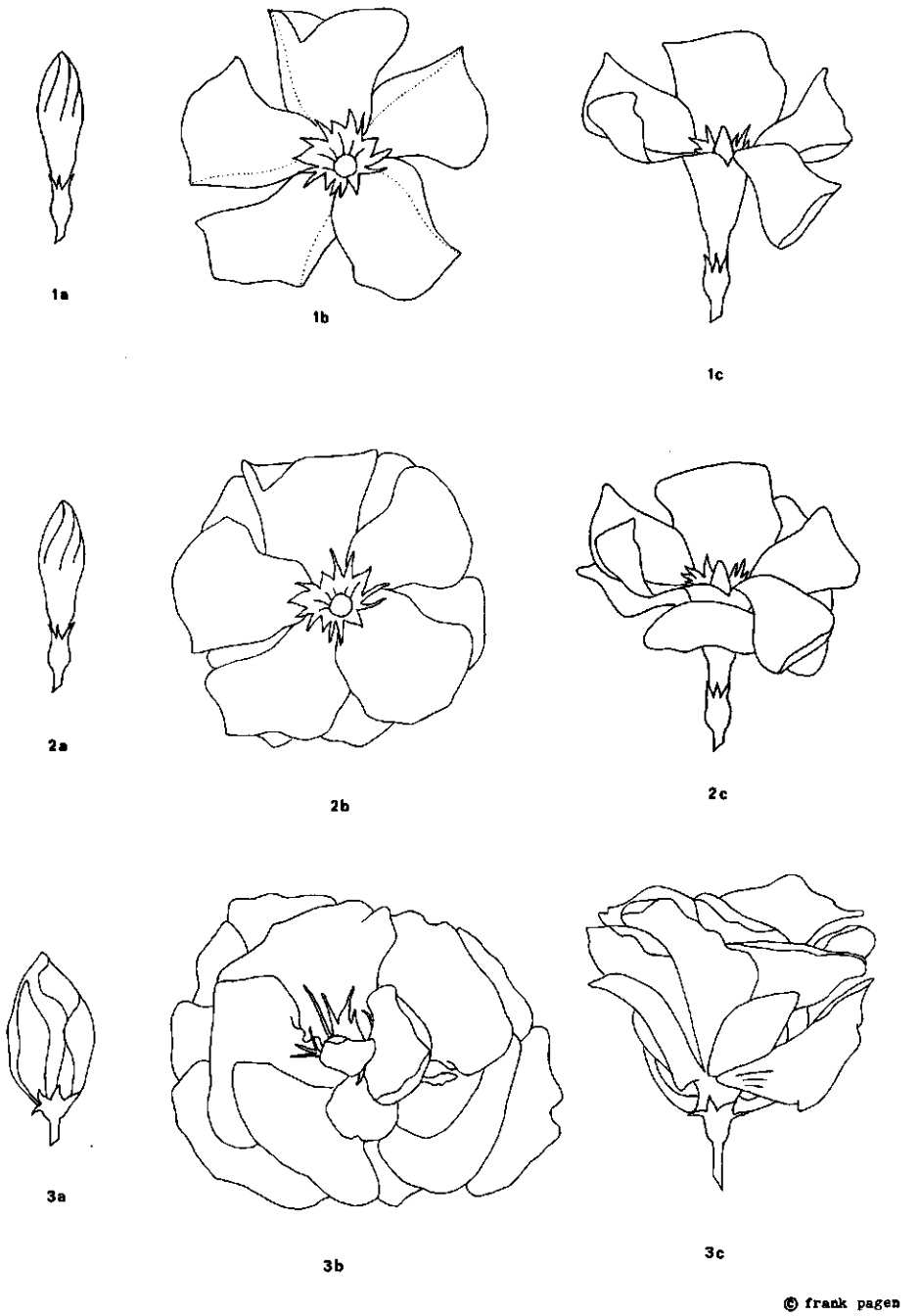


FIG. 3. Flower forms of oleander cultivars. 1. single; 2. superposed corollas; 3. double. (a. bud; b. view from above; c. lateral view).

apex. In some cultivars both areas are broad and the corolla lobe is nearly symmetrical. The flower may vary considerably in size.

II. SUPERPOSED COROLLAS: The term hose-in-hose can also be used to describe this form. It features a calyx and two similar corollas with one corolla tube superimposed inside the other and with the corolla lobes of the two whorls alternating. In the outer tube, stamens are absent. Sometimes five slits are visible in the lower part of the outer tube. A few cultivars feature three superposed corollas, with stamens present in the inner tube only.

III. DOUBLE: The term "double" in describing a flower form is ambiguous, but in this classification it is defined by the following characters (not all characters may be present in the same flower):

- More than ten petals or petaloid parts.
- Irregularity.
- Some petals free, some fused.
- Petals differing in size.
- Petals with claws.
- Petaloid anthers.
- Broad, swollen buds.

The double oleander flower has an irregular structure. Although the flower basically is composed of two, three or even four whorls of petals in addition to the calyx, the system is usually distorted and often hard to unravel.

A whorl usually consists of five petals, but whorls of four or six may occur. The petals of the inner whorl are generally fused to a short tube; some or all of the anthers may be partly or completely petaloid. The petals in the other whorls are all provided with a long claw, and may differ widely in size; they may be free or more or less united at their bases in groups of two to four.

Not only the structure of a separate flower is irregular; there is also considerable variation in flower structure among the flowers of one plant.

In some cases the flower type with superposed corollas and the double type may be confused. Several double-flowered cultivars produce flowers basically with two whorls of petals, in which the petals of the outer whorl are more or less fused, and hardly any anther is petaloid. On the other hand plants of cultivars with superposed corollas may produce occasionally a flower with a petaloid anther or with another irregularity. However, checking of more flowers on the same plant usually leads to a clear identification.

The corona, present in all three kinds of flowers, also varies in form in oleander cultivars. Two basic types can be clearly recognized: a type with corona segments divided in three (sometimes four) lobes, one short and triangular, with a linear lobe on either side (sometimes two on one side); and a type with corona segments finely divided, usually irregularly, in four to ten long filiform lobes, the two types originating from the oleander of the Mediterranean, and of the Indian kind, respectively. However, some intermediates between the two basic corona types occur as well.

COLOUR: Flowers of oleander cultivars range in colour from pure white through cream to yellow, apricot and salmon and from pink (in many shades) to red, carmine red and purple.

The colour is very much influenced by environmental factors, especially by light intensity, and can only be judged properly in flowers that have developed in full sun.

In one corolla lobe several shades of one colour may be present. Corolla lobes may have a different colour beneath. The main colour sometimes is overlaid with hues of another colour. The corolla lobes may be variegated with stripes and spots of another (usually paler) colour. The edges of the corolla lobes may have a different colour. The throat (the inside of the corolla tube) may have a colour different from the corolla lobes and often features stripes in a contrasting colour.

The oleander cultivars may be grouped into categories according to flower form and colour.

The following classification, used in the checklist, is an adaptation of the system used by Sahut in his *Nerium* catalogues:

	Single	Superposed corollas	Double
Group	1. White	5. White	9. White
	2. Pink	6. Pink	10. Pink
	3. Red	7. Red	11. Red
	4. Yellow	8. Yellow	12. Yellow

White : White, cream.
Pink : Pink, lilac.
Red : Red, carmine, purple.
Yellow: Yellow, salmon, apricot, flesh colour, copper, orange.

SCENT: Several oleander cultivars have fragrant flowers. The scent may be faint or powerful and has been described as reminiscent of vanilla, bitter almonds, jasmine, magnolia, peruvian heliotrope, or as an agreeable musky scent. The oleander of the Indian kind supposedly is the source of fragrance in the cultivars.

Many cultivars have flowers with no scent at all.

HABITUS: Most cultivars are large and vigorous growers and can reach a height exceeding 2.50 m; medium-sized oleanders are growing 1.25 m to 2.50 m., and dwarf types are 0.50 m to 1.25 m in height.

VARIEGATED LEAVES: Several oleander cultivars have foliage variegated with yellow or white. The flowers are usually pink and may be single, double, or with superposed corollas.

NOTES ON THE CHECKLIST: All cultivar names encountered in the inventory are listed in alphabetical order in the Tentative Checklist of Oleander Cultivars (see Appendix).

Ancient cultivar names in Latin are treated as fancy names, and listed as e.g. 'Atropurpureum', 'Carneum Plenum', 'Flore Albo', and 'Foliis Variegatis'.

Wrongly spelled names are listed without a description and with reference to the correct name.

Synonyms are listed with information on the publication only and with reference to the preferable name.

Included in the description following a correct cultivar name are: encountered synonyms of this name; an indication of flower type, colour, scent, habitus, and the number of the category in which the cultivar is placed (see diagram on page 42); the name of the originator, if known, and the year of origin (the year in which the cultivar was put on the market is considered the year of origin here); the earliest publication of the name encountered by the present author ('First publication'), and its date. Additional information concerning flower size, inflorescence, vigour, hardiness, etcetera, is given after 'Remarks'.

To some cultivars plant breeders right is applicable and in some cases a trademark is attached to a cultivar.

HISTORY OF THE CULTIVATED OLEANDER

Nerium oleander has been in cultivation as an ornamental since ancient times.

In China the cultivation of oleanders was a hobby of literary men, who adorned their studies with cut oleander blooms. They especially appreciated the scent of oleander flowers and the elegant habit of the plant, and chose the oleander as an emblem of grace and beauty. To describe the oleander, the Chinese use three characters, successively meaning 'mingle', 'bamboo', and 'peach blossom'.

DIOSCORIDES (De Materia Medica 4. 82) knew the oleander as a plant growing wild near the sea and along rivers, but also as a cultivated plant in gardens.

Oleanders were already planted in Roman gardens in the days of Cicero (106–43 B.C.). PLINY (Historia Naturalis 17. 98) gave directions how to propagate the plant by layering and by seed. In Pompeii the oleander is the plant most frequently represented in the garden paintings on the walls of peristyle gardens. These paintings, dating from 79 A.D. or earlier, and preserved by Vesuvius, were designed by the Pompeians to make their small gardens appear much larger: through the painting the illusion was created that the garden extended far into the countryside. In these garden paintings the oleander is usually pictured in an informal setting, growing in masses and forming a background for (painted) fountain-vases and statues. Excavations of villa gardens, e.g. of the Villa at Torre Annunziata, and analysis of root cavities and remnants of

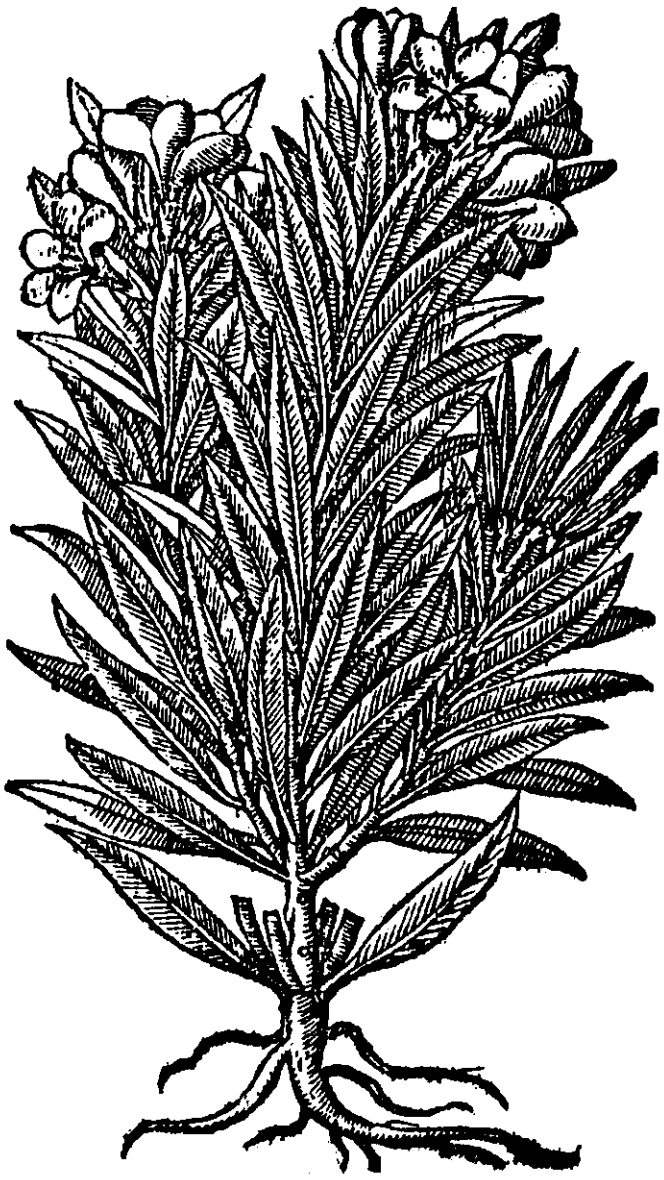


FIG. 4. Rembertus Dodonaeus. 1608. Cruydt-boeck, p. 1426: "Oleanderboom". Wood engraving.

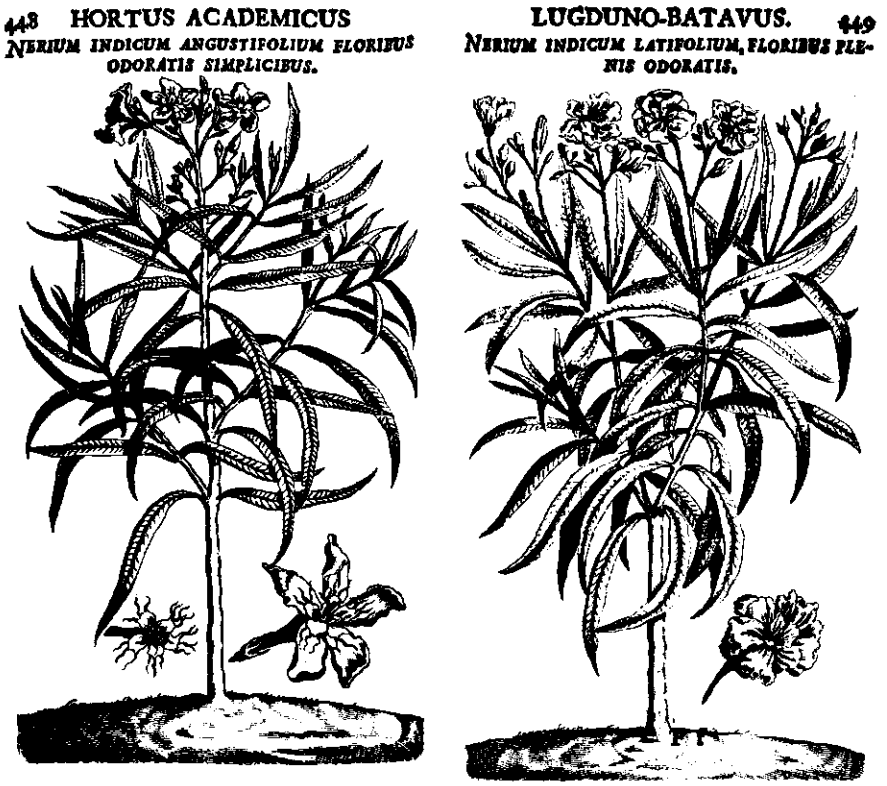


FIG. 5. Paul Hermann. 1687. Horti Academici Lugduno-Batavi Catalogus, t. 448: "Nerium Indicum angustifolium floribus odoratis simplicibus" (left), t. 449: "Nerium Indicum latifolium, floribus plenis odoratis" (right). Copper engraving.

branches revealed that in the actual gardens of the Vesuvian area oleanders were indeed planted in a similar fashion. Garden paintings featuring oleanders have also been found elsewhere in Italy: in the garden room (now in the Terme Museum in Rome) of the Villa at Prima Porta, 14.5 kms from Rome, which was built by Augustus for his wife Livia, and in the Auditorium of Maecenas in Rome (JASHEMSKI 1979).

In the twelfth century the oleander was the only flowering shrub, together with myrtl and rose, used by the Arab gardeners of the Dar-al-Islam (HYAMS 1971).

For a long time the common form of the Mediterranean oleander with single odourless pink to red flowers (see Fig. 4 and Phot. 3) was the only one known and cultivated in Europe. In 1547 a form with single white flowers, discovered in Crete near Camerachi on Mount Ida (SAVI 1813), was introduced into Italy by PIER ANTONIO MICHIEL (BLUNT 1979). In 1560 CONRAD GESNER mentions an oleander in cultivation in Basel. The oleander was introduced into Florida

in 1565 by the earliest Spanish settlers at St. Augustine. In 1596 in England, JOHN GERARD had a red and a white form of the oleander.

In 1683 the scented Indian oleander (see Figs. 5–7) was introduced into Europe, the form with single light pink flowers by VAN RHEEDE TOT DRAKESTEIN from S. W. India; the form with double pink flowers by BEVERNINGK from Ceylon (HERMANN 1687, RHEEDE 1689, EDWARDS 1815, SWEET 1830). HERMANN (1689) had an Indian oleander with variegated double flowers in Leiden; COMMELIN (1697) gives an illustration. WEINMANN (1748) shows a variegated-leaved form of the Mediterranean single pink oleander, and an Indian oleander with red double flowers. AITON (1789) mentions a double-flowered form both of the Indian and of the Mediterranean oleander. A yellow single form of the Indian oleander was named *Nerium flavescens* by DI SPINO in 1812 (ex ROEMER & SCHULTES 1819).

More and more cultivars appeared in the nineteenth century and the forms of the Mediterranean and Indian oleander mingled. In 1840 BOSSE mentions 36 cultivars; in 1849 he lists 58.

CLAUDE SAHUT in Montpellier, France, produced the greater portion of the oleander cultivars. In 1898 he could offer 170 cultivars. The flower type with superposed corollas appeared in 1868 in his nursery.

