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MYRTACEAE

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MYRTACEAE

M. QAISER & M.A. SIDDIQI

Trees, shrubs, undershrubs or sometimes creepers. Leaves simple, usually entire, opposite or rarely alternate, with oil glands, exstipulate. Inflorescence solitary or subterminal, or racemes, rarely in cymes. Flowers bisexual, usually with 2 bracteoles, hypanthium or (calyx tube) usually adnate to the ovary. Sepals 3-5, imbricate, valvate or irregularly split, sometimes thrown off unopened as a lid. Petals 4-5, sometimes connivent forming an operculum (Eucalyptus). Stamens generally numerous, inserted on the disk, often bent inwards in bud; connective usually with gland above, anthers with longitudinal or porous dehiscence. Ovary inferior, 1-many locular, usually with 2-many anatropous or campylotropous ovules on axile placenta in each locule, style simple, elongate, stigma usually small. Fruit dehiscent or indehiscent, sometimes fleshy. Seeds non-endospermic or with very little endosperm.

A large family with 100 genera and 3000 species distributed throughout the tropics and subtropics, becoming rarer in temprate regions. Represented by 6 genera and 13 species in Libya of which mostly are cultivated.

1. + Sepals and petals forming an operculum over the stamens — **4. Eucalyptus**
   — Sepals and petals not forming an operculum — 2

2. + Flowers in cylindrical spikes, sometimes in heads. Fruit a capsule — 3
   — Flowers mostly solitary axillary or more but never a spike or head. Fruit a berry — 4

3.	+ Stamens free	5. **Callistemon**
	— Stamens united in 5 bundles, opposite the petals	6. **Melaleuca**
4.	+ Leaves gland-dotted or punctate	5
	— Leaves not gland-dotted	2. **Psidium**
5.	+ Leaves gland-dotted. Stamens inflexed in bud. Ovary 2-3-locular	1. **Myrtus**
	— Leaves punctate. Stamens straight in bud. Ovary 4-locular	3. **Feijoa**

1. **MYRTUS**

L., Gen. Pl. ed. 5;212. 1754

Shrubs or trees. Leaves simple, opposite, entire, evergreen, gland dotted, usually aromatic. Flowers 1-many on axillary peduncle in a centrifugal cyme, bracteoles small, usually deciduous, hypanthium turbinate or subglobose, enclosing the ovary. Sepals 5, rarely 4, ± imbricate in the bud, soon becoming open. Petals (4-5) or more, spreading. Stamens numerous in several series, free, filaments filiform, inflexed in bud, anthers versatile, dehiscing longitudinally. Ovary 2-3 locular, ovules usually numerous, style filiform with a small rarely capitate stigma. Fruit a berry usually with a persistent calyx. Seeds many, reniform.

About 100 species, mostly in tropical regions especially in Australia. Represented in Libya by 2 species.

+ Leaves ovoid lanceolate, 2-3 times longer than broad, penni-nerved. Flowers 10-15 mm long. Buds ovoids 6-8 mm long. Branches pubescent	1. **M. communis**
— Leaves linear lanceolate, 6-8 times longer than broad, uninerved. Flowers 7-8 mm long. Buds globose, 4-5 mm long. Branches glabrous	2. **M. nivellei**

1. **Myrtus communis** L. Sp. Pl. 1: 470. 1753; Durand & Barratte, Fl. Lib. Prodr. 97. 1910; Pamp., Pl. Trip. 158. 1914; Fl. Ciren. 336. 1931; Keith, Prelim. Check List Lib. Fl. 680. 1965. (Fig. 1)

M. communis var. *lusitanica* L. Sp. Pl. ed. 2: 673. 1762; Pamp., 11.cc; *M.*



Fig. 1 **Myrtus communis:** A, a flowering branch x 1; B, leaf x 2; C, flower x 3; D, flower with petals and stamens removed x 4; E, fruit x 4; F, seed x 10.

italica Mill. Gard. Dict. ed. 8: No. 5 (1768)

An evergreen densely branched shrub, 1-3m tall. Branches usually 4-angled, densely pubescent to almost glabrous. Leaves ovate to lanceolate, entire, acute to acuminate, rarely obtuse, 1.5-5 (-6) x 0.4-1.5 (-3) cm, distinctly gland dottted; petiole short, up to 2.5 mm long, slightly channeled above. Flowers solitary axillary, white; pedicel slender, 1-2.5 mm long, glabrous or somewhat pubescent; bracteoles 2, linear-lanceolate, soon caducous; hypanthium obconical, c. 4 x 3mm wide at apex, usually glabrous or subglabrous. Sepals ovate or broadly deltoid, entire with a ciliate margin, c. 1.5 x c. 2mm. Petals obovate, with rounded apex, 5-10 x 5-7 mm. Stamens many, filaments 6-10 mm long, inserted on pubescent disc, anthers ovoid, yellow. Style filiform 12-14 mm long with truncate stigma. Berry subglobose, black, pruinose, 8-10 mm wide, with persistent calyx. Seeds reniform, 2.5-3 mm long, glossy, pale-brown or whitish, minutely rugulose.

Type: "In Europa australi. Asia, Africa".

A-7 Wadi El Kuf, 24.3.1980, *Jalila A. Ali* 155 (ULT(. Wadi El-Teir, Gebel Akhdar, c. 24 km. Derna along coastal road to Susa, 18.1.1967, *L. Boulos* 1182 (ULT), Arguh El-Abiad, Gebel Akhdar, near Susa, to the south, along the road to Shahat, 19.1.1967, *L. Boulos* 1240 (ULT); Ras El-Hilal, 22-28.3.1980, *Naima, Soad & Faten* 317 (ULT); 25 km east of Ras El-Hilal, flower yellow, 22-28.3.1980, *Naima, Soad & Faten* 102 (ULT); 15 km West of Derna on way to Ras El-Hilal, 200 m above sea level, 25.3.1980, *Mufida M. Mustafa* 246 (ULT); Gebel Akhdar, Oct. 19, 1970, *L. Boulos* 4454 (ULT); Wadi El Mahbool, Gebel Akhdar, on rocks, 26.10.1975, *S.M.H. Jafri* 6135 (ULT); Wadi El-Glaa, 22-23.3.1980, *Faten, Soad & Naima* D.n. (ULT).

Distribution: Mediterranean region, eastwards to Iraq, Iran, Afghanistan, Pakistan and India.

Leaves and fruits are of medicinal importance. Oil extracted from the leaves is used in Perfumery, fruit is sometimes edible.

Fl. Per.: Jan.-April *Vern.:* Shejret essoker, Rayhan.

2. **Myrtus nivellei** Batt. - Trab. in Bull. Soc. Bot. France, 1911 (58): 671. 1912; Keith, l.c.

Similar to the preceding species but differs in having glabrous branches and linear-lanceolate leaves, 7-8 times longer than broad, uninerved. Buds globose 4-5 mm long. Flowers 7-8 mm long, pinkish, petals with ciliate margin.

Type: Described from Sahara.

Doubtfully reported from Faizan by Keith, l.c.

Distribution: Endemic to Sahara (Tibesti)

2. **PSIDIUM**

L., Sp. Pl. ed. 1: 470. 1753;Gen. Pl. ed. 5. 541. 1754.

Trees, shrubs, or rarely sub-shrubs. Leaves opposite, petiolate, glabrous or tomentose, pinnately veined. Flowers in axillary or lateral clusters of 1-3, rarely more. Hypanthium campanulate, urceolate or pyriform, scarcely longer than, or sometimes longer than ovary; Calyx lobes 4-5, persistent. Petals 4-5 spreading. Stamens many, inserted on a disc, usually in many series, filaments usually filiform. Ovary (-2) 4 (-7) loculed with a peltate or sub capitate stigma. Fruit an ovoid, globose or pyriform berry. Seeds many, hard and stony.

A genus of about 150 species distributed chiefly in Tropical and Subtropical America, represented in Libya by the following cultivated species.