Oleander cultivars also have been developed elsewhere in the Mediterranean region, in Asia, and in the United States.

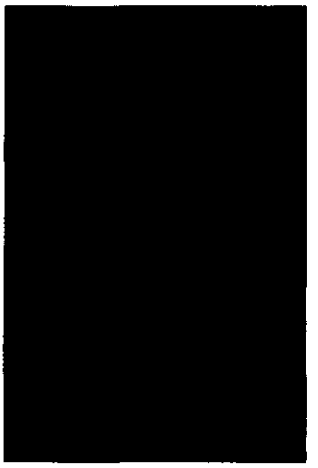
THE OLEANDER IN CULTIVATION TODAY

Today the oleander is commonly planted in gardens in all tropical and subtropical countries and grown as a pot or tub plant in the temperate zone.

Oleanders are very popular because of their brilliantly coloured flowers, long flowering season, evergreen foliage, adaptibility and easy cultivation. The oleander tolerates a wide variety of soils, including poor and alkaline ones, withstands periods of drought, can survive short periods of frost to –12 °C (10 °F) and is resistant to urban pollution.

In tropical and subtropical countries the oleander is planted outdoors. The flowering evergreen shrubs are used in gardens and parks as hedges or screens, in groups, as background plantings or as solitary specimen plants. The oleander is also used as a divider plant in the median strips of highways. Larger forms can be trained as single- or multiple-trunked trees.

Oleanders are planted in pots or tubs, grown as bush plants or trained to crown standards, for decorating terraces and patios. In the temperate zone the plants are wintered indoors. In these areas the oleander is also grown as a greenhouse specimen or as a house plant. In the commercial production of oleanders as flowering pot plants rooted cuttings are treated with growth retardants to hasten flowering and to produce compact plants (KARPER 1979).

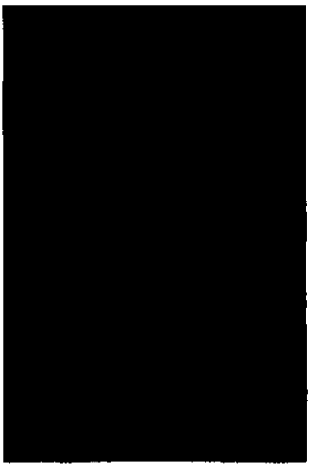


Phot. 11

Phot. 12

PHOT. 11. Nerium oleander. Pollen tubes penetrating below the collar on the lower part of the pistil head, as revealed by fluorescence microscopy (× 50) (phot. J. van de Vooren).

PHOT. 12. Nerium oleander. Pollen grains on the central cylindrical part of the pistil head germinate, but do not penetrate (top). Penetration of pollen tubes is exclusively possible in the circular depression below the collar on the lower part of the pistil head (center), as revealed by fluorescence microscopy (× 50) (phot. J. van de Vooren).



Phot. 13

Phot. 14

PHOT. 13. Nerium oleander. Pollen tubes growing down to the ovary through the style, as revealed by fluorescence microscopy (× 50) (phot. J. van de Vooren).

PHOT. 14. Nerium oleander. Pollen tubes have reached the ovary (center) through the style (top left) and enter the ovules, as revealed by fluorescence microscopy (× 50) (phot. J. van de Vooren).

FIG. 6. H. van Rheede tot Drakestein. 1689. Hortus Malabaricus, Vol. 9. t. 1: "Tsjovánna-arelí". Copper engraving.

FIG. 7. Johan Wilhelm Weinmann. 1748. Duidelijke vertoning, Eeniger Duizend in alle vier Waerelds Deelen wassende Bomen, Stammen, Kruiden, Bloemen, Vrugten, en Uitwassen, & c., t. 755: "a. Nerium Indicum flore carneo, Oleander, Unholdenbaum. b. Nerium Indicum latifolium flore roseo pleno, Rosage double, wohlriechend "gefüllter" Oleander". Copper engraving, hand-coloured.

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BP Budapest, Hungary: Museum of Natural History, Department of Botany.
BR Bruxelles, Belgium: Jardin Botanique de l'Etat.
C Kobenhavn, Denmark: Botanical Museum and Herbarium.
E Edinburgh, Great Britain: Royal Botanic Garden.
FI Firenze, Italy: Herbarium Universitatis Florentinae, Istituto Botanico.
FI-W Firenze, Italy: Herbarium Webbianum.
G Genève, Switzerland: Conservatoire et Jardin Botaniques.
K Kew, Great Britain: The Herbarium and Library.
L Leiden, Netherlands: Rijksherbarium.
MO Saint Louis, Missouri – U.S.A.: Missouri Botanical Garden.
NY New York, New York – U.S.A.: The New York Botanical Garden.
P Paris, France: Muséum National d'Histoire Naturelle, Laboratoire de Phanérogamie.
S Stockholm, Sweden: Botanical Department, Naturhistoriska Riksmuseet.
UPS Uppsala, Sweden: Institute of Systematic Botany, University of Uppsala.
W Wien, Austria: Naturhistorisches Museum.
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APPENDIX

TENTATIVE CHECKLIST OF OLEANDER CULTIVARS

'Acrostat' see 'Aérostat'.

'Acrostial' see 'Aérostat'.

'Adeline'
- Cultivar Group: 4
- Flower Type: Single.
- Colour: Flesh colour.
- Remarks: Large flower. Large inflorescences.
- Originator: Sahut, Montpellier, France.
- Year of origin: 1875
- First publication: Cat. Sahut, France.
- Date publication: 1876

'Aérostat'
- Cultivar Group: 2
- Flower Type: Single.
- Colour: Pale pink, edged bright pink.
- Remarks: Large flower. Free flowering. Flowers inclined to cup, not displayed to the best advantage.
- Originator: Sahut, Montpellier, France.
- Year of origin: ?
- First publication: Cat. Sahut, France.
- Date publication: 1873

'Africana'
- Cultivar Group: ?
- Flower Type: Single.
- Colour: ?
- Remarks: Resistant to bacterial gall. If published on or after Jan. 1, 1959: name must be rejected (ICNCP Art. 27a).
- First publication: Van Diepen. Vakblad voor de Bloemisterij 20: 28.
- Date publication: 1980

'Agnès Darac'
- Cultivar Group: 2
- Flower Type: Single.
- Colour: Light pink washed with dark pink. Throat bright pink, streaked with carmine.
- Remarks: Large flower. Corona lobes long and finely divided.
- Originator: Sahut, Montpellier, France.
- Year of origin: 1872
- First publication: Cat. Sahut, France.
- Date publication: 1873

'Agnès Galen'
- Cultivar Group: 6
- Flower Type: Two superposed corollas.
- Colour: Upper corolla: pale pink, washed with lilac. Lower corolla: darker. Throat white streaked with carmine. Bud bright carmine.
- Remarks: Large flower. Free flowering.
- Originator: Sahut, Montpellier, France.
- Year of origin: ?
- First publication: Cat. Sahut, France.
- Date publication: 1898

'Agnès Perthuzés'
- Cultivar Group: ?
- Flower Type: Single.
- Colour: ?
- First publication: Cat. Aldrufeu, Spain.
- Date publication: 1884

'Alassio'

Cultivar Group	2
Flower Type	Single.
Colour	Dark pink.
Remarks	Large flower. Tender.
First publication	Cat. Rey, France.
Date publication	1973

'Alba' see 'Album'.

'Alba Plena' see 'Album Plenum'.

'Albert Manning'

Cultivar Group	2
Flower Type	Single.
Colour	Dark pink.
Remarks	Vigorous.
First publication	Popenoe. Florida State Horticultural Society: 426.
Date publication	1975

'Albo Pleno' see 'Flore Albo Pleno'.

'Albo Simplex' see 'Flore Albo Simplex'.

'Album'

Synonyms	'Album Simplex', 'Flore Albo', 'Flore Albo Simplex'.
Cultivar Group	1
Flower Type	Single.
Colour	White.
Remarks	Free flowering. Vigorous. The oldest white-flowering oleander, discovered in Crete in 1547, growing wild.
First publication	Cat. Buc'hoz, France.
Date publication	1799

'Album Grandiflorum'

Cultivar Group	1
Flower Type	Single.
Colour	White.
Remarks	Large flower.
First publication	Cat. Villa Ada, Italy.
Date publication	1882

'Album Maximum'

Cultivar Group	1
Flower Type	Single.
Colour	White.
Remarks	Large flower.
First publication	Cat. Zanoletti, Italy.
Date publication	1880

'Album Maximum Niveum Plenum'

Synonyms	'Album Maximum Plenum'?
Cultivar Group	9
Flower Type	Double.
Colour	White.
Remarks	Large flower.
First publication	Cat. Perotti, Italy.
Date publication	1884

'Album Maximum Plenum'

Synonyms	'Album Maximum Niveum Plenum'?
Cultivar Group	9
Flower Type	Double.
Colour	White.
Remarks	Large flower.
First publication	Cat. Sqaravatti, Italy.
Date publication	1934

'Album Plenum'

Synonyms	'Flore Albo Pleno'.
Cultivar Group	9
Flower Type	Double.
Colour	White.
First publication	Cat. Sahut, France.
Date publication	1873

'Album Roseum'

Cultivar Group	1
Flower Type	Single.
Colour	White with a pink hue.
Remarks	Large flower.
First publication	Cat. Sqaravatti, Italy.
Date publication	1937

'Album Simplex'

Synonyms	'Album', 'Flore Albo', 'Flore Albo Simplex'. See 'Album'.
First publication	Cat. Pagliai, Italy.
Date publication	1872

'Alfred Bruyas'

Cultivar Group	3
Flower Type	Single.
Colour	Bright carmine. Throat same colour.
Remarks	Large inflorescences. Free flowering.
Originator	Sahut, Montpellier, France.
Year of origin	1875
First publication	Cat. Sahut, France.
Date publication	1876

'Alleen Allen'

Cultivar Group	?
Flower Type	?
Colour	?
Habitus	Weak growth.
First publication	Popenoe. Florida State Horticultural Society: 426.
Date publication	1975

'Alsace'

Cultivar Group	1
Flower Type	Single.
Colour	White with a pink hue. Throat light yellow streaked with pink.
Remarks	Hardy.
Originator	Sahut, Montpellier, France?
Year of origin	?
First publication	Cat. Rey, France.
Date publication	1973

'Altini'

Cultivar Group	3
Flower Type	Single.
Colour	Bright red.
Remarks	Tender.
First publication	Cat. Rey, France.
Date publication	1973

'Amboïna'

Cultivar Group	10
Flower Type	Double.
Colour	Bright pink, sometimes streaked with white.
Scent	Fragrant.
Remarks	About 20 petals/petaloid parts. Known by this name in Holland. The name must be rejected (ICNCP Art. 27a).
First publication	Dutch Oleander Society. List of cultivars.
Date publication	1981

'Amboïnia' see 'Amboïna'.

'Ambrusium'
Cultivar Group ?
Flower Type Single.
Colour ?
Originator Sahut, Montpellier, France.
Year of origin ?
First publication Cat. Sahut, France.
Date publication 1876

'Amédée Straforello'
Cultivar Group 6
Flower Type Two superposed corollas.
Colour Dark pink, often variegated.
Remarks Large inflorescences.
Originator Sahut, Montpeller, France.
Year of origin 1875
First publication Cat. Sahut, France.
Date publication 1987

'Amiral Courbet'
Cultivar Group 6
Flower Type Two superposed corollas.
Colour Pink.
Originator Sahut, Montpellier, France.
Year of origin ?
First publication Cat. Sahut, France.
Date publication 1898

'Angèle Darac'
Cultivar Group ?
Flower Type Single.
Colour ?
Originator Sahut, Montpellier, France.
Year of origin 1872
First publication Cat. Sahut, France.
Date publication 1873

'Angelo Pucci' see 'Angiolo Pucci'.

'Angiolo Pucci'
Cultivar Group 4
Flower Type Single.
Colour Pale yellow. Throat bright yellow streaked with red.
Habitus Medium size.
Remarks Hardy.
First publication Cat. Baldacci, Italy.
Date publication 1952

'Annina Barbero Allegra'
Cultivar Group 9
Flower Type Double.
Colour Pure white.
First publication Cat. Bianchi, Italy.
Date publication 1956

'Antonia'
Cultivar Group 6
Flower Type Two superposed corollas.
Colour Pale pink with a lilac hue, streaked with white.
Remarks Vigorous. Hardy.
Originator Sahut, Montpellier, France.
Year of origin 1875
First publication Cat. Sahut, France.
Date publication 1876

'Apple Blossom'
Cultivar Group 2
Flower Type Single.
Colour Shell pink.
Remarks Vigorous.
First publication Popenoe. Florida State Horticultural Society: 426.
Date publication 1975

'Atroplenissima' see 'Atroplenissimum'.

'Atroplenissimum'

Synonyms	'Double Dark Red'.
Cultivar Group	11
Flower Type	Double.
Colour	Dark Red.
First publication	Cat. Clarke, USA.
Date publication	1934

'Atropurpureum'

Synonyms	'Italia'?
Cultivar Group	3
Flower Type	Single.
Colour	Dark purple red.
Remarks	Large flower. Free flowering. Hardy.
First publication	Cat. Verleeuwen, Belgium.
Date publication	1835

'Atropurpureum Plenum'

Synonyms	'Flore Atropurpureo Pleno'.
Cultivar Group	11
Flower Type	Double.
Colour	Dark purple red.
First publication	Cat. Perotti, Italy.
Date publication	1883

'Atrorubens'

Cultivar Group	3
Flower Type	Single.
Colour	Bright red.
Remarks	Large inflorescences. Free flowering.
First publication	Cat. Villa Ada, Italy.
Date publication	1882

'Atrosanguineum Duplex'

Cultivar Group	11
Flower Type	Double.
Colour	Dark purple red.
Scent	Fragrant. Scent of heliotrope.
First publication	Bosse. Vollständiges Handbuch der Blumengärtnerei Ed. 3. 2: 876.
Date publication	1854

'Aubais'

Cultivar Group	?
Flower Type	Single.
Colour	?
Originator	Sahut, Montpellier, France.
Year of origin	?
First publication	Cat. Sahut, France.
Date publication	1876

'Augustine'

Cultivar Group	2
Flower Type	Single.
Colour	Bright pink, washed with white.
Originator	Sahut, Montpellier, France.
Year of origin	1872
First publication	Cat. Sahut, France.
Date publication	1873

'Aunisien'

Cultivar Group	10
Flower Type	Double.
Colour	Pale pink.
Remarks	Large flower. Imported (1936) into USA from France by W. B. Clarke & Son.
First publication	Cat. Clarke, USA.
Date publication	1936

'Aurantiaca Flore Pleno' see 'Aurantiacum Plenum'.

'Aurantiacum'

Cultivar Group	4
Flower Type	Single.
Colour	Light apricot. Throat darker streaked with purple.
Remarks	Large flower. Free flowering.
First publication	Cat. Verleeuwen, Belgium.
Date publication	1835

'Aurantiacum Plenum'

Cultivar Group	12
Flower Type	Double.
Colour	Light apricot.
Remarks	Large flower.
First publication	Cat. Berti, Italy.
Date publication	1902

'Aurélie'

Cultivar Group	8
Flower Type	Two superposed corollas.
Colour	Flesh colour washed and edged with lilac.
Originator	Sahut, Montpellier, France.
Year of origin	1875
First publication	Cat. Sahut, France.
Date publication	1876

'Aureopictum'

Cultivar Group	?
Flower Type	?
Colour	?
First publication	Cat. Battista, Italy.
Date publication	1895

'Aureopietum' see 'Aureopictum'.

'Aureum'

Cultivar Group	?
Flower Type	?
Colour	?
Remarks	Leaves with yellow margins.
First publication	Cat. Audibert, France.
Date publication	1822

'Barthélemy' see 'Commandant Barthélemy'.

'Barthez'

Cultivar Group	?
Flower Type	Single.
Colour	?
Originator	Sahut, Montpellier, France.
Year of origin	?
First publication	Cat. Sahut, France.
Date publication	1873

'Battailles Géant' see 'Géant des Batailles'.

'Benares'

Cultivar Group	?
Flower Type	?
Colour	Pink.
Scent	Fragrant.
First publication	Cat. Globe Nursery, India.
Date publication	1952

'Beer Sheba'

Cultivar Group	2
Flower Type	Single.
Colour	Bengal rose. Throat yellow-pink streaked with red.
Habitus	Medium size. Erect.
Remarks	Most flowers at the top, few at the sides of the plant.
First publication	Zafrir. The Nerium oleander in Israel: 33.
Date publication	1962

'Belle Hélène'

Cultivar Group	4
Flower Type	Single.
Colour	Salmon pink.
Originator	Rey, Carpentras, France.
Year of origin	?
First publication	Brand, Ferrero, INRA/GEVES, France. Pers. comm.
Date publication	1985

'Bettie'

Synonyms	'Pink Bettie'.
Cultivar Group	2
Flower Type	Single.
Colour	Pink.
Remarks	Large flower.
First publication	Cat. Monrovia, USA.
Date publication	1952

'Betty' see 'Bettie'.

'Bicolor'

Cultivar Group	?
Flower Type	Single.
Colour	?
Originator	Sahut, Montpellier, France.
Year of origin	?
First publication	Cat. Sahut, France.
Date publication	1876

'Bicquelin'

Cultivar Group	6
Flower Type	Two superposed corollas.
Colour	Pink.
Originator	Sahut, Montpellier, France.
Year of origin	?
First publication	Cat. Sahut, France.
Date publication	1876

'Blanc Simple'

Cultivar Group	1
Flower Type	Single.
Colour	Pure white.
First publication	Gardeners' Chronicle 1: 743.
Date publication	1880

'Blood Red'

Cultivar Group	?
Flower Type	?
Colour	Blood red.
Remarks	If published on or after Jan. 1, 1959: the name is contrary to ICNCP Recommendation 31Ag (but must not be rejected).
First publication	McClintock & Leiser. An annotated checklist of woody ornamental plants of California, Oregon and Washington: 82.
Date publication	Received 1985.

'Brun' see 'Madame Léon Brun'?

'Buttes Chaumont'

Cultivar Group	?
Flower Type	Single.
Colour	?
Originator	Sahut, Montpellier, France.
Year of origin	?
First publication	Cat. Sahut, France.
Date publication	1873

'Calypso'

Cultivar Group	2
Flower Type	Single.
Colour	Deep pink.
Remarks	Free flowering. Vigorous. Hardier than 'Hardy Red' or 'Hardy Pink'.
First publication	Popenoe. Florida State Horticultural Society: 427.
Date publication	1975

'Cambacérès'
- Cultivar Group: ?
- Flower Type: Single.
- Colour: ?
- Originator: Sahut, Montpellier, France.
- Year of origin: ?
- First publication: Cat. Sahut, France.
- Date publication: 1873

'Cameum' see 'Carneum Plenum'.

'Canari'
- Synonyms: 'Souvenir des Iles Canaries'?
- Cultivar Group: 4
- Flower Type: Single.
- Colour: Pale yellow.
- First publication: Brand, INRA/GEVES, France. Pers. comm.
- Date publication: 1985

'Candeur'
- Cultivar Group: 5
- Flower Type: Two superposed corollas.
- Colour: White.
- Remarks: Tender.
- First publication: Brand, Ferrero, INRA/GEVES, France. Pers. comm.
- Date publication: 1985

'Candicans'
- Cultivar Group: ?
- Flower Type: ?
- Colour: White?
- First publication: Bosse. Vollständiges Handbuch der Blumengärtnerei Ed. 3. 2: 876.
- Date publication: 1854

'Candidissimum'
- Cultivar Group: ?
- Flower Type: ?
- Colour: Pure white.
- Remarks: Large flower.
- First publication: Kerstens. Keur van Bloemen en Sierplanten: 110.
- Date publication: 1878

'Cardinal'
- Synonyms: 'Cardinalis'?
- Cultivar Group: 3
- Flower Type: Single.
- Colour: Cardinal red.
- Remarks: Very hardy.
- First publication: Cat. Clarke, USA.
- Date publication: 1932

'Cardinal Fleury'
- Cultivar Group: ?
- Flower Type: ?
- Colour: ?
- Originator: Sahut, Montpellier, France.
- Year of origin: ?
- First publication: Cat. Sahut, France.
- Date publication: 1873

'Cardinalis'
- Synonyms: 'Cardinal'?
- Cultivar Group: 3
- Flower Type: Single.
- Colour: Cardinal red.
- First publication: Cat. Verleeuwen, Belgium.
- Date publication: 1820

'Carmineum'
Cultivar Group ?
Flower Type ?
Colour ?
First publication Cat. Villa Ada, Italy.
Date publication 1882

'Carnea Pleno' see 'Carneum Plenum'.

'Carneum'
Synonyms 'Flore Carneo'
Cultivar Group 4
Flower Type Single.
Colour Flesh colour.
Scent Fragrant.
Remarks Corona lobes long and finely divided.
First publication Dumont de Courset. Le Botaniste Cultivateur Ed. 2. 3: 268.
Date publication 1811

'Carneum Flore Pleno'
Synonyms 'Carneum Plenum', 'Double Salmon', 'Mrs. George Roeding', 'Mrs. Roeding', 'Pomponium'. See 'Carneum Plenum'.
First publication Graf. Tropica: 1039.
Date publication 1978

'Carneum Plenum'
Synonyms 'Carneum Flore Pleno', 'Double Salmon', 'Mrs. George Roeding', 'Mrs. Roeding', 'Pomponium'.
Cultivar Group 12
Flower Type Double.
Colour Flesh colour.
Habitus Medium size. Slightly weeping.
Remarks Weak growth.
First publication Bosse. Vollständiges Handbuch der Blumengärtnerei Ed. 3. 2: 876.
Date publication 1854

'Cavalaire'
Cultivar Group 6
Flower Type Two superposed corollas.
Colour Pink.
Remarks Hardy.
First publication Cat. Rey, France.
Date publication 1973

'Chaptal'
Cultivar Group ?
Flower Type Single.
Colour ?
Originator Sahut, Montpellier, France.
Year of origin ?
First publication Cat. Sahut, France.
Date publication 1873

'Charles Nandin' see 'Charles Naudin'.

'Charles Naudin'
Cultivar Group 2
Flower Type Single.
Colour Bright pink washed with dark pink.
Remarks Large flower. Large but compact inflorescences resembling Rhododendron. Free flowering.
Originator Sahut, Montpellier, France.
Year of origin 1875
First publication Cat. Sahut, France.
Date publication 1876

'Cherry Red'

Cultivar Group	3
Flower Type	Single.
Colour	Cherry red.
Remarks	If published on or after Jan. 1, 1959: the name is contrary to ICNCP Recommendation 31Ag (but must not be rejected).
First publication	McClintock & Leiser. An annotated checklist of woody ornamental plants of California, Oregon and Washington: 82.
Date publication	Received 1985.

'Cherry Ripe'

Cultivar Group	3
Flower Type	Single.
Colour	Brilliant rose-red.
First publication	Cat. Monrovia, USA.
Date publication	1952

'Claude Blanc'

Cultivar Group	3
Flower Type	Single.
Colour	Light carmine washed and edged with purple. Throat dark pink streaked with carmine. Bud dark carmine.
Remarks	Large flower. Corona lobes long and finely divided. Free flowering. Vigorous.
Originator	Sahut, Montpellier, France.
Year of origin	1872
First publication	Cat. Sahut, France.
Date publication	1873

'Claude Blanch' see 'Claude Blanc'.

'Com. Barthelemy' see 'Commandant Barthélemy'.

'Commandant Barthelemy' see 'Commandant Barthélemy'.

'Commandant Barthélemy'

Cultivar Group	7
Flower Type	Two superposed corollas!
Colour	Upper corolla: carmine red, sometimes variegated. Lower corolla: darker, underneath with pale yellow margins. Throat bright pink streaked carmine.
Remarks	Large flower. Free flowering.
Originator	Sahut, Montpellier, France.
Year of origin	?
First publication	Cat. Sahut, France.
Date publication	1898

'Compte Barthelemy' see 'Commandant Barthélemy'.

'Comte Berthelemy' see 'Commandant Barthélemy'.

'Concours Régional'

Cultivar Group	?
Flower Type	Single.
Colour	?
Remarks	Free flowering. Vigorous.
Originator	Sahut, Montpellier, France.
Year of origin	?
First publication	Cat. Sahut, France.
Date publication	1873

'Constance Cézelli'

Cultivar Group	?
Flower Type	Single.
Colour	?
Originator	Sahut, Montpellier, France.
Year of origin	?
First publication	Cat. Sahut, France.
Date publication	1873

'Constance de Cézelli' see 'Constance Cézelli'.

'Conte Pasteria Cortesini'

Cultivar Group	4
Flower Type	Single.
Colour	Apricot.
First publication	Cat. Sqaravatti, Italy.
Date publication	1937

'Cousine Marie'

Cultivar Group	5
Flower Type	Two superposed corollas.
Colour	Pure white.
Originator	Sahut, Montpellier, France.
Year of origin	1875
First publication	Cat. Sahut, France.
Date publication	1876

'Creamy Yellow'

Cultivar Group	4
Flower Type	Single.
Colour	Pale yellow.
First publication	Cat. Striblings, USA.
Date publication	1956

'Crimson'

Synonyms	'Shaw's Seedling'?
Cultivar Group	?
Flower Type	?
Colour	Crimson.
First publication	Cat. Michel, USA.
Date publication	1849

'Cuisse de Nymphe Emue'

Cultivar Group	4
Flower Type	Single.
Colour	Salmon. Throat yellow streaked with carmine.
Scent	Fragrant. Scent of honey.
Remarks	If published on or after Jan. 1, 1959: the name must be rejected (ICNC P Art. 30).
First publication	Mon Jardin & Ma Maison, France 12: 128.
Date publication	1984

'Cupreatum'

Synonyms	'Cupreum'?
Cultivar Group	4
Flower Type	Single.
Colour	Copper.
Remarks	Large flower. Free flowering.
First publication	Nicholson. The Illustrated Dictionary of Gardening: 447.
Date publication	1885

'Cupreum'

Synonyms	'Cupreatum'?
Cultivar Group	4
Flower Type	Single.
Colour	Copper.
Remarks	Large flower.
First publication	Ludwig. Botanisches Centralblatt 8: 188.
Date publication	1881

'Cupreum Floribundum'

Synonyms	'Cupreatum'?, 'Cupreum'?
Cultivar Group	4
Flower Type	Single.
Colour	Copper.
Remarks	Large flower. Free flowering.
First publication	Cat. Aldrufeu, Spain.
Date publication	1884

'Daphna'

Cultivar Group	3
Flower Type	Single.
Colour	Pale cyclamen purple.
Habitus	Tall and broad.
Remarks	Suitable as a high hedge.
First publication	Zafrir. The Nerium oleander in Israel: 29.
Date publication	1962

'Dark Red'
- Cultivar Group: 3
- Flower Type: Single.
- Colour: Dark red.
- First publication: Cat. Peters & Wilson, USA.
- Date publication: 1954

'Dawn'
- Synonyms: 'Soleil Levant'?
- Cultivar Group: ?
- Flower Type: ?
- Colour: ?
- Remarks: Vigorous.
- First publication: Popenoe. Florida State Horticultural Society: 426.
- Date publication: 1975

'De Claude Sabut' see 'Souvenir de Claude Sahut'.

'Defiance'
- Cultivar Group: ?
- Flower Type: ?
- Colour: ?
- First publication: Cat. Michel, USA.
- Date publication: 1869

'Degania'
- Cultivar Group: 2
- Flower Type: Single.
- Colour: Pale fuchsia pink. Throat light orange streaked with pink.
- Habitus: Dwarf. Branching sideways.
- Remarks: Small flower.
- First publication: Zafrir. The Nerium oleander in Israel: 19.
- Date publication: 1962

'Delfine' see 'Delphine'.

'Delphine'
- Cultivar Group: 3
- Flower Type: Single
- Colour: Pale carmine edged with carmine. Throat pale carmine streaked carmine. Bud carmine.
- Scent: Fragrant.
- Remarks: Large flower. Free flowering. Vigorous.
- Originator: Sahut, Montpellier, France.
- Year of origin: 1872
- First publication: Cat. Sahut, France.
- Date publication: 1873

'Docteur Gelfin' see 'Docteur Golfin'.

'Docteur Golfin'
- Synonyms: 'Doctor Golfin'.
- Cultivar Group: 2
- Flower Type: Single.
- Colour: Lilac washed with light purple. Throat pink, streaked with dark purple. Bud carmine.
- Scent: Fragrant. Faint scent.
- Remarks: Large flower. Corona lobes long and finely divided. Free flowering.
- Originator: Sahut, Montpellier, France.
- Year of origin: 1872
- First publication: Cat. Sahut, France.
- Date publication: 1873

'Docteur Ragioneri' see 'Dottore Attilio Ragionieri'.

'Doctor Golfin'
- Synonyms: 'Docteur Golfin'. See 'Docteur Golfin'.
- First publication: Oakman. Tropical & Subtropical Gardening: 206.
- Date publication: 1975

'Dott. Attilio Ragionieri' see 'Dottore Attilio Ragionieri'.

'Dottore Attilio Ragionieri'

Cultivar Group	4
Flower Type	Single.
Colour	Light salmon.
First publication	Cat. Sqaravatti, Italy.
Date publication	1962

'Double Dark Red'

Synonyms	'Atroplenissimum'. See 'Atroplenissimum'.
First publication	Cat. Clarke, USA.
Date publication	1934

'Double Pink'

Cultivar Group	10
Flower Type	Double.
Colour	Pink.
Remarks	Large flower.
First publication	Cat. Michel, USA.
Date publication	1849

'Double Red'

Cultivar Group	11
Flower Type	Double.
Colour	Red.
First publication	Cat. Miller & Sievers, USA.
Date publication	1875

'Double Rose'

Cultivar Group	10
Flower Type	Double.
Colour	Rose.
First publication	The Garden: 384.
Date publication	1895

'Double Salmon'

Synonyms	'Carneum Flore Pleno', 'Carneum Plenum', 'Mrs. George Roeding', 'Mrs. Roeding', 'Pomponium'. See 'Carneum Plenum'.
First publication	McClintock & Leiser. An annotated checklist of woody ornamental plants of California, Oregon and Washington: 82.
Date publication	Received 1985.

'Double White'

Synonyms	'Semidouble White'.
Cultivar Group	9
Flower Type	Double.
Colour	White.
First publication	Cat. Michel, USA.
Date publication	1849

'Double Yellow'

Synonyms	'Sorrento'. See 'Sorrento'.
First publication	Cat. Clarke, USA.
Date publication	1948

'Dr. Golfin' see 'Docteur Golfin'.

'Dr. Ragionieri' see 'Dottore Attilio Ragionieri'.

'Dusaulget'

Cultivar Group	?
Flower Type	?
Colour	?
First publication	Cat. Verleeuwen, Belgium.
Date publication	1835

'Ed Barr'

Cultivar Group	1
Flower Type	Single.
Colour	White. Throat yellow.
First publication	Popenoe. Florida State Horticultural Society: 426.
Date publication	1975

'Edouard Adam'

Cultivar Group	?
Flower Type	Single.
Colour	?
Originator	Sahut, Montpellier, France.
Year of origin	?
First publication	Cat. Sahut, France.
Date publication	1873

'Edouard André'

Cultivar Group	6
Flower Type	Two superposed corollas.
Colour	Upper corolla: pale pink washed with flesh colour, edged with bright pink, sometimes streaked white. Lower corolla: darker. Throat yellowish white streaked with carmine. Bud light carmine.
Scent	Fragrant.
Remarks	Free flowering. Vigorous.
Originator	Sahut, Montpellier, France.
Year of origin	1872
First publication	Cat. Sahut, France.
Date publication	1873

'Eilath'

Cultivar Group	6
Flower Type	Two superposed corollas.
Colour	Light tyrian rose. Throat yellow streaked with pink.
Habitus	Medium size. Erect.
Remarks	Large flower. Flowers at the top. Leaves variegated: green in middle, light yellow margins.
First publication	Zafrir. The Nerium oleander in Israel: 47.
Date publication	1962

'Ein Gedi'

Cultivar Group	2
Flower Type	Single.
Colour	Pale azalea pink. Throat yellow streaked with pink.
Habitus	Dwarf. Branching sideways.
Remarks	Small flower.
First publication	Zafrir. The Nerium oleander in Israel: 17.
Date publication	1962

'Ein Harod'

Cultivar Group	2
Flower Type	Single.
Colour	Light fuchsia pink. Throat yellow streaked with pink.
Habitus	Broad.
First publication	Zafrir. the Nerium oleander in Israel: 35.
Date publication	1962

'Elegans'

Cultivar Group	3
Flower Type	Single.
Colour	Dark red.
Remarks	Free flowering.
First publication	Cat. Verleeuwen, Belgium.
Date publication	1835

'Elegantissimum'

Cultivar Group	9
Flower Type	Double.
Colour	White.
First publication	Bosse. Vollständiges Handbuch der Blumengärtnerei Ed. 3. 2: 876.
Date publication	1854

'Elisheva'

Cultivar Group	7
Flower Type	Three superposed corollas.
Colour	Light purple sulferino. Throat light yellow streaked with red.
Habitus	Spreading. Very wide.
Remarks	Large flower. Suitable as a hedge.
First publication	Zafrir. The Nerium oleander in Israel: 45.
Date publication	1962

'Emile Sahut'

Cultivar Group	3
Flower Type	Single.
Colour	Dark velvet red. Throat darker, streaked with carmine. Bud carmine.
Scent	Fragrant.
Remarks	Large flower. Free flowering. Vigorous.
Originator	Sahut, Montpellier, France.
Year of origin	1872
First publication	Cat. Sahut, France.
Date publication	1873

'Emile Shaut' see 'Emile Sahut'.

'Emile Swant' see 'Emile Sahut'.

'Emilie'

Cultivar Group	4
Flower Type	Single.
Colour	Flesh colour with pale pink veins. Throat pale pink streaked with bright purple. Bud pale pink.
Remarks	Flower bud swollen. Free flowering. Vigorous. Hardy.
Originator	Sahut, Montpellier, France.
Year of origin	1872
First publication	Cat. Sahut, France.
Date publication	1873

'Emilie Sahut' see 'Emile Sahut'.

'Ethel'

Cultivar Group	?
Flower Type	?
Colour	?
First publication	McClintock & Leiser. An annotated checklist of woody ornamental plants of Califonia, Oregon and Washington: 82.
Date publication	Received 1985.

'Etna'

Cultivar Group	7?
Flower Type	Two superposed corollas?
Colour	Velvet purple red.
First publication	Cat. Bianchi, Italy.
Date publication	1950

'Eugenia Fowler'

Cultivar Group	2
Flower Type	Single.
Colour	Light pink.
Remarks	Moderately vigorous.
First publication	Popenoe. Florida State Horticultural Society: 426.
Date publication	1975

'Eurotas'

Cultivar Group	?
Flower Type	Single.
Colour	?
Originator	Sahut, Montpellier, France.
Year of origin	?
First publication	Cat. Sahut, France.
Date publication	1876

'Exposition Universelle'

Cultivar Group	8
Flower Type	Two/three superposed corollas.
Colour	Flesh colour, edged with pink. Throat flesh colour on yellow, streaked with carmine. Bud dark pink.
Scent	Fragrant. Faint scent.
Remarks	Small flower. Corona lobes very long. Free flowering. Vigorous.
Originator	Sahut, Montpellier, France.
Year of origin	1872
First publication	Cat. Sahut, France.
Date publication	1873

'Felix Bourguet' see 'Félix Bourguet'.