Psidium guajava L. Sp. Plœ edœ 1: 470. 1753; Bailey. Stand. Cyclop. Hort. 3:2847. 1963; Chittenden Dict. Gard. 3: 1705. 1965; Keith, Prelim. Check List Lib. Fl. 608. 1965 (Fig. 2)

Shrub or small tree, up to 5m high with a slender trunk, usually dividing near the base, twigs strongly quadrangular, pubescent to tomentose. Leaves oblong, ovate or elliptic, acute to obtuse, subsessile, finely pubescent beneath, 6-15x3 8cm, dark green above. Flowers solitary axillary or in fascicles of 2-3, rather large, pedicel 1.5-2cm long, bracts 2 small, slender. Hypanthium oblong-ovate, usually slightly constricted above the ovary, calyx lobes thick, valvate in bud. Petals 4-5, 1-1.5 x 0.8-1cm wide. Stamens many; stigma capitate. Fruit fleshy, ovoid, oblong, globose, subglobose or pyriform, up to 10 cm long, yellowish outside, with creamish-white or pinkish, sweet or somewhat acrid flesh. Seeds many reniform.

Type: Described from Central America, probably from Guiana.

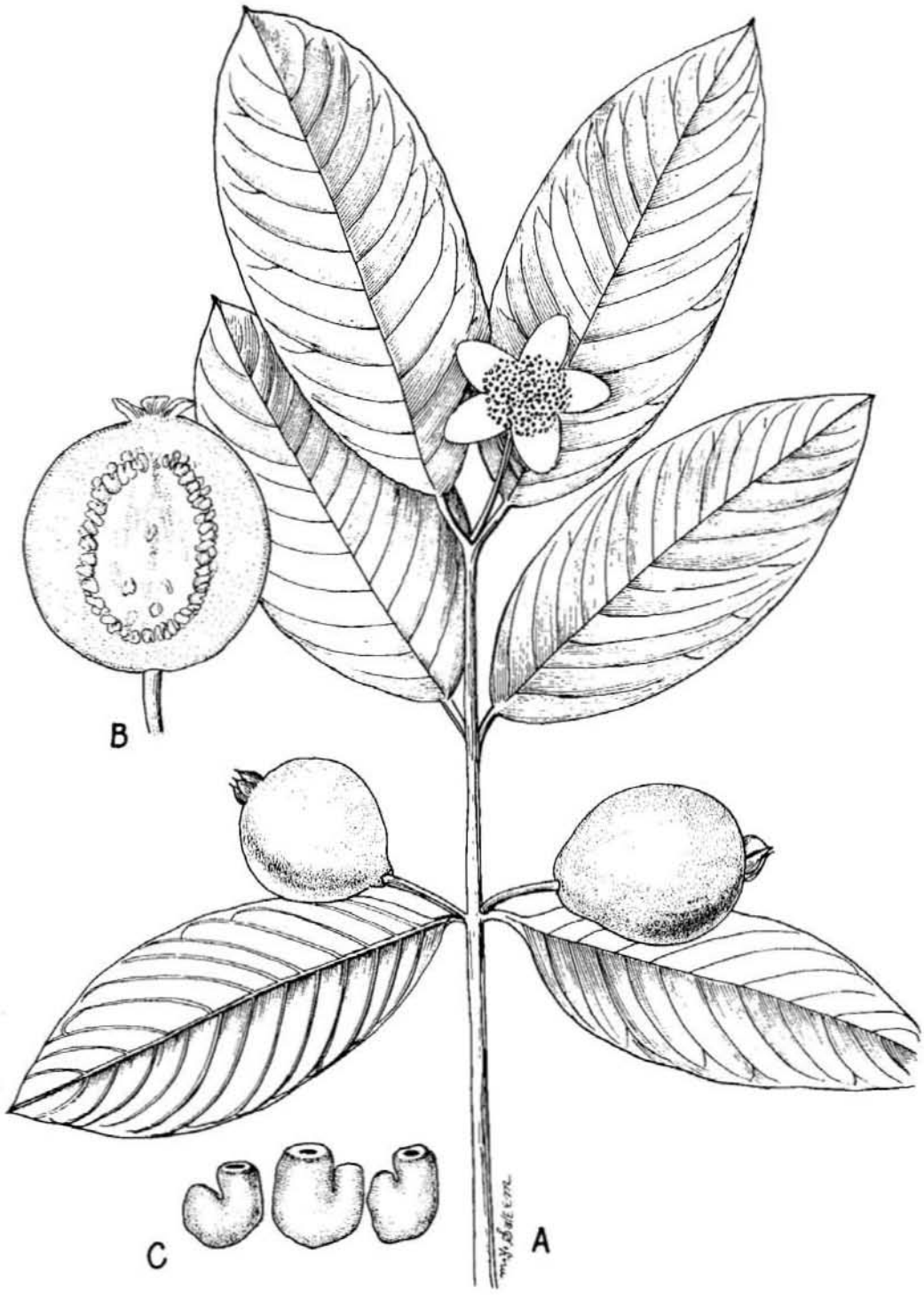


Fig. 2 **Psidium guajava:** A, a flowering and fruiting branch x 0.5; B, L.S. of fruit x 0.5; C, seeds x 3.

A-3 c. 9 km east of Tripoli and 1 km south of the highway, tree, cultivated, Planting forest of Jodaida 10.1.1978, *F.B. Ratib* 142, 143 (ULT); Al-Faateh University, Tripoli, garden behind Faculty of Agriculture 23.9.1981, *M.A. Siddiqi* 454 (ULT).

Distribution: Guava, a native of South and Central America is widely cultivated for its fruits in many parts of the world. In Libya it is also cultivated on a small scale.

Keith,l.c. reported a few more species cultivated on trial basis in Libya.

Fl. Per.: June *Vern.:* Gauafa

3. **FEIJOA**

Berg, in Linnaea 29: 258. 1858

Orthostemon. Berg, l.c. 27: 440. 1854

Shrubs or small trees, white tomentose. Leaves simple, opposite, punctate. Flowers solitary, axillary, terminal or lateral, showy, hermpahrodite. Petals 4, spreading. Stamens straight, numerous in many whorls, coloured. Ovary 4-locular, style thick.

A monotypic S. American genus with 2 species, closely related to Psidium but is distinguished from it by the punctate leaves, stamens which are suberect or straight in bud and the endospermic seeds.

Feijoa sellowiana Berg, l.c. 615. 1858; Bailey, Stand. Cyclop. Hort. 2: 1204. 1963; Keith, Prelim. Check List. Lib. Fl. 495. 1965; Chittenden, Dict. Gard. 2: 808. 1965 (Fig. 3)

Evergreen shrub c. 4m high, young shoots white tomentose. Leaves opposite, punctate, 2-7.6 x 1.1.-3.8 cm, elliptic oblong, rounded at base, obtuse, silvery grey tomentose beneath, dark glossy green above, petiole 3-5mm long. Flowers solitary axillary, 2.5-3.5 cm wide, in 1 or 2 pairs at the base of the current year's shoots. Sepals 4, recurved, oblong, obtuse, tomentose. Petals 4, ovate-oblong, concave, white on outside, purplish crimson from inside. Stamens numerous, straight, crimson, 2.0-2.5cm long, anthers yellow. Fruit an ovoid or oblong berry, 5x3.8 cm, with a guava like flavour.

Type: Described from S. America, probably from Brazil.



Fig. 3 **Feijoa sellowiana:** A, a flowering branch x 0.5; B. T.S. of fruit of 0.5.

A-3 Tripoli, Sidi Mesri Agricultural farm. An ornamental cultivated tree. Flowers white with violet tinge, filaments long and violet blue, 16.5.1977, *Mariam Najjar* 242 (ULT).

Distribution: Native of W. Paraguay, S. Brazil, Uruguay and parts of Argentina, introduced elsewhere.