'Félix Bourguet'

Cultivar Group	4
Flower Type	Single.
Colour	Light salmon, washed and edged with light purple. Throat sulphur-yellow streaked with pink.
Scent	Fragrant.
Remarks	Free flowering. Vigorous.
Originator	Sahut, Montpellier, France.
Year of origin	1872
First publication	Cat. Sahut, France.
Date publication	1873

'Flavescens'

Synonyms	'Flavum', 'Luteum', 'Luteum Simplex'.
Cultivar Group	4
Flower Type	Single.
Colour	Pale yellow. Throat yellow.
First publication	Di Spino. Jardin de St. Sebastien (ex Roemer & Schultes 1819).
Date publication	1812

'Flavescens Flore Pleno'

Synonyms	'Flavescens Plenum', 'Luteum Plenum'. See 'Flavescens Plenum'.
First publication	Cat. Villa Ada, Italy.
Date publication	1882

'Flavescens Luteum' see 'Flavescens'.

'Flavescens Plenum'

Synonyms	'Flavescens Flore Pleno', 'Luteum Plenum'.
Cultivar Group	12
Flower Type	Double.
Colour	Yellow.
First publication	Cat. Sqaravatti, Italy.
Date publication	1913

'Flavum'

Synonyms	'Flavescens', 'Luteum', 'Luteum Simplex'. See 'Flavescens'.
First publication	Bosse. Vollständiges Handbuch der Blumengärtnerei Ed. 3. 2: 876.
Date publication	1854

'Flavum Duplex'

Synonyms	'Professeur Durand'. See 'Professeur Durand'.
First publication	Pottier. Revue de l'Horticulture Belge et Etrangère 5: 276.
Date publication	1879

'Flore Albo'

Synonyms	'Album', 'Album Simplex', 'Flore Albo Simplex'. See 'Album'.
First publication	Cat. Buc'hoz, France.
Date publication	1799

'Flore Albo Pleno'
Synonyms 'Album Plenum'. See 'Album Plenum'.
First publication Bosse. Vollständiges Handbuch der Blumengärtnerei Ed. 3. 2: 876.
Date publication 1854

'Flore Albo Simplex'
Synonyms 'Album', 'Album Simplex', 'Flore Albo'. See 'Album'.
First publication Cat. De Mattos, Portugal.
Date publication 1910

'Flore Atropurpureo Pleno'
Synonyms 'Atropurpureum Plenum'. See 'Atropurpureum Plenum'.
First publication Cat. De Mattos, Portugal.
Date publication 1910

'Flore Carneo'
Synonyms 'Carneum'. See 'Carneum'.
First publication Cat. De Mattos, Portugal.
Date publication 1910

'Flore Carneo Semiduplex'
Cultivar Group 12
Flower Type Double.
Colour Flesh colour.
First publication Cat. De Mattos, Portugal.
Date publication 1910

'Flore Pleno'
Synonyms 'Plenum'. See 'Plenum'.
First publication Cat. Buc'hoz, France.
Date publication 1799

'Flore Roseo Pleno'
Synonyms 'Roseum Flore Pleno', 'Roseum Plenum'. See 'Roseum Plenum'.
First publication Cat. De Mattos, Portugal.
Date publication 1910

'Flore Roseo Simplex'
Synonyms 'Rose Ordinaire', 'Roseum', 'Roseum Simplex'. See 'Roseum'.
First publication Cat. De Mattos, Portugal.
Date publication 1910

'Flore Rubro Pleno'
Synonyms 'Rubrum Plenum'. See 'Rubrum Plenum'.
First publication Bosse. Vollständiges Handbuch der Blumengärtnerei Ed. 3. 2: 876.
Date publication 1854

'Flore Rubro Simplex'
Synonyms 'Rubrum'. See 'Rubrum'.
First publication Cat. De Mattos, Portugal.
Date publication 1910

'Flore Variegato'
Synonyms 'Loddigesii'. See 'Loddigesii'.
First publication Loddiges. Loddiges' Botanical Cabinet 7: 666.
Date publication 1822

'Flos Columbianum' see 'Fonscolumbianum'.

'Foglie Variegate'
Cultivar Group 10
Flower Type Double.
Colour Pink.
Remarks Leaves variegated. If published on or after Jan. 1, 1959: the name is contrary to ICNCP Recommendation 31Ag (but must not be rejected).
First publication Cat. Sciacca, Italy.
Date publication 1962

'Foliis Argenteo Variegatis'

Cultivar Group	2
Flower Type	Single.
Colour	Pink.
Remarks	Leaves variegated with white.
First publication	Siebert & Vos. Vilmorin's Blumengärtnerei Ed. 3. 1: 659.
Date publication	1896

'Foliis Aureo Variegatis'

Cultivar Group	2
Flower Type	Single.
Colour	Pink.
Remarks	Leaves variegated with golden yellow.
First publication	Siebert & Vos. Vilmorin's Blumengärtnerei Ed. 3. 1: 659.
Date publication	1896

'Foliis Variegatis'

Cultivar Group	2
Flower Type	Single.
Colour	Bright pink, sometimes streaked with white.
Remarks	Leaves variegated with white.
First publication	Cat. Buc'hoz, France.
Date publication	1799

'Fonscolombianum' see 'Fonscolumbianum'.

'Fonscolumbianum'

Cultivar Group	9
Flower Type	Double.
Colour	Creamy white.
First publication	Cat. Sahut, France.
Date publication	1876

'Formosissimum'

Cultivar Group	?
Flower Type	?
Colour	?
First publication	Bosse. Vollständiges Handbuch der Blumengärtnerei Ed. 3. 2: 876.
Date publication	1854

'Formosum'

Cultivar Group	2
Flower Type	Single.
Colour	Pale pink, underneath with purple margins.
Remarks	Large flower.
First publication	Bosse. Vollständiges Handbuch der Blumengärtnerei Ed. 3. 2: 876.
Date publication	1854

'Fortissimi' see 'Fortissimum'.

'Fortissimum'

Cultivar Group	?
Flower Type	?
Colour	?
First publication	Cat. Battista, Italy.
Date publication	1895

'Foscolombianum Plenum' see 'Fonscolumbianum'.

'Frederic Guibert' see 'Frédéric Guibert'.

'Frédéric Guibert'

Cultivar Group	2
Flower Type	Single.
Colour	Bright pink.
Remarks	Large flower.
Originator	Sahut, Montpellier, France.
Year of origin	?
First publication	Cat. Sahut, France.
Date publication	1873

'Frejus'

Cultivar Group	8
Flower Type	Two superposed corollas.
Colour	Salmon.
First publication	Cat. Baldacci, Italy.
Date publication	1979

'Garcia Moreno'

Cultivar Group	6
Flower Type	Two superposed corollas.
Colour	Pink.
First publication	Cat. Sahut, France.
Date publication	1898

'Géant de Bataille' see 'Géant des Batailles'.

'Géant des Batailles'

Cultivar Group	3
Flower Type	Single!
Colour	Red.
Originator	Sahut, Montpellier, France.
Year of origin	?
First publication	Cat. Michel, USA.
Date publication	1869

'Général Lamoricière'

Synonyms	'Rabelais'?
Cultivar Group	4
Flower Type	Single.
Colour	?
Originator	Sahut, Montpellier, France.
Year of origin	?
First publication	Cat. Sahut, France.
Date publication	1898

'General Pershing'

Cultivar Group	2
Flower Type	Single.
Colour	Dark pink.
Remarks	Vigorous.
First publication	Popenoe. Florida State Horticultural Society: 426.
Date publication	1975

'Gilbert Bravy'

Cultivar Group	10
Flower Type	Double.
Colour	Pale pink.
Scent	Fragrant.
Remarks	The first flowers have a form resembling a carnation.
Originator	Sahut, Montpellier, France.
Year of origin	1875
First publication	Cat. Sahut, France.
Date publication	1876

'Gloire de Monplaisier'

Cultivar Group	6
Flower Type	Two superposed corollas.
Colour	Bright pink.
Remarks	Large flower.
First publication	Cat. Kohli, India.
Date publication	?

'Grandiflorum'

Cultivar Group	2
Flower Type	Single.
Colour	Dark pink.
Scent	Fragrant.
Remarks	Large flower. Large inflorescences. Free flowering.
First publication	Cat. Fedi, Italy.
Date publication	1956

'Grangeanum'
Cultivar Group ?
Flower Type Single.
Colour ?
First publication Bosse. Vollständiges Handbuch der Blumengärtnerei Ed. 3. 2: 876.
Date publication 1854

'Graziani' see 'Maresciallo Graziani'.

'Hacville'
Cultivar Group 3
Flower Type Single.
Colour Bright red.
Remarks Large flowers. Larger and of a colour more brilliant than 'Splendens'.
First publication Kerstens. Keur van Bloemen en Sierplanten: 111.
Date publication 1878

'Hana Cizik'
Cultivar Group 3
Flower Type Single.
Colour Light fuchsia purple. Throat yellow streaked with red.
Habitus Broad. Branches drooping.
Remarks Large flower.
First publication Zafrir. The Nerium oleander in Israel: 37.
Date publication 1962

'Hanna Rovina'
Cultivar Group 8
Flower Type Two superposed corollas.
Colour Pale yellow. Throat dark yellow.
Habitus Broad. Branches drooping.
First publication Zafrir. The Nerium oleander in Israel: 43.
Date publication 1962

'Hardy Pink'
Cultivar Group 4
Flower Type Single.
Colour Brilliant salmon pink.
Remarks Large flower. If published on or after Jan. 1, 1959: the name is contrary to ICNCP Recommendation 31Ag (but must not be rejected).
First publication Cat. Monrovia, USA.
Date publication 1965

'Hardy Red'
Cultivar Group 3
Flower Type Single.
Colour Bright red.
Remarks Large flower. Large inflorescences. If published on or after Jan. 1, 1959: name contrary to ICNCP Recommendation 31Ag (but must not be rejected).
First publication Cat. Monrovia, USA.
Date publication 1965

'Hawaï' see 'Hawaii'.

'Hawaii'
Cultivar Group 4
Flower Type Single.
Colour Salmon pink. Throat dark yellow.
Remarks Free flowering. Vigorous.
First publication Cat. Monrovia, USA.
Date publication 1965

'Henri de France'
Cultivar Group ?
Flower Type ?
Colour ?
First publication Cat. Verleeuwen, Belgium.
Date publication 1835

'Henri Maré' see 'Henri Marès'.

Cultivar Group	6
Flower Type	Two superposed corollas.
Colour	Pale pink edged with carmine. Throat pale pink on yellowish white, streaked with light carmine. Bud dark carmine.
Scent	Fragrant. Scent of Magnolia.
Remarks	Upper corolla often with free petals. Lower corolla with narrow lobes. Free flowering. Vigorous.
Originator	Sahut, Montpellier, France.
Year of origin	1872
First publication	Cat. Sahut, France.
Date publication	1873

'Henri Sahut'

Cultivar Group	?
Flower Type	Two superposed corollas.
Colour	?
Remarks	Free flowering. Vigorous.
Originator	Sahut, Montpellier, France.
Year of origin	1872
First publication	Cat. Sahut, France.
Date publication	1873

'Hippocrate'

Cultivar Group	?
Flower Type	Single.
Colour	?
Originator	Sahut, Montpellier, France.
Year of origin	?
First publication	Cat. Sahut, France.
Date publication	1875

'Impero'

Cultivar Group	?
Flower Type	?
Colour	?
First publication	Brand, INRA/GEVES, France. Pers. comm.
Date publication	1985

'Incarnatum'

Cultivar Group	2
Flower Type	Single.
Colour	Pale pink.
First publication	Cat. Perotti, Italy.
Date publication	1884

'Inodorum Saulgetii'

Cultivar Group	2
Flower Type	Single.
Colour	Dark pink. Throat pink streaked with purple.
Remarks	Large flower. Free flowering.
First publication	Nicholson & Mottet. Dictionnaire Pratique d'Horticulture et de Jardinage 3: 465.
Date publication	1895

'Isle of Capri'

Synonyms	'Lutescens'.
Cultivar Group	4
Flower Type	Single.
Colour	Light yellow.
Remarks	Tender.
First publication	Cat. Monrovia Nursery, USA.
Date publication	1963

'Italia'

Synonyms	'Atropurpureum'?
Cultivar Group	3
Flower Type	Single.
Colour	Purple red.
First publication	Cat. Baldacci, Italy.
Date publication	1952

'Jannoch'

Cultivar Group	3
Flower Type	Single.
Colour	Bright red.
Remarks	Large flower.
First publication	Cat. Monrovia, USA.
Date publication	1952

'Jannoch Red' see 'Jannoch'.

'Jannoch's Single Red' see 'Jannoch'.

'Jannoch's Single White'
Cultivar Group 1
Flower Type Single.
Colour White.
First publication Cat. Clarke, USA.
Date publication 1962

'Jaune Nankin'
Cultivar Group 4
Flower Type Single.
Colour Dark yellow.
First publication Cat. Sahut, France.
Date publication 1873

'Jean Galen'
Cultivar Group 7
Flower Type Two superposed corollas.
Colour Wine red washed with carmine, streaked white. Throat pale pink streaked purple.
Remarks Large flower. Corona lobes finely divided. Flower buds short and swollen.
Originator Sahut, Montpellier, France.
Year of origin ?
First publication Cat. Sahut, France.
Date publication 1898

'Jean Gallen' see 'Jean Galen'.

'Jeanne d'Arc'
Cultivar Group 9
Flower Type Double.
Colour White.
Scent Fragrant.
First publication Cat. Thorburn, USA.
Date publication 1852

'Jean Peyre'
Cultivar Group 6
Flower Type Two superposed corollas.
Colour Pink.
Originator Sahut, Montpellier, France.
Year of origin 1872
First publication Cat. Sahut, France.
Date publication 1873

'Jericho'
Cultivar Group 2
Flower Type Single.
Colour Pale pink. Throat yellow streaked pink.
Habitus Medium size. Spreading.
First publication Zafrir. The Nerium oleander in Israel: 31.
Date publication 1962

'Jonosmum Majus'
Cultivar Group ?
Flower Type ?
Colour ?
Scent Fragrant. Scent of violet.
Remarks Large flower.
First publication Bosse. Vollständiges Handbuch der Blumengärtnerei Ed. 3. 2: 876.
Date publication 1854

'Kinneret'
Cultivar Group 3
Flower Type Single.
Colour Dark purple. Throat pink streaked red.
Habitus Dwarf. Erect.
First publication Zafrir. The Nerium oleander in Israel: 21.
Date publication 1962

'Kokilaksha'
Cultivar Group ?
Flower Type ?
Colour Deep red.
First publication Cat. Globe Nursery, India

'Kunar'

Cultivar Group	2
Flower Type	Single.
Colour	Pink.
Scent	Fragrant.
Remarks	Introduced into France from Afghanistan.
First publication	Cat. Rey, France.
Date publication	1973

'Laconie'

Cultivar Group	?
Flower Type	Single.
Colour	?
Originator	Sahut, Montpellier, France.
Year of origin	?
First publication	Cat. Sahut, France.
Date publication	1876

'Lacteolum Superbum'

Cultivar Group	1
Flower Type	Single.
Colour	White.
Scent	Fragrant. Scent of violet.
First publication	Bosse. Vollständiges Handbuch der Blumengärtnerei Ed. 3. 2: 876.
Date publication	1854

'Lacteum'

Cultivar Group	1
Flower Type	Single.
Colour	White. Throat pale yellow to flesh colour.
Scent	Fragrant.
First publication	Bosse. Vollständiges Handbuch der Blumengärtnerei Ed. 3. 2: 876.
Date publication	1854

'Lady Kate'

Cultivar Group	2
Flower Type	Single.
Colour	Pale pink.
First publication	National Oleander Society, USA. Promotional publication.
Date publication:	Received 1985.

'Lane Taylor Sealy'

Cultivar Group	4
Flower Type	Single.
Colour	Salmon pink.
Remarks	Weak.
First publication	Popenoe. Florida State Horticultural Society: 426.
Date publication	1975

'Lapeyronie'

Cultivar Group	?
Flower Type	Single.
Colour	?
Originator	Sahut, Montpellier, France.
Year of origin	?
First publication	Cat. Sahut,. France.
Date publication:	1873

'Lattes'

Cultivar Group	3
Flower Type	Single.
Colour	Crimson-magenta.
Remarks	Large flower.
Originator	Sahut, Montpellier, France.
Year of origin	1872
First publication	Cat. Sahut, France.
Date publication	1873

'Laura' see 'Laure'.

'Laure'
Cultivar Group 6
Flower Type Two superposed corollas.
Colour Light pink washed with dark pink. Margins white.
Orginator Sahut, Montpellier, France.
Year of origin 1875
First publication Cat. Sahut, France.
Date publication 1876

'L. Bourgent' see 'Louis Bourguet'.

'L. Bourguet' see 'Louis Bourguet'.

'Le Chalet'
Cultivar Group ?
Flower Type Single.
Colour ?
Originator Sahut, Montpellier, France.
Year of origin ?
First publication Cat. Sahut, France.
Date publication 1873

'Lelieuri'
Cultivar Group ?
Flower Type ?
Colour ?
First publication Bosse. Vollständiges Handbuch der Blumengärtnerei Ed. 3.2: 876.
Date publication 1854

'Lemon'
Cultivar Group ?
Flower Type Double? Superposed corollas?
Colour Yellow?
Originator Sahut, Montpellier, France.
Year of origin ?
First publication Cat. Sahut, France.
Date publication 1876

'Léon de Lunaret'
Cultivar Group 11
Flower Type Double.
Colour Light carmine, washed with dark carmine, often variegated.
Remarks Large inflorescences. Free flowering.
Orginiator Sahut, Montpellier, France.
Year of origin 1875
First publication Cat. Sahut, France.
Date publication 1876

'Léonie'
Cultivar Group 6
Flower Type Two superposed corollas.
Colour Pale pink washed with dark pink.
Scent Fragrant.
Originator Sahut, Montpellier, France.
Year of origin 1875
First publication Cat. Sahut, France.
Date publication 1876

'Leperonic' see 'Lapeyronie'

'Le Peyrou'
Cultivar Group ?
Flower Type Single.
Colour ?
Originator Sahut, Montpellier, France.
Year of origin ?
First publication Cat. Sahut, France.
Date publication 1873

'Lilacinum'
Cultivar Group 2?
Flower Type Single.
Colour Lilac?
First publication Cat. Sahut, France.
Date publication 1873

'Lilian Henderson'

Cultivar Group	5
Flower Type	Two superposed corollas.
Colour	White.
First publication	Cat. Sqaravatti, Italy.
Date publication	1913

'Little Beauty'

Cultivar Group	?
Flower Type	?
Colour	Pink.
First publication	Cat. Michel, USA.
Date publication	1869

'Loddigesii'

Synonyms	'Flore Variegato'.
Cultivar Group	2
Flower Type	Single.
Colour	Variegated: bands of white, pink, and dark pink. Throat pink.
Remarks	Corona lobes entire, ovate and obtuse.
First publication	Loddiges. Loddiges' Botanical Cabinet 7: 666.
Date publication	1822

'Louis Bourguet'

Cultivar Group	3
Flower Type	Single.
Colour	Bright carmine, edged and washed with dark carmine, lighter underneath. Throat dark carmine.
Scent	Fragant.
Remarks	Small flower. Flower inclined to cup. Corona lobes finely divided. Free flowering. Vigorous.
Originator	Sahut, Montpellier, France.
Year of origin	1872
First publicatoion	Cat. Sahut, France.
Date publication	1873

'Louis Pouget'

Cultivar Group	8
Flower Type	Two superposed corollas.
Colour	Upper corolla: pale salmon pink. Lower corolla: flesh colour with a lilac hue. Throat pink streaked carmine.
Remarks	Large flower. Large inflorescences. Free flowering.
Originator	Sahut, Montpellier, France.
Year of origin	?
First publication	Cat. Sahut, France.
Date publication	1898

'Louis Pougot' see 'Louis Pouget'.

'Lutescens'

Synonyms	'Isle of Capri'. See 'Isle of Capri'.
First publication	Bailey & Bailey. Hortus Second: 496.
Date publication	1947

'Luteum'

Synonyms	'Flavescens', 'Flavum', 'Luteum Simplex'. See 'Flavescens'.
First publication	Cat. Verleeuwen, Belgium.
Date publication	1820

'Luteum Grandiflorum'

Cultivar Group	4
Flower Type	Single.
Colour	Pale yellow.
Remarks	Large flower.
First publication	Bosse. Vollständiges Handbuch der Blumengärtnerei Ed. 3. 2: 876.
Date publication	1854

'Luteum Marginatum'

Cultivar Group	?
Flower Type	?
Colour	Pale yellow.
First publication	Cat. Villa Ada, Italy.
Date publication	1882

'Luteum Novum'
- Cultivar Group: 4
- Flower Type: Single.
- Colour: Pale yellow.
- Remarks: Large flower.
- First publication: Cat. Aldrufeu, Spain.
- Date publication: 1884

'Luteum Plenum'
- Synonyms: 'Flavescens Flore Pleno', 'Flavescens Plenum'. See 'Flavescens Plenum'.
- First publication: Bosse. Vollständiges Handbuch der Blumengärtnerei Ed. 3. 2: 876.
- Date publication: 1854

'Luteum Simplex'
- Synonyms: 'Flavescens', 'Flavum', 'Luteum'. See 'Flavescens'.
- First publication: Cat. Sqaravatti, Italy.
- Date publication: 1937

'Mabel Hill'
- Cultivar Group: 3
- Flower Type: Single.
- Colour: Red.
- First publication: Cat. Monrovia Nursery, USA.
- Date publication: 1959

'Mabire'
- Cultivar Group: ?
- Flower Type: Double? Superposed corollas?
- Colour: ?
- Originator: Sahut, Montpellier, France.
- Year of origin: ?
- First publication: Cat. Sahut, France.
- Date publication: 1876

'Mabiri' see 'Mabirii'.

'Mabirii'
- Cultivar Group: 1
- Flower Type: Single.
- Colour: White.
- First publication: Bosse. Vollständiges Handbuch der Blumengärtnerei Ed. 3. 2: 876.
- Date publication: 1854

'Macrophylla' see 'Macrophyllum'.

'Macrophyllum'
- Cultivar Group: 10
- Flower Type: Double
- Colour: Pink.
- Remarks: Large leaves.
- First publication: Bosse. Vollständiges Handbuch der Blumengärtnerei Ed. 3. 2: 876.
- Date publication: 1854

'Maculatum'
- Cultivar Group: ?
- Flower Type: ?
- Colour: ?
- Remarks: Leaves spotted.
- First publication: Bosse. Vollständiges Handbuch der Blumengärtnerei Ed. 3. 2: 876.
- Date publication: 1854

'Madame Allen'
- Cultivar Group: 10
- Flower Type: Double
- Colour: Pink.
- Remarks: Hardy.
- First publication: Cat. Rey, France.
- Date publication: 1973

'Madame Charles Baltet'

Cultivar Group	?
Flower Type	Two superposed corollas.
Colour	?
Remarks	Free flowering. Vigorous.
Originator	Sahut, Montpellier, France.
Year of origin	1872
First publication	Cat. Sahut, France.
Date publication	1873

'Madame Charles Cavallier'

Cultivar Group	6
Flower Type	Two superposed corollas.
Colour	Bright pink to pale pink. Throat yellow streaked with dark carmine. Bud carmine.
Scent	Fragrant.
Remarks	Large flower. Large inflorescences. Broad leaves.
Originator	Sahut, Montpellier, France.
Year of origin	1875
First publication	Cat. Sahut, France.
Date publication	1876

'Madame Charles Naudin'

Cultivar Group	1
Flower Type	Single.
Colour	White.
Remarks	Large but compact inflorescences, resembling Rhododendron. Free flowering.
Originator	Sahut, Montpellier, France.
Year of origin	?
First publication	Cat. Sahut, France.
Date publication	1876

'Madame Cochet'

Cultivar Group	3
Flower Type	Single.
Colour	Light carmine washed with yellow. Bud dark purple.
Scent	Fragrant.
Remarks	Free flowering.
Originator	Sahut, Montpellier, France.
Year of origin	1875
First publication	Cat. Sahut, France.
Date publication	1876

'Madame Cortin'

Cultivar Group	2
Flower Type	Single.
Colour	Pink.
First publication	Cat. Berti, Italy.
Date publication	1894

'Madame Dams'

Cultivar Group	2
Flower Type	Single
Colour	Pink.
Remarks	Large flower.
First publication	Cat. Aldrufeu, Spain.
Date publication	1890

'Madame Dubois'

Cultivar Group	1
Flower Type	Single.
Colour	Pure white.
Remarks	Corona lobes long. Flowers inclined to cup. Free flowering.
Originator	Sahut, Montpellier, France.
Year of origin	1872
First publication	Cat. Sahut, France.
Date publication	1873

'Madame Emma Schneider' see 'Souvenir d'Emma Schneider'.

'Madame Félix Sahut'

Cultivar Group	6
Flower Type	Two superposed corollas.
Colour	Pink.
Originator	Sahut, Montpellier, France.
Year of origin	?
First publication	Cat. Sahut, France.
Date publication	1898

'Madame Jannoch' see 'Jannoch'.

'Madame Jannock' see 'Jannoch'.

'Madame Léon Blum'

Cultivar Group	4
Flower Type	Single.
Colour	Light apricot.
Remarks	Free flowering. Hardy. 'Tito Poggi' is a selection of this cultivar with DARK apricot flowers.
First publicatin	Cat. Capecchi, Italy.
Date publication	1959

'Madame Léon Brun'

Cultivar Group	6
Flower Type	Two superposed corollas.
Colour	Pink.
Scent	Fragrant.
Remarks	Differs from 'Pierre Roudier' in having larger inflorescences and flowers with longer peduncles and of a darker colour.
Originator	Sahut, Montpellier, France.
Year of origin	1875
First publication	Cat. Sahut, France.
Date publication	1876

'Madame Martin' see 'Madame Martins'.

'Madame Martine' see 'Madame Martins'.

'Madame Martins'

Cultivar Group	8
Flower Type	Two superposed corollas.
Colour	Upper corolla: salmon pink edged with light lilac. Lower corolla: darker. Throat pale yellow streaked with carmine.
Scent	Fragant.
Remarks	Large flower.
Originator	Sahut, Montpellier, France.
Year of origin	1872
First publication	Cat. Sahut, France.
Date publication	1873

'Madame Paul Poutingon'

Cultivar Group	4
Flower Type	Single.
Colour	Flesh colour to salmon, edged with violet pink. Throat pale yellow.
Remarks	Free flowering.
Originator	Sahut, Montpellier, France.
Year of origin	1875
First publication	Cat. Sahut, France.
Date publication	1876

'Madame Peyre'

Cultivar Group	5
Flower Type	Two superposed corollas.
Colour	Upper corolla: pure white. Lower corolla: white, edged with pale yellow. Throat pale yellow. Bud pale yellow.
Remarks	Large flower. Free flowering. Vigorous. Hardy. More vigorous and hardier than 'Madoni Grandiflorum'.
Originator	Sahut, Montpellier, France.
Year of origin	1872
First publication	Cat. Sahut, France.
Date publication	1873

'Madame Planchon'

Cultivar Group	6
Flower Type	Two/three superposed corollas.
Colour	Upper corolla: pale pink with a lilac hue streaked white, edged with dark lilac. Lower corolla: darker. Throat pale yellow streaked with light carmine. Bud light carmine.
Scent	Fragrant. Faint scent.
Remarks	Large flower. Corona lobes finely divided.
Originator	Sahut, Montpellier, France.
Year of origin	1872
First publication	Cat. Sahut, France.
Date publication	1873

'Madame Puech'

Cultivar Group	6
Flower Type	Two/three superposed corollas.
Colour	Pale pink.
Remarks	Petal flat. Free flowering.
Originator	Sahut, Montpellier, France.
Year of origin	1875
First publication	Cat. Sahut, France.
Date publication	1876

'Madame Runel'

Cultivar Group	2
Flower Type	Single.
Colour	Pink.
Remarks	Large flower.
Originator	Sahut, Montpellier, France.
Year of origin	1875
First publication	Cat. Sahut, France.
Date publication	1876

'Mad. Cochet' see 'Madame Cochet'.

'Maddoni Gradiflora' see 'Madoni Grandiflorum'.

'Mademoiselle Célestine'

Cultivar Group	2
Flower Type	Single.
Colour	Pink.
Originator	Sahut, Montpellier, France.
Year of origin	1872
First publication	Cat. Sahut, France.
Date publication	1873

'Mad. Leon Blum' see 'Madame Léon Blum'.

'Mad. Martin' see 'Madame Martins'.

'Madoni Grandiflora' see 'Madoni Grandiflorum'.

'Madoni Grandiflorum'

Cultivar Group	5
Flower Type	Two superposed corollas.
Colour	Creamy white.
Scent	Fragrant.
Remarks	Large flower. Free flowering.
First publication	Cat. Sahut, France.
Date publication	1873

'Madoni Grandiflorus' see 'Madoni Grandiflorum'.

'Madonna' see 'Madoni Grandiflorum'.

'Madonna Grandiflora' see 'Madoni Grandiflorum'.

'Madonna Grandiflorum' see 'Madoni Grandiflorum'.

'Mad. Peyre' see 'Madame Peyre'.

'Mad. Planchon' see 'Madame Planchon'.

'Magaly'

Cultivar Group	2
Flower Type	Single.
Colour	Pink with a lilac hue. Throat pale yellow streaked with carmine.
Remarks	Free flowering. Vigorous. Hardy.
Originator	Rey, Carpentras, France.
Year of origin	?
First publication	Cat. Rey, France.
Date publication	1973

'Maguelone'

Cultivar Group	4
Flower Type	Single.
Colour	?
Originator	Sahut, Montpellier, France.
Year of origin	?
First publication	Cat. Sahut, France.
Date publication	1873

'Marcel Galen'

Cultivar Group	6
Flower Type	Two superposed corollas.
Colour	Pink.
Originator	Sahut, Montpellier, France.
Year of origin	?
First publication	Cat. Sahut, France.
Date publication	1898

'Maréchal Graziani'

Synonyms	'Maresciallo Graziani'. 'See 'Maresciallo Graziani'.
First publication	Brand, INRA/GEVES, France. Pers. comm.
Date publication	1985

'Maresciallo Graziani'

Synonyms	'Maréchal Graziani'.
Cultivar Group	2
Flower Type	Single.
Colour	Pink.
Remarks	Large flower. Very hardy.
Originator	Gambetta, Pietra Ligure, Italy.
Year of origin	?
First publication	Cat. Sciacca, Italy.
Date publication	1962

'Margaritha'

Cultivar Group	2
Flower Type	Single.
Colour	Bright pink.
Remarks	Should not be confused with 'Marguerite' (single, white) or 'Margherita' (single, bright red). Name contrary to ICNCP Recommendation 31Ah.
First publication	Cat. Rey, France.
Date publication	1973

'Margherita'

Cultivar Group	3
Flower Type	Single.
Colour	Bright coral red.
Remarks	Should not be confused with 'Margaritha' (single, bright pink) or 'Marguerite' (single, white).
First publication	Cat. Sqaravatti, Italy.
Date publication	1930

'Marguérite' see 'Marguerite'

'Marguerite'

Cultivar Group	1
Flower Type	Single.
Colour	White!
Remarks	Should not be confused with 'Margaritha' (single, bright pink) or 'Margherita' (single, bright red).
Originator	Sahut, Montpellier, France.
Year of origin	1872
First publication	Cat. Sahut, France.
Date publication	1873

'Marie Gambetta'

Cultivar Group	4
Flower Type	Single.
Colour	Pale yellow. Throat bright yellow, unicoloured.
Remarks	Large flower.
First publication	Cat. Rey, France.
Date publication	1973

'Marie Mauron'

Cultivar Group	2
Flower Type	Single.
Colour	Pink.
Remarks	Vigorous. Hardy.
Originator	Rey, Carpentras, France.
Year of origin	?
First publication	Cat. Rey, France.
Date publication	1984

Plant Breeders Right MD no. 1103441.

'Martha Hanna Henslee'

Cultivar Group	?
Flower Type	?
Colour	?
First publication	Popenoe. Florida State Horticultural Society: 427.
Date publication	1975

'Mas de l'Olivier'

Cultivar Group	3
Flower Type	Single.
Colour	Carmine.
Originator	Sahut, Montpellier, France.
Year of origin	1875
First publication	Cat. Sahut, France.
Date publication	1876

'Mathilda Ferrier'

Cultivar Group	4
Flower Type	Single.
Colour	Pale yellow.
Remarks	Weak growth.
First publication	Popenoe. Florida State Horticultural Society: 427.
Date publication	1975

'M. Balaguier' see 'Monsieur Balaguier'.

'Metallicum'

Cultivar Group	4
Flower Type	Single.
Colour	Pale yellow. Throat bright yellow streaked with purple.
First publication	Cat. Pin & Gullino, Italy.
Date publication	1894

'Milka'

Cultivar Group	2
Flower Type	Single.
Colour	Light bengal rose. Throat pink streaked with dark pink.
Habitus	Narrow. Erect.
First publication	Zafrir. The Nerium oleander in Israel: 27.
Date publication	1962

'Minouche'

Cultivar Group	2
Flower Type	Single.
Colour	Dark pink. Center of petal paler. Throat dark pink streaked with red.
Habitus	Medium size.
Originator	Rey, Carpentras, France.
Year of origin	?
First publication	Cat. Rey, France.
Date publication	1973

'Miss Agnes Campbell'

Cultivar Group	4
Flower Type	Single.
Colour	Salmon.
Remarks	Vigorous. If published on or after Jan. 1, 1959: the name is contrary to ICNCP Recommendation 31Ad (but must not be rejected).
First publication	Popenoe. Florida State Horticultural Society: 427.
Date publication	1975

'Mlle Célestine' see 'Mademoiselle Célestine'.
'Mme Allen' see 'Madame Allen'.
'Mme Charles Baltet' see'Madame Charles Baltet'.
'Mme Charles Cavallier' see 'Madame Charles Cavallier'.
'Mme Charles Naudin'see 'Madame Charles Naudin'.
'Mme Cochet' see 'Madame Cochet'.
'Mme Cortin' see 'Madame Cortin'.
'Mme Dams' see 'Madame Dams'.
'Mme Dubois' see 'Madame Dubois'.
'Mme Emma Schneider' see 'Madame Emma Schneider'.
'Mme Félix Sahut' see 'Madame Félix Sahut'.
'Mme Jannoch' see 'Madame Jannoch'.
'Mme Léon Blum' see 'Madame Léon Blum'.
'Mme Léon Brun' see 'Madame Léon Brun'.
'Mme Martins' see 'Madame Martins'.
'Mme Paul Poutingon'see 'Madame Paul Poutingon'.
'Mme Peyre' see 'Madame Peyre'.
'Mme Planchon' see 'Madame Planchon'.
'Mme Puech' see 'Madame Puech'.
'Mme Runel' see 'Madame Runel'.
'Mons. Balaguier' see 'Monsieur Balaguier'.
'Mons. Balguier' see 'Monsieur Balaguier'.

'Monsieur Balaguier'

Cultivar Group	2
Flower Type	Single.
Colour	Pale pink edged with bright pink. Throat pale pink streaked with bright pink.
Remarks	Large flower. Corona lobes long and finely divided. Free flowering. Vigorous.
Originator	Sahut, Montpellier, France.
Year of origin	1872
First publication	Cat. Sahut, France.
Date publication	1873

'Monsieur Belaguier' see 'Monsieur Balaguier'.

'Monsieur W. H. Brun'

Cultivar Group	12
Flower Type	Double.
Colour	Creamy yellow.
First publication	Cat. Bianchi, Italy.
Date publication	1958

'Mont Blanc'

Cultivar Group	9
Flower Type	Double!
Colour	White.
Remarks	In Italy and France 'Mont Blanc' (DOUBLE, white) often is wrongly named 'Soeur Agnès' (in fact SINGLE, white) and vice versa!
First publication	Cat. Baldacci, Italy.
Date publication	1952

'Mrs. F. Roeding' see 'Mrs. George Roeding'.

'Mrs. George Morgan'

Cultivar Group	3
Flower Type	Single.
Colour	Carmine.
First publication	National Oleander Society, USA. Promotional publication.
Date publication	Received 1985.

'Mrs. George Roeding'

Synonyms	'Carneum Flore Pleno', 'Carneum Plenum', 'Double Salmon', 'Mrs. Roeding', 'Pomponium'. See 'Carneum Plenum'.
First publication	McClintock & Leiser. An annotated checklist of woody ornamental plants of California, Oregon and Washington: 82.
Date publication	Received 1985.

'Mrs. H. L. Runge'

Synonyms	'Variegatum'?
Cultivar Group	2
Flower Type	Single.
Colour	Pink.
Remarks	Leaves variegated with yellow. Vigorous. If published on or after Jan. 1, 1959: the name is contrary to ICNCP Recommendation 31Ac (but must not be rejected).
First publication	Popenoe. Florida State Horticultural Society: 427.
Date publication	1975

'Mrs. H. M. Truehart'

Cultivar Group	2
Flower Type	Single.
Colour	Pink.
Remarks	Vigorous. If published on or after Jan. 1, 1959: the name is contrary to ICNCP Recommendation 31Ac (but must not be rejected).
First publication:	Popenoe. Florida State Horticultural Society: 427.
Date publication	1975

'Mrs. Isador Dyer'

Cultivar Group	2
Flower Type	Single
Colour	Pink.
Remarks	Vigorous.
First publication	Popenoe. Florida State Horticultural Society: 427.
Date publication	1975

'Mrs. J. E. Thompson'

Cultivar Group	3
Flower Type	Single.
Colour	Dark red.
Remarks	Vigorous. If published on or after Jan. 1, 1959: the name is contrary to ICNCP Recommendation 31Ac (but must not be rejected).
First publication	Popenoe. Florida State Horticultural Society: 427.
Date publication	1975

'Mrs. John Hann'

Cultivar Group	?
Flower Type	?
Colour	?
First publication	Popenoe. Florida State Horticultural Society: 427.
Date publication	1975

'Mrs. Lucile Hutchings'

Cultivar Group	4
Flower Type	Single.
Colour	Salmon.
Remarks	Weak growth.
First publication	Popenoe. Florida State Horticultural Society: 427.
Date publication	1975

'Mrs. Magnolia Willis Sealy'
Cultivar Group 1
Flower Type Single
Colour White.
Remarks Vigorous. If published on or after Jan. 1, 1959: this name must be rejected (ICNCP Art. 30).
First publication Popenoe. Florida State Horticultural Society: 427.
Date publication 1975

'Mrs. Roeding'
Synonyms 'Carneum Flore Pleno', 'Carneum Plenum', 'Double Salmon', 'Mrs. George Roeding', 'Pomponium'. See 'Carneum Plenum'.
First publication Cat. Clarke, USA.
Date publication 1929

'Mrs. Sue Hawley Oakes'
Cultivar Group 4
Flower Type Single.
Colour Pale yellow.
Remarks Weak growth. If published on or after Jan. 1, 1959: the name must be rejected (ICNCP Art. 30).
First publication Popenoe. Florida State Horticultural Society: 426.
Date publication 1975

'Mrs. Swanson'
Cultivar Group 10
Flower Type Double.
Colour Pale pink.
First publication Cat. Clarke, USA.
Date publication 1948

'Mrs. W. H. Brun' see 'Monsieur W. H. Brun'.

'Multiflorum'
Cultivar Group 11
Flower Type Double.
Colour Red.
Remarks Large flower. Large inflorescences. Free flowering.
First publication Bosse. Vollständiges Handbuch der Blumengärtnerei Ed. 3. 2: 876.
Date publication 1854

'Namken Yellow' see 'Jaune Nankin'.
'Nankin' see 'Jaune Nankin'.

'Nitidum'
Cultivar Group ?
Flower Type ?
First publication Bosse. Vollständiges Handbuch der Blumengärtnerei Ed. 3. 2: 876.
Date publication 1854

'Niveum'
Cultivar Group 1
Flower Type Single.
Colour White.
First publication Cat. Verleeuwen, Belgium.
Date publication 1835

'Noisette'
Cultivar Group ?
Flower Type Single.
Colour ?
Originator Sahut, Montpellier, France.
Year of origin ?
First publication Cat. Sahut, France.
Date publication 1876

'Notaire Cavallier'

Cultivar Group	3
Flower Type	Single.
Colour	Purple washed with yellow.
Remarks	Large flower. Free flowering.
Originator	Sahut, Montpellier, France.
Year of origin	1875
First publication	Cat. Sahut, France.
Date publication	1876

'Notaire Chevalier' see 'Notaire Cavallier'.

'Ochroleucum'

Cultivar Group	?
Flower Type	?
Colour	?
First publication	Bosse. Vollständiges Handbuch der Blumengärtnerei Ed. 3. 2: 876.
Date publication	1854

'Odeur de Violette'

Cultivar Group	1
Flower Type	Single.
Colour	White, streaked.
Scent	Fragrant. Scent of violet.
First publication	Bosse. Vollständiges Handbuch der Blumengärtnerei Ed. 3. 2: 876.
Date publication	1854

'Odorata'

Cultivar Group	?
Flower Type	?
Colour	?
Scent	Fragrant.
First publication	Cat. Pagliai, Italy.
Date publication	1872

'Odorum'

Cultivar Group	3
Flower Type	Single.
Colour	Dark red.
Scent	Fragrant.
First publication	Cat. Sciacca, Italy.
Date publication	1962

'Odorum Duplex'

Synonyms	'Splendens'. See 'Splendens'.
First publication	Kerstens. Keur van Bloemen en Sierplanten: 110.
Date publication:	1878

'Odorum Flore Pleno'

Cultivar Group	10
Flower Type	Double.
Colour	Pink.
Scent	Fragrant.
First publication	Cat. Audibert, France.
Date publication	1882

'Oncle Antoine'

Cultivar Group	4
Flower Type	Single.
Colour	Flesh colour, edged with bright pink, striped. Petals dentate. Throat salmon pink.
Originator	Sahut, Montpellier, France.
Year of origin	1875
First publication	Cat. Sahut, France.
Date publication	1876

'Oxyacantholens'

Cultivar Group	?
Flower Type	Single.
Colour	?
Scent	Fragrant. Scent of hawthorn.
First publication	Nicholson & Mottet. Dictionnaire Pratique d'Horticulture et de Jardinage 3: 465.
Date publication	1895

'Paihua'

Cultivar Group	?
Flower Type	?
Colour	?
First publication	Tsiang & Li. Flora Reipublicae Popularis Sinicae 63: 148.
Date publication	1977

'Paktia'

Cultivar Group	4
Flower Type	Single.
Colour	Flesh colour.
Scent	Fragant.
Remarks	Introduced (before 1973) in France from Afghanistan.
First publication	Cat. Rey, France.
Date publication	1973

'Palavas'

Cultivar Group	?
Flower Type	Single.
Colour	?
Originator	Sahut, Montpellier, France.
Year of origin	?
First publication	Cat. Sahut, France.
Date publication	1873

'Palm Springs'

Cultivar Group	2
Flower Type	Single.
Colour	Pearl pink.
First publication	Cat. Clarke, USA.
Date publication	1958

'Papa Gambetta'

Cultivar Group	3
Flower Type	Single.
Colour	Red.
Remarks	Large flower. Tender.
Originator	Gambetta, Pietra Ligure, Italy.
Year of origin	?
First publication	Cat. Rey, France.
Date publication	1973

'Parviflorum'

Cultivar Group	?
Flower Type	?
Colour	?
Remarks	Small flower.
First publication	Cat. Audibert, France.
Date publication	1822

'Pauline Adone'

Cultivar Group	?
Flower Type	?
Colour	?
Remarks	Vigorous.
First publication	Popenoe. Florida State Horticultural Society: 426.
Date publication	1975

'Pauline Gregoire' see 'Paulin Grégoire'.

'Pauline Grégoire' see 'Paulin Grégoire'.

'Pauline Lucas'

Cultivar Group	5
Flower Type	Two superposed corollas.
Colour	White.
Originator	Sahut, Montpellier, France.
Year of origin	1872
First publication	Cat. Sahut, France.
Date publication	1873

'Paulin Grégoire'

Cultivar Group	2
Flower Type	Single.
Colour	Dark lilac edged with carmine. Throat pink streaked with carmine.
Scent	Fragrant.
Remarks	Large flower.
Originator	Sahut, Montpellier, France.
Year of origin	1872
First publication	Cat. Sahut, France.
Date publication	1873

'Paul Riquet'

Cultivar Group	?
Flower Type	Single.
Colour	?
Originator	Sahut, Montpellier, France.
Year of origin	?
First publication	Cat. Sahut, France.
Date publication	1876

'Paul Sahaut' see 'Paul Sahut'.

'Paul Sahut'

Cultivar Group	8
Flower Type	Two superposed corollas.
Colour	Flesh colour streaked with bright pink.
Remarks	Free flowering. Vigorous.
Originator	Sahut, Montpellier, France.
Year of origin	1872
First publication	Cat. Sahut, France.
Date publication	1873

'Petite Antoinette'

Cultivar Group	6
Flower Type	Two superposed corollas.
Colour	Light pink.
Remarks	Small flower.
Originator	Sahut, Montpellier, France.
Year of origin	1875
First publication	Cat. Sahut, France.
Date publication	1876

'Petite Pink'

Cultivar Group	2
Flower Type	Single.
Colour	Pearl pink.
Habitus	Dwarf.
Remarks	Free flowering. Weak growth. Introduced (before 1973) in USA from Kenia by Los Angeles State & County Arboretum.
First publication	Cat. Rey, France.
Date publication	1973

'Petite Salmon'

Cultivar Group	4
Flower Type	Single.
Colour	Salmon.
Habitus	Dwarf.
Remarks	Free flowering. Weak growth. Introduced (before 1973) in USA from Kenia by Los Angeles State & County Arboretum.
First publication	Cat. Rey, France.
Date publication	1973

'Pierre di Galles' see 'Pierre Galen'.

'Pierre Galen'
Cultivar Group 7
Flower Type Two superposed corollas.
Colour: Light carmine washed with dark carmine. Throat pink streaked with carmine. Bud light carmine.
Remarks Large flower. Petals round. Corona lobes very short. Large inflorescences. Free flowering. Vigorous.
Originator Sahut, Montpellier, France.
Year of origin ?
First publication Cat. Sahut, France.
Date publication 1898.

'Pierre Gallen' see 'Pierre Galen'.

'Pierre Gruvel'
Cultivar Group 3
Flower Type Single.
Colour Bright red, spotted and washed with purple.
Scent Fragrant.
Remarks Large flower.
Originator Sahut, Montpellier, France.
Year of origin 1875
First publication Cat. Sahut, France.
Date publication 1876

'Pierre Rondier' see 'Pierre Roudier'.

'Pierre Roudier'
Cultivar Group 6
Flower Type Two/three superposed corollas.
Colour Pale pink washed with pink, edged with bright pink, sometimes streaked white. Throat dark pink on yellowish white, streaked with dark pink. Bud dark pink.
Scent Fragrant.
Remarks Lower corolla with narrow lobes.
Originator Sahut, Montpellier, France.
Year of origin 1872

'Pietra Ligure'
Cultivar Group 4
Flower Type Single.
Colour Salmon pink.
Remarks Hardy.
Originator Gambetta, Pietra Ligure, Italy.
Year of origin ?
First publication Brand, Ferrero, INRA/GEVES, France. Pers. comm.
Date publication 1985

'Pink Beauty'
Cultivar Group 2
Flower Type Single.
Colour Pink.
Remarks Large flower.
First publication Cat. Monrovia, USA.
Date publication 1952

'Pink Berry' see 'Pink Bettie'.

'Pink Bettie'
Synonyms 'Bettie'. See 'Bettie'.
First publication Cat. Striblings, USA.
Date publication 1957.

'Pink Betty' see 'Pink Bettie'.

'Plenum'
Synonyms 'Flore Pleno'
Cultivar Group 10
Flower Type Double.
Colour Pink.
First publication Cat. Audibert, France.
Date publication 1822

Plenum Odoratissimum'

Cultivar Group	10
Flower Type	Double.
Colour	Pink.
First publication	Cat. Perotti, Italy.
Date publication	1884

'Pomona Dwarf'

Cultivar Group	?
Flower Type	?
Colour	?
Habitus	Dwarf.
First publication	McClintock & Leiser. An annotated checklist of woody ornamental plants of California, Oregon and Washington: 82.
Date publication	Received 1985.

'Pomponium'

Synonyms	'Carneum Flore Pleno', 'Carneum Plenum', 'Double Salmon', 'Mrs. George Roeding', 'Mrs. Roeding'. See 'Carneum Plenum'.
First publication	Bosse. Vollständiges Handbuch der Blumengärtnerei Ed. 3. 2: 876.
Date publication	1854

'Pont Juvenal'

Cultivar Group	?
Flower Type	Double? Superposed corollas?
Colour	?
Originator	Sahut, Montpellier, France.
Year of origin	?
First publication	Cat. Sahut, France.
Date publication	1876

'Président Doûmet'

Cultivar Group	6
Flower Type	Two superposed corollas.
Colour	Light pink, edged and washed with dark pink.
Originator	Sahut, Montpellier, France.
Year of origin	1875
First publication	Cat. Sahut, France.
Date publication	1876

'Président Mandon'

Cultivar Group	5
Flower Type	Two superposed corollas.
Colour	Pure white. Throat cream.
Remarks	Large flower. Corona lobes long and finely divided.
Originator	Sahut, Montpellier, France.
Year of origin	1893
First publication	Cat. Sahut, France.
Date publication	1898

'Prof. Blanchon' see 'Professeur Planchon'.

'Prof. Bodkin' see 'Professor Bodkin'.

'Prof. Durant' see 'Professor Durand'.

'Professeur Duchartre'

Synonyms	'Professor Duchartre'.
Cultivar Group	11
Flower Type	Double.
Colour	Purple. Much darker than 'Rubrum Plenum'.
Originator	Sahut, Montpellier, France.
Year of origin	1875
First publication	Cat. Sahut, France.
Date publication	1876

'Professeur Duchatte' see 'Professeur Duchartre'.

'Professeur Durand'

Synonyms	'Flavum Duplex', 'Professor Durand'.
Cultivar Group	8
Flower Type	Two superposed corollas.
Colour	Upper corolla: pale yellow with sulphur-yellow throat. Lower corolla: pale yellow with bright yellow throat. Bud sulphur-yellow.
Remarks	Large flower. Free flowering. Corona lobes of upper corolla long and finely divided.
Originator	Sahut, Montpellier, France.
Year of origin	1872
First publication	Cat. Sahut, France.
Date publication	1873

'Professeur Flahault'

Cultivar Group	8
Flower Type	Two superposed corollas.
Colour	Upper corolla: salmon edged and washed with carmine, sometimes streaked white. Lower corolla: dark. Throat pale yellow streaked carmine. Bud bright carmine.
Remarks	Large flower. Corona lobes long and finely divided.
Originator	Sahut, Montpellier, France.
Year of origin	?
First publication	Cat. Sahut, France.
Date publication	1898

'Professeur Grand' see 'Professeur Granel'.

'Professeur Granel'

Cultivar Group	6
Flower Type	Two/three superposed corollas.
Colour	Upper corolla: lilac pink to pale pink edged carmine. Lower corolla: much brighter. Throat yellow streaked carmine. Bud light carmine.
Scent	Fragrant.
Remarks	Large flower.
Originator	Sahut, Montpellier, France.
Year of origin	?
First publication	Cat. Sahut, France.
Date publication	1898

'Professeur Martins'

Cultivar Group	3
Flower Type	Single.
Colour	Red.
Remarks	Free flowering. Vigorous.
Originator	Sahut, Montpellier, France.
Year of origin	1872
First publication	Cat. Sahut, France.
Date publication	1873

'Professeur Parlatore'

Cultivar Group	6
Flower Type	Two superposed corollas.
Colour	Light pink.
Remarks	Free flowering. Vigorous.
Originator	Sahut, Montpellier, France.
Year of origin	1875
First publication	Cat. Sahut, France.
Date publication	1876

'Professeur Planchon'

Synonyms	'Professor Planchon'.
Cultivar Group	8
Flower Type	Two/three superposed corollas.
Colour	Flesh colour washed and edged with dark pink, sometimes streaked with yellow. Throat bright yellow streaked with bright carmine. Bud light carmine.
Scent	Fragrant. Faint scent.
Remarks	Large flower. Lower corolla with narrow lobes. Free flowering. Vigorous.
Originator	Sahut, Montpellier, France.
Year of origin	1872
First publication	Cat. Sahut, France.
Date publication	1873.

'Professor Bodkin'

Cultivar Group	3
Flower Type	Single.
Colour	Rosy red.
First publication	Cat. Monrovia, USA.
Date publication	1966

'Professor Duchartre'

Synonyms	'Professeur Duchartre'. See 'Professeur Duchartre'.
First publication	Nicholson. The Illustrated Dictionary of Gardening: 447.
Date publication	1885

'Professor Durand'

Synonyms	'Professeur Durand'. See 'Professeur Durand'.
First publication	Nicholson. The Illustrated Dictionary of Gardening: 447.
Date publication	1885

'Professor Planchon'

Synonyms	'Professeur Planchon'. See 'Professeur Planchon'.
First publication	Cat. Bianchi, Italy.
Date publication	1953

'Prof. Granel' see 'Professeur Granel'.
'Prof. Grant' see 'Professeur Granel'.
'Prof. Martin' see 'Professeur Martins'.
'Prof. Plachon' see 'Professeur Planchon'.
'Prof. Planchon' see 'Professeur Planchon'.
'Prof. Planchos' see 'Professeur Planchon'.

'Prof. Wilmorin'

Cultivar Group	6
Flower Type	Two superposed corollas.
Colour	Pink.
Remarks	If published on or after Jan. 1, 1959: the name is contrary to ICNCP Recommendation 31Ac (but must not be rejected).
First publication	Cat. Sqaravatti, Italy.
Date publication	1962

'Provence'

Cultivar Group	8
Flower Type	Two superposed corollas.
Colour	Salmon.
Remarks	Free flowering. Vigorous. Hardy.
Originator	Rey, Carpentras, France.
Year of origin	?
First publication	Cat. Rey, France.
Date publication	1973

'Punctatum Plenum'

Cultivar Group	10
Flower Type	Double.
Colour	Pink, spotted.
First publication	Nicholson & Mottet. Dictionnaire Pratique d'Horticulture et de Jardinage 3: 465.
Date publication	1895

'Purpureum Cardinalis'
Cultivar Group 3
Flower Type Single.
Colour Purple red.
First publication Bosse. Vollständiges Handbuch der Blumengärtnerei Ed. 3. 2.: 876.
Date publication 1854

'Purpureum Flore Pleno'
Cultivar Group 11
Flower Type Double.
Colour Purple.
First publication Bosse. Vollständiges Handbuch der Blumengärtnerei Ed. 3. 2: 876.
Date publication 1854

'Purpureum Striatum Duplex'
Cultivar Group 7
Flower Type Two superposed corollas.
Colour Purple streaked with white.
First publication Cat. De Mattos, Portugal.
Date publication 1910

'Rabelais'
Synonyms 'Général Lamoricière'?
Cultivar group 4
Flower Type Single.
Colour ?
Originator Sahut, Montpellier, France.
Year of origin ?
First publication Cat. Sahut, France.
Date publication 1873

'Radianum'
Cultivar Group 6
Flower Type Two superposed corollas.
Colour Bright pink.
Remarks Large flower.
First publication Cat. Sahut, France.

'Radicans'
Cultivar Group 9
Flower Type Double.
Colour Gardenia white.
Remarks Large flower.
First publication Bosse. Vollständiges Handbuch der Blumengärtnerei Ed. 3. 2: 876.
Date publication 1854

'Raganot' see 'Ragonoti'.
'Ragioneri' see 'Dottore Attilio Ragionieri'.
'Ragonot' see 'Ragonoti'.
'Ragonot Godefroy' see 'Ragonoti'.

'Ragonoti'
Synonyms 'Splendens Ragonoti'. See 'Splendens Ragonoti'.
First publication Bosse. Vollständiges Handbuch der Blumengärtnerei Ed. 3. 2: 876.
Date publication 1854.

'Ragonotti' see 'Ragonoti'.

'Rahel'
Cultivar Group 5
Flower Type Two superposed corollas.
Colour White. Throat light yellow.
Habitus Broad. Branches drooping.
First publication Zafrir. The Nerium oleander in Israel: 41.
Date publication 1962.

'Raymond Runel'
Cultivar Group 2
Flower Type Single.
Colour Pale pink, edged with dark pink.
Remarks Free flowering.
Originator Sahut, Montpellier, France.
Year of origin 1875
First publication Cat. Sahut, France.
Date publication 1876

'Reine de Soude' see 'Reine de Suède'.

'Reine de Suede' see 'Reine de Suède'.

'Reine de Suède'.
Cultivar Group 2
Flower Type Single.
Colour Pale pink.
Remarks Large flower.
Originator Sahut, Montpellier, France.
Year of origin 1872
First publication Cat. Sahut, France.
Date publication 1873

'Revanche'
Synonyms 'Revenge'.
Cultivar Group 11
Flower Type Double.
Colour Bright red streaked with white.
First publication Cat. Sqaravatti, Italy.
Date publication 1913

'Revenge'
Synonyms 'Revanche'. See 'Revanche'.
First publication Cat. Batlle, France.
Date publication 1948

'Riccardinum' see 'Ricciardinum'.

'Ricciardianum' see 'Ricciardinum'.

'Ricciardinum'
Cultivar Group 4
Flower Type Single.
Colour Yellow. Yellow and pink on the outside.
Scent Fragrant.
Remarks Large flower.
First publication Bosse. Vollständiges Handbuch der Blumengärtnerei Ed. 3. 2: 876.
Date publication 1854

'Richer de Belleval'
Cultivar Group 2
Flower Type Single.
Colour Pink.
Originator Sahut, Montpellier, France.
Year of origin ?
First publication Cat. Sahut, France.
Date publication 1873

'Ricordo di Felice Duval' see 'Souvenir de Félix Dunal'.

'Rogonoti' see 'Ragonoti'.

'Rosa Bartolini'
Cultivar Group 4
Flower Type Single.
Colour Salmon pink.
Remarks Tender.
Originator Gambetta, Pietra Ligure, Italy.
Year of origin ?
First publication Dutch Oleander Society. Bulletin.
Date publication 1981

'Rosa Cohen'
Cultivar Group 3
Flower Type Single.
Colour Alizarine crimson. Throat light pink streaked with red.
Habitus Tall. Branching sideways.
First publication Zafrir. The Nerium oleander in Israel: 25.
Date publication 1962

'Rosario'
Cultivar Group 12
Flower Type Double.
Colour Apricot.
Remarks Tender.
First publication Cat. Rey, France.
Date publication 1973

'Rosea'
Cultivar Group 10
Flower Type Double.
Colour Pink.
First publication Cat. Monrovia, USA.
Date publication 1952

'Rose Clair' see 'Rose Claire'.

'Rose Claire'
Cultivar Group 2
Flower Type Single.
Colour Pale pink.
Remarks Free flowering.
First publication Gardeners' Chronicle 1:743.
Date publication 1880

'Rose Double'
Cultivar Group 10
Flower Type Double.
Colour Bright rose pink.
Remarks Large flower.
First publication Nicholson. The Illustrated Dictionary of Gardening: 447.
Date publication 1885

'Rosée du Ventoux'
Cultivar Group 8
Flower Type Three superposed corollas.
Colour Magenta pink to salmon pink. Throat orange-yellow.
Remarks Large flower. Large but compact inflorescences. Free flowering.
Originator Rey, Carpentras, France.
Year of origin 1972
First publication Cat. Rey, France.
Date publication 1973
Plant Breeders Right MD no 803491 and 392690.

'Rose Foncée'
Cultivar Group 2
Flower Type Single.
Colour Dark pink.
First publication Gardeners' Chronicle 1:743.
Date publication 1880

'Rose Ordinaire'
Synonyms 'Flore Roseo Simplex', 'Roseum', 'Roseum Simplex'. See 'Roseum'.
First publication Cat. Sahut, France.
Date publication 1874

'Rose Pink Single'
Cultivar Group 2
Flower Type Single.
Colour Rose pink.
Remarks Vigorous. If published on or after Jan. 1, 1959: the name is contrary to ICNCP Recommendation 31Ag (but must not be rejected).
First publication Popenoe. Florida State Horticultural Society: 426.
Date publication 1975

'Rose Red'
Cultivar Group 11
Flower Type Double.
Colour Dark rose red.
Remarks If published on or after Jan. 1, 1959: the name is contrary to ICNP Recommendation 31Ag (but must not be rejected).
First publication Cat. Peters & Wilson, USA.
Date publication 1960

'Rose Tendre'
Cultivar Group 2
Flower Type Single.
Colour Pale pink.
First publication Cat. Sahut, France.
Date publication 1873

'Roseum'

Synonyms	'Flore Roseo Simplex', 'Rose Ordinaire', 'Roseum Simplex'.
Cultivar Group	2
Flower Type	Single.
Colour	Pink.
Remarks	Free flowering. Vigorous.
First publication	Cat. Pagliai, Italy.
Date publication	1872

'Roseum Flore Pleno'

Synonyms	'Flore Roseo Pleno', 'Roseum Plenum'. See 'Roseum Plenum'.
First publication	Cat. Pagliai, Italy.
Date publication	1872

'Roseum Grandiflorum'

Cultivar Group	2
Flower Type	Single.
Colour	Pink.
Remarks	Large flower.
First publication	Cat. Aldrufeu, Spain.
Date publication	1884

'Roseum Plenum'

Synonyms	'Flore Roseo Pleno', 'Roseum Flore Pleno'.
Cultivar Group	10
Flower Type	Double.
Colour	Pink.
Remarks	Large flower.
First publication	Cat. Sahut, France.
Date publication	1873

'Roseum Simplex'

Synonyms	'Flore Roseo Simplex', 'Rose Ordinaire', 'Roseum'. See 'Roseum'.
First publication	Cat. Sahut, France.
Date publication	1873

'Rosita'

Cultivar Group	4
Flower Type	Single.
Colour	Apricot.
Remarks	Large flower. Hardy.
Originator	Rey, Carpentras, France.
Year of origin	?
First publication	Cat. Rey, France.
Date publication	1973

'Rubra' see 'Rubrum'.

'Rubrum'

Synonyms	'Flore Rubro Simplex'.
Cultivar Group	3
Flower Type	Single.
Colour	Dark red.
First publication	Cat. Sahut, France.
Date publication	1864

'Rubrum Plenum'

Synonyms	'Flore Rubro Pleno'.
Cultivar Group	11
Flower Type	Double.
Colour	Dark red.
First publication	Cat. Sahut, France.
Date publication	1873

'Ruby Glow'

Cultivar Group	3?
Flower Type	Single?
Colour	Red?
First publication	McClintock & Leiser. An annotated checklist of woody ornamental plants of California, Oregon and Washington: 82.
Date publication	Received 1985.

'Salinelles'

Cultivar Group	8
Flower Type	Two superposed corollas.
Colour	Flesh colour to salmon.
Originator	Sahut, Montpellier, France.
Year of origin	1875
First publication	Cat. Sahut, France.
Date publication	1876

'Sarah Bernhardt'

Cultivar Group	?
Flower Type	?
Colour	?
First publication	McClintock & Leiser. An annotated checklist of woody ornamental plants of California, Oregon and Washington: 82.
Date publication	Received 1985.

'Sarah Malkin'

Cultivar Group	1
Flower Type	Single.
Colour	White. Throat yellow.
Habitus	Broad. Spreading. Drooping.
First publication	Zafrir. The Nerium oleander in Israel: 39.
Date publication	1962

'Saulgettii'

Cultivar Group	2
Flower Type	Single.
Colour	Pale pink.
Remarks	Large flower. Free flowering.
Originator	Grisart du Saulget, Ligny, France.
Year of origin	?
First publication	Bosse. Vollständiges Handbuch der Blumengärtnerei Ed. 3. 2: 876.
Date publication	1854

'Saumon'

Cultivar Group	4
Flower Type	Single.
Colour	Salmon.
First publication	Cat. Sahut, France.
Date publication	1873

'Saumoné' see 'Saumon'.

'Savart Père'

Cultivar Group	?
Flower Type	Double? Superposed corollas?
Colour	?
First publication	Cat. Sahut, France.
Date publication	1876

'Sealy Pink'

Cultivar Group	2
Flower Type	Single.
Colour	Pink.
Remarks	Large flower.
First publication	Cat. Monrovia, USA.
Date publication	1958.

'Seely Pink' see 'Sealy Pink'.

'Sefton Parck' see 'Sefton Park'.

'Sefton Park'

Cultivar Group	?
Flower Type	Single.
Colour	?
Originator	Sahut, Montpellier, France.
Year of origin	?
First publication	Cat. Sahut, France.
Date publication	1873

'Semidouble White'
Synonyms 'Double White'. See 'Double White'.
First publication Cat. Sunset, USA.
Date publication 1896.

'Sextatio'
Cultivar Group ?
Flower Type Single.
Colour ?
Originator Sahut, Montpellier, France.
Year of origin ?
First publication Cat. Sahut, France.
Date publication 1876

'Shaws Seedling'
Synonyms 'Crimson'?
Cultivar Group 3
Flower Type Single.
Colour Carmine.
First publication Cat. Michel, USA.
Date publication 1869

'Shell Pink'
Cultivar Group 2
Flower Type Single.
Colour Shell pink.
Remarks Large flower.
First publication Cat. Glen Saint Mary, USA.
Date publication 1925

'Sinensis'
Synonyms 'Sinensis Grandiflorum'?, 'Sinensis Flore Pleno'.
Cultivar Group 10
Flower Type Double.
Colour Pink.
Remarks Large flower.
First publication Cat. Aldrufeu, Spain.
Date publication 1890

'Sinensis Flore Pleno'
Synonyms 'Sinensis'. See 'Sinensis'.
First publication Cat. Aldrufeu, Spain.
Date publication 1884

'Sinensis Flore Pleno Striata' see 'Sinensis Flore Pleno Striato'.

'Sinensis Flore Pleno Striato'
Cultivar Group 10
Flower Type Double.
Colour Pink, streaked with white.
First publication Cat. Aldrufeu, Spain.
Date publication 1884.

'Sinensis Flore Pleno Superba' see 'Sinensis Flore Pleno Superbo'.

'Sinensis Flore Pleno Superbo'
Cultivar Group 10
Flower Type Double.
Colour Dark pink.
Remarks Large flower.
First publication Cat. Aldrufeu, Spain.
Date publication 1884

'Sinensis Foliis Elegantissimum Variegatis'
Cultivar Group 10
Flower Type Double.
Colour Pink.
Remarks Leaves variegated with yellow.
First publication Cat. Aldrufeu, Spain.
Date publication 1884

'Sinensis Foliis Variegatis'
Cultivar Group 10
Flower Type Double.
Colour Pink.
Remarks Leaves variegated with yellow.
First publication Cat. Aldrufeu, Spain.
Date publication 1884

'Sinensis Grandiflorum'

Synonyms	'Sinensis'?
Cultivar Group	10
Flower Type	Double.
Colour	Pink.
Remarks	Large flower.
First publication	Cat. Aldrufeu, Spain.
Date publication	1884

'Sinensis Majus'

Cultivar Group	?
Flower Type	?
Colour	?
First publication	Bosse. Vollständiges Handbuch der Blumengärtnerei Ed. 3. 2: 876.
Date publication	1854

'Sinensis Pictum'

Cultivar Group	10
Flower Type	Double.
Colour	Pink.
Remarks	Leaves variegated: center of leaf white.
First publication	Cat. Aldrufeu, Spain.
Date publication	1884

'Sinensis Pictum Argenteum'

Cultivar Group	10
Flower Type	Double.
Colour	Pink.
Remarks	Leaves variegated: center of leaf white.
First publication	Cat. Aldrufeu, Spain.
Date publication	1884

'Sinensis Pictus' see 'Sinensis Pictum'.

'Sinensis Superba Pleno' see 'Sinensis Superbo Pleno'.

'Sinensis Superbo Pleno'

Cultivar Group	10
Flower Type	Double.
Colour	Dark pink.
Remarks	Large flower.
First publication	Cat. Aldrufeu, Spain.
Date publication	1890

'Single Cerise'

Cultivar Group	3
Flower Type	Single.
Colour	Cherry red.
Remarks	Vigorous. If published on or after Jan. 1, 1959: the name is contrary to ICNCP Recommendation 31Ag (but must not be rejected).
First publication	Popenoe. Florida State Horticultural Society: 427.
Date publication	1975

'Single Hardy Cerise'

Cultivar Group	3
Flower Type	Single.
Colour	Cherry red.
Remarks	Vigorous. Hardy. If published on or after Jan. 1, 1959: the name is contrary to ICNCP Recommendation 31Ag (but must not be rejected).
First publication	Popenoe. Florida State Horticultural Society: 427.
Date publication	1975

'Single Pink'

Cultivar Group	2
Flower Type	Single.
Colour	Pink.
Remarks	Vigorous. If published on or after Jan. 1, 1959: the name is contrary to ICNCP Recommendation 31Ag (but must not be rejected).
First publication	Cat. Glen Saint Mary, USA.
Date publication	1925

'Single Salmon'

Cultivar Group	4
Flower Type	Single.
Colour	Salmon.
Remarks	Vigorous. If published on or after Jan. 1, 1959: the name is contrary to ICNCP Recommendation 31Ag (but must not be rejected).
First publication	Popenoe. Florida State Horticultural Society: 427.
Date publication	1975

'Single White'

Cultivar Group	1
Flower Type	Single.
Colour	White.
Remarks	Free flowering. Hardy. If published on or after Jan. 1, 1959: the name is contrary to ICNCP Recommendation 31Ag (but must not be rejected).
First publication	Cat. Glen Saint Mary, USA.
Date publication	1925

'Single Yellow'

Cultivar Group	4
Flower Type	Single.
Colour	Yellow.
Remarks	If published on or after Jan. 1, 1959: the name is contrary to ICNCP Recommendation 31Ag (but must not be rejected).
First publication	Cat. Clarke, USA.
Date publication	1965

'Sister Agnes'

Synonyms	'Soeur Agnès'. See 'Soeur Agnès'.
First publication	Cat. Monrovia, USA.
Date publication	1952

'Soeur Agnes' see 'Soeur Agnès'.

'Soeur Agnès'

Synonyms	'Sister Agnes'.
Cultivar Group	1
Flower Type	Single.
Colour	White. Throat cream.
Scent	Fragrant.
Remarks	Large flower. Free flowering. Vigorous. Hardy. Should not be confused with 'Mont Blanc' (in fact DOUBLE, white)!
Originator	Sahut, Montpellier, France.
Year of origin	1868
First publication	Cat. Sahut, France.
Date publication	1873

'Soeur Louise'

Cultivar Group	2
Flower Type	Single.
Colour	Bright pink.
Remarks	Large inflorescences. Free flowering.
Originator	Sahut, Montpellier, France.
Year of origin	1875
First publication	Cat. Sahut, France.
Date publication	1876

'Sole d'Ottobre'

Cultivar Group	4
Flower Type	Single.
Colour	Yellow to salmon.
First publication	Cat. Sciacca, Italy.
Date publication	1962

'Soleil Levant'

Synonyms	'Dawn'?
Cultivar Group	4
Flower Type	Single.
Colour	Dark apricot. Throat yellow streaked with carmine.
Remarks	Large flower. Vigorous. Hardy.
First publication	Cat. Rey, France.
Date publication	1973

'Solfatare'

Cultivar Group	4
Flower Type	Single.
COlour	Pure yellow.
First publication	Cat. Bianchi, Italy.
Date publication	1958

'Sorrento'

Synonyms	'Double Yellow'.
Cultivar Group	12
Flower Type	Double.
Colour	Bright yellow.
First publication	Cat. Monrovia, USA.
Date publication	1964

'Souvenir d'Adolphe'

Cultivar Group	3
Flower Type	Single.
Colour	Carmine red washed with violet, edged with dark purple, almost black.
Remarks	Flower buds short and swollen.
Originator	Sahut, Montpellier, France.
Year of origin	1875
First publication	Cat. Sahut, France.
Date publication	1876

'Souvenir d'Argelès'

Cultivar Group	12
Flower Type	Double.
Colour	Yellow.
Remarks	About 15 petals/petaloid parts. Known by this name in Holland.
First publication	Dutch Oleander Society. List of Cultivars.
Date publication	1981

'Souvenir de August Roger' see 'Souvenir d'Auguste Royer'.

'Souvenir d'Auguste Royer'

Cultivar Group	8
Flower Type	Two superposed corollas.
Colour	Flesh colour washed with pink, edged lilac. Throat cream streaked carmine.
Remarks	Large flower. Lower corolla with large petals. Free flowering. Vigorous.
Originator	Sahut, Montpellier, France.
Year of origin	1872
First publication	Cat. Sahut, France.
Date publication	1873

'Souvenir de Cazalis Allut'

Cultivar Group	3
Flower Type	Single.
Colour	Carmine washed with dark carmine, edged with dark purple, almost black. Throat light wine red, streaked with dark purple.
Remarks	Large flower.
Originator	Sahut, Montpellier, France.
Year of origin	1872
First publication	Cat. Sahut, France.
Date publication	1873

'Souvenir de Cazzalis Albut' see 'Souvenir de Cazalis Allut'.

'Souvenir de Claude Sahut'

Cultivar Group	6
Flower Type	Two superposed corollas.
Colour	Light pink edged with dark pink. Throat dark pink streaked with carmine. Bud light carmine.
Remarks	Free flowering. Vigorous.
Originator	Sahut, Montpellier, France.
Year of origin	1872
First publication	Cat. Sahut, France.
Date publication	1873

Cultivar Group	4
Flower Type	Single.
Colour	Apricot.
Remarks	If published on or after Jan. 1, 1959: this name must be rejected (ICNCP Art. 30).
First publication	Cat. Baldacci, Italy.
Date publication	1979

'Souvenir de Felix Dunal' see 'Souvenir de Félix Dunal'.

'Souvenir de Félix Dunal'

Cultivar Group	6
Flower Type	Two superposed corollas.
Colour	Upper corolla: pink washed and sometimes streaked with white, edged with carmine. Lower corolla: dark pink edged light carmine. Throat light pink streaked dark pink. Bud carmine.
Scent	Fragrant. Faint scent.
Remarks	Large flower. Free flowering. Vigorous.
Originator	Sahut, Montpellier, France.
Year of origin	1872
First publication	Cat. Sahut, France.
Date publication	1873

'Souvenir de Julie'

Cultivar Group	3
Flower Type	Single.
Colour	Dark carmine purple. The tips of the petals streaked with dark purple.
Remarks	Flower buds short and swollen.
Originator	Sahut, Montpellier, France.
Year of origin	1875
First publication	Cat. Sahut, France.
Date publication	1876

Cultivar Group	1
Flower Type	Single.
Colour	White.
Remarks	Should not be confused with 'Lattes'.
Originator	Sahut, Montpellier, France.
Year of origin	?
First publication	Cat. Sahut, France.
Date publication	1898

'Souvenir de Michel'

Cultivar Group	12
Flower Type	Double.
Colour	Salmon.
Remarks	Vigorous.
Originator	Sahut, Montpellier, France?
Year of origin	?
First publication	Cat. Rey, France.
Date publication	1973

'Souvenir de Petit Charles'

Cultivar Group	1
Flower Type	Single.
Colour	Pure white.
Habitus	Dwarf.
Remarks	Small flower.
Originator	Sahut, Montpellier, France.
Year of origin	1875
First publication	Cat. Sahut, France.
Date publication	1876

'Souvenir des Iles Canaries'

Synonyms	'Canari'?
Cultivar Group	4
Flower Type	Single.
Colour	Pale yellow. Throat bright yellow.
Remarks	Tender. If published on or after Jan. 1, 1959: this name must be rejected (ICNP Art. 30).
Orginator	Rey, Carpentras, France.
Year of origin	?
First publication	Cat. Rey, France.
Date publication	1973

'Souvenir d'une Mère'
Cultivar Group 3
Flower Type Single.
Colour Bright carmine edged with purple.
Scent Fragrant.
Originator Sahut, Montpellier, France.
Year of origin 1875
First publication Cat. Sahut, France.
Date publication 1876

'Souvenir Emma Schneider' see 'Souvenir d'Emma Schneider'.

'Speciosum'
Cultivar Group ?
Flower Type Single
Colour ?
Originator Sahut, Montpellier, France.
Year of origin ?
First publication Cat. Sahut, France.
Date publication 1875

'Spectabile'
Synonyms 'Splendens Spectabile'?
Cultivar Group 12
Flower Type Double.
Colour Flesh colour. Throat pale pink.
First publication Nicholson & Mottet. Dictionnaire Pratique d'Horticulture et de Jardinage 3: 465.
Date publication 1895

'Splendens'
Synonyms 'Odorum Duplex', 'Splendens Flore Pleno'.
Cultivar Group 10
Flower Type Double.
Colour Reddish pink.
Scent Fragrant.
Remarks Large flower. Vigorous.
First publication Cat. Verleeuwen, Belgium.
Date publication 1820

'Splendens Coccinea' see 'Splendens Coccineum'.

'Splendens Coccineum'
Cultivar Group 11
Flower Type Double.
Colour Bright crimson scarlet.
First publication Cat. Thorburn, USA.
Date publication 1852

'Splendens Double' see 'Splendens'.

'Splendens Flore Pleno'
Synonyms 'Odorum Duplex', 'Splendens'. See 'Splendens'.
First publication Cat. Verleeuwen, Belgium.
Date publication 1835

'Splendens Flore Striato Pleno'
Cultivar Group 10
Flower Type Double.
Colour Reddish pink, streaked with white.
First publication Cat. Verleeuwen, Belgium.
Date publication 1835

'Splendens Foleis Variegata' see 'Splendens Foliis Variegatis'.

'Splendens Foliis Variegatis'
Synonyms 'Variegatum Plenum'?
Cultivar Group 10
Flower Type Double.
Colour Pink, sometimes streaked with white.
Remarks Leaves variegated with yellow. Tender.
First publication Bosse. Vollständiges Handbuch der Blumengärtnerei Ed. 3. 2: 876.
Date publication 1854

'Splendens Giganteum'

Cultivar Group	10
Flower Type	Double.
Colour	Bright pink.
Remarks	Large flower. Tender.
First publication	Cat. Sahut, France.
Date publication	1873

'Splendens Grandiflorum Plenum'

Cultivar Group	10
Flower Type	Double.
Colour	Bright pink.
Remarks	Large flower.
First publication	Cat. Verleeuwen, Belgium.
Date publication	1835

'Splendens Havillii'

Cultivar Group	10
Flower Type	Double.
Colour	Reddish pink.
Scent	Fragrant.
Remarks	Large flower. Flower larger and fuller than 'Splendens'.
First publication	Bosse. Vollständiges Handbuch der Blumengärtnerei Ed. 3. 2: 876.
Date publication	1854

'Splendens Ordinaire' see 'Splendens'.

'Splendens Ragonetti' see 'Splendens Ragonoti'.

'Splendens Ragonoti'

Synonyms	'Ragonoti'.
Cultivar Group	11
Flower Type	Double.
Colour	Dark red, sometimes streaked with white.
Scent	Fragrant.
First publication	Bosse. Vollständiges Handbuch der Blumengärtnerei Ed. 3. 2: 876.
Date publication	1854

'Splendens Roseum'

Cultivar Group	10
Flower Type	Double.
Colour	Pink.
First publication	Cat. Berti, Italy.
Date publication	1902

'Splendens Spectabile'

Synonyms	'Spectabile'?
Cultivar Group	12
Flower Type	Double.
Colour	Pink to flesh colour.
First publication	Bosse. Vollständiges Handbuch der Blumengärtnerei Ed. 3. 2: 876.
Date publication	1854

'Splendeur'

Cultivar Group	?
Flower Type	?
Colour	?
First publication	Cat. Batlle, France.
Date publication	1948

'Splendidissimum'

Synonyms	'Splendidissimum Flore Pleno'.
Cultivar Group	10
Flower Type	Double.
Colour	Pink, sometimes spotted with white.
Remarks	Large flower.
First publication	Bosse. Vollständiges Handbuch der Blumengärtnerei Ed. 3. 2: 876.
Date publication	1854

'Splendidissimum Flore Pleno'

Synonyms	'Splendidissimum'. See 'Splendidissimum'.
First publication	Cat. Battista, Italy.
Date publication	1895

'Splendissima' see 'Splendidissimum'.

'Striatum Flore Pleno' see 'Splendens Flore Striato Pleno'.

'Striatum Plenum' see 'Splendens Flore Striato Pleno'.

'Suor Luisa'
Cultivar Group 3
Flower Type Single.
Colour Dark red.
First publication Cat. Bianchi, Italy.
Date publication 1950

'Tanglé'
Cultivar Group 11
Flower Type Double.
Colour Carmine. Center of petal streaked with white.
First publication Paxton. Paxton's Magazine of Botany 11: 53.
Date publication 1844

'Tante Marie'
Cultivar Group 2
Flower Type Single.
Colour Pale pink.
Originator Sahut, Montpellier, France.
Year of origin 1875
First publication Cat. Sahut, France.
Date publication 1876

'Theophileanum Pyramidatum'
Cultivar Group ?
Flower Type ?
Colour ?
First publication Bosse. Vollständiges Handbuch der Blumengärtnerei Ed. 3. 2: 876.
Date publication 1854

'Tito Poggi'
Cultivar Group 4
Flower Type Single.
Colour Dark apricot.
Remarks 'Tito Poggi' is a selection of 'Madame Léon Blum' with DARK apricot flowers.
First publication Cat. Baldacci, Italy.
Date publication 1952

'Tito Poggi Foleis Variegata' see 'Tito Poggi Foliis Variegatis'.

Tito Poggi Foliis Variegatis'
Cultivar Group 4
Flower Type Single.
Colour Dark apricot.
Remarks Leaves variegated with yellow. If published on or after Jan. 1, 1959: this name must be rejected (ICNCP Art. 27a and 30).
First publication Cat. Rey, France.
Date publication 1973

'Tom Pouce'
Cultivar Group ?
Flower Type Single.
Colour ?
Originator Sahut, Montpellier, France.
Year of origin ?
First publication Cat. Sahut, France.
Date publication 1873

'Tzafrira'
Cultivar Group 2
Flower Type Single.
Colour Madder rose. Throat light yellow streaked with red.
Habitus Medium size. Branching sideways.
Remarks Small flower.
First publication Zafrir. The Nerium oleander in Israel: 23.
Date publication 1962

Cultivar Group	2
Flower Type	Single.
Colour	Pink, pale yellow underneath.
Scent	Fragrant.
Remarks	Edge of petal undulate.
First publication	Bosse. Vollständiges Handbuch der Blumengärtnerei Ed. 3. 2: 876.
Date publication	1854

'Valmagne'

Cultivar Group	?
Flower Type	Single.
Colour	?
Originator	Sahut, Montpellier, France.
Year of origin	?
First publication	Cat. Sahut, France.
Date publication	1873

'Variegata' see 'Variegatum'.

'Variegatum'

Synonyms	'Mrs. H. L. Runge'?
Cultivar Group	2
Flower Type	Single.
Colour	Pink.
Remarks	Leaves variegated with yellow. Vigorous.
First publication	Cat. Audibert, France.
Date publication	1822

'Variegatum Plenum'

Synonyms	'Splendens Foliis Variegatis'?
Cultivar group	10
Flower Type	Double.
Colour	Pink.
Remarks	Leaves variegated with yellow. If published on or after Jan. 1, 1959; this name must be rejected (ICNCP Art. 27a).
First publication	Graf. Tropica: 1039.
Date publication	1978

'Venustum Superbum'

Cultivar Group	?
Flower Type	?
Colour	?
First publication	Bosse. Vollständiges Handbuch der Blumengärtnerei Ed. 3. 2: 876.
Date publication	1854

'Versicolor'

Cultivar Group	2
Flower Type	Single.
Colour	Pink, spotted with white.
First publication	Cat. Verleeuwen, Belgium.
Date publication	1820

'Ville de Carpentras'

Cultivar Group	12
Flower Type	Double.
Colour	Apricot.
Remarks	Hardy. About 10 petals/petaloid parts.
Originator	Rey, Carpentras, France.
Year of origin	?
First publication	Cat. Rey, France.
Date publication	1973

'Vingt Deux Octobre'

Cultivar Group	3
Flower Type	Single.
Colour	Carmine red.
Remarks	Large flower. Buds short and swollen.
Originator	Sahut, Montpellier, France.
Year of origin	1875
First publication	Cat. Sahut, France.
Date publication	1876

'Violaceum'
- Cultivar Group: 3
- Flower Type: Single.
- Colour: Violet purple.
- First publication: Bosse. Vollständiges Handbuch der Blumengärtnerei Ed. 3. 2: 876.
- Date publication: 1854

'Virginia' see 'Virginie'.

'Virginie'
- Cultivar Group: 2
- Flower Type: Single.
- Colour: Pale pink. Throat pink streaked with carmine.
- Scent: Fragrant.
- Remarks: Large flower.
- Originator: Sahut, Montpellier, France.
- Year of origin: 1873
- First publication: Cat. Sahut, France.
- Date publication: 1873

'Virginité'
- Cultivar Group: 1
- Flower Type: Single.
- Colour: White.
- Remarks: Should not be confused with 'Virginie'. The name is contrary to ICNCP Recommendation 31Ah.
- First publication: Cat. Baldacci, Italy.
- Date publication: 1979

'Vittatum'
- Cultivar Group: ?
- Flower Type: ?
- Colour: ?
- First publication: Cat. Paghai, Italy.
- Date publication: 1872

'Vittatum Novum'
- Cultivar Group: ?
- Flower Type: ?
- Colour: ?
- First publication: Bosse. Vollständiges Handbuch der Blumengärtnerei Ed. 3. 2: 876.
- Date publication: 1854

'White'
- Cultivar Group: 1
- Flower Type: Single.
- Colour: White.
- First publication: Cat. Miller & Sievers, USA.
- Date publication: 1874

'White Bettie'
- Cultivar Group: 1
- Flower Type: Single.
- Colour: White.
- First publication: Bauml, Los Angeles State & County Arboretum. Pers. comm.
- Date publication: 1985

'White Betty' see 'White Bettie'.

'White Tinged Rose'
- Cultivar Group: 2
- Flower Type: Single.
- Colour: White tinged rose.
- First publication: Cat. Michel, USA.
- Date publication: 1849

'Willow Street'

Cultivar Group	?
Flower Type	?
Colour	?
First publication	McClintock & Leiser. An annotated checklist of woody ornamental plants of California, Oregon and Washington: 82.
Date publication	Received 1985.

'Yellow'

Cultivar Group	4
Flower Type	Single.
Colour	Pale yellow.
First publication	Cat. Michel, USA.
Date publication	1849

?

Cultivar Group	3
Flower Type	Single.
Colour	Dark red.
Habitus	Medium size.
Remarks	Introduced (before 1983) into USA from N. Africa by Monrovia Nursery Company. Cultivar name not known to the present author.
Originator	Monrovia, Azusa, USA.
Year of origin	?
First publication	Cat. Monrovia, USA.
Date publication	1983
Trade Mark	Algiers ®

?

Cultivar Group	1
Flower Type	Single.
Colour	Pure white.
Habitus	Medium size.
Remarks	Introduced (before 1983) into USA from N. Africa by Monrovia Nursery Company. Cultivar name not known to the present author.
Originator	Monrovia, Azusa, USA.
Year of origin	?
First publication	Cat. Monrovia, USA.
Date publication	1983
Trade Mark	Casablanca ®

?

Cultivar Group	2
Flower Type	Single.
Colour	Pale pink.
Habitus	Medium size.
Remarks	Introduced (before 1983) into USA from N. Africa by Monrovia Nursery Company. Cultivar name not known to the present author.
Originator	Monrovia, Azusa, USA.
Year of origin	?
First publication	Cat. Monrovia, USA.
Date publication	1983
Trade Mark	Tangier ®