Fl. Per.: May-July

4. **EUCALYPTUS**

L'Herit., Sert. Ang. 18. 1788

Evergreen medium to large size shrubs or trees, usually with twisted unbuttressed trunks and ± oblong crowns of twisted branches with pendent leaves. Bark either grey, patchily white, brown mottled, entirely smooth, scrolled marked and exfoliating in large leathery strips, often hanging as ribbons on branches or flakes persistent at least on butt, bark surface fibrous and pale or dark greyish brown. Leaves red when young, usually aromatic and pellucid punctate, heteroblastic; juvenile and sucker leaves opposite, variable, often rotundate, sessile or some times perfoliate, usually glaucous; intermediate stage leaves larger, thicker, alternate; mature stage leaves alternate, variable mostly narrow and falcate, coriaceous, prominently midribbed and obscurely veined, petiolate. Flowers large or small, in dense or diffuse terminal or axillary umbels or panicles, usually pedunculate; bracts membranous and caducous. Hypanthium (calyx tube) variable, obconical campanulate or oblong, becoming woody in fruit; calyx segments connate forming a conical or hemispherical operculum falling off at maturity. Stamens many in several series free or united, all fertile or the outer without anthers, filaments slender and folded in bud; anthers versatile or adnate at base; often with a distinct adaxial gland. Ovary inferior, adnate to the calyx at base, or sometimes to the apex, flat to conical at apex, 2-7 celled, each cell with many ovules in 2-4 axile rows; style simple subulate or subclavate; stigma small. Fruit a dry capsule, deeply sunk within the enlarged and woody hypanthium and adnate to it, the dehisced valves either exserted or included.

A genus with over 600 species; distributed from Australia to S. Philippines usually introduced in tropical and warm temperate regions.

A number of species have been introduced in Libya but only 7 species have so far been recorded and confirmed which can be considered as established part of the flora. There seems to be a hybridization among the various species and the hybrids are frequently met herewith which offer great difficulty in their identification.

1.	+ Heterostamenous, the outer stamens without anthers	1. **E. leucoxylon**
	— Homostamenous, all stamens antheriferous	2
2.	+ Flowers and fruits more than 1 cm in diam.	3
	— Flowers and fruits not more than 1 cm in diam.	5
3.	+ Operculum dome-shaped	2. **E. gomphocephala**
	— Operculum conical	4
4.	+ Leaves oblong, abruptly acuminate into a short mucro. Flowers creamish-yellow	3. **E. cosmophylla**
	— leaves lanceolate-falcate, gradually acuminate. Flowers bright-yellow	4. **E. erithrocorys**
5.	+ Pedicels thick less or upto 5 mm long; operculum pyramidate, valves conspicuously elongated, often distinctly incurved	5. **E. rudris**
	— Pedicels slender 6-10 mm long; operculum pyramidate to apiculate	6
6.	+ Valves 1-1.5 mm long, slightly exserted	6. **E. camaldulensis**
	— Valves 1.5-2 mm long, conspicuously exserted	7. **E. algeriensis**

1. **Eucalyptus leucoxylon** F. Muell in trans. Vict. Inst. 1: 33. 1855; Keith, Prelim. Check List Lib. Fl. 479. 1965 (including var. *macrocarpa* F. Muell.) (Fig. 4).

A medium sized to tall tree, bark rough, dark-grey, not peeling off. Leaves lanceolate, acuminate, usually falcate, 7.5-16 x 1 - 1.5 (-2.5) cm, coriaceous. Inflorescence axillary umbel, mostly 3-flowered, peduncle terete, c. 2 cm long, flower 2.5 cm in diam., pedicel 1.5 cm long, hypanthium turbinate, 1.3 x 1cm, operculum conical or acuminate almost equalling the hypanthium. Stamens pink, white or sometimes yellow, ± unequal, the outer ones c. 1.15cm long or more and without anthers, the inner much shorter, anthers very small, dehiscing by terminal pore or short oblong slit, at length confluent. Fruit obovoid or subglobular not contracted at the orifice, (0.8) 1-1.5 cm in diam. with a thick, flat or slightly convex rim, valves 5, very small, not exserted.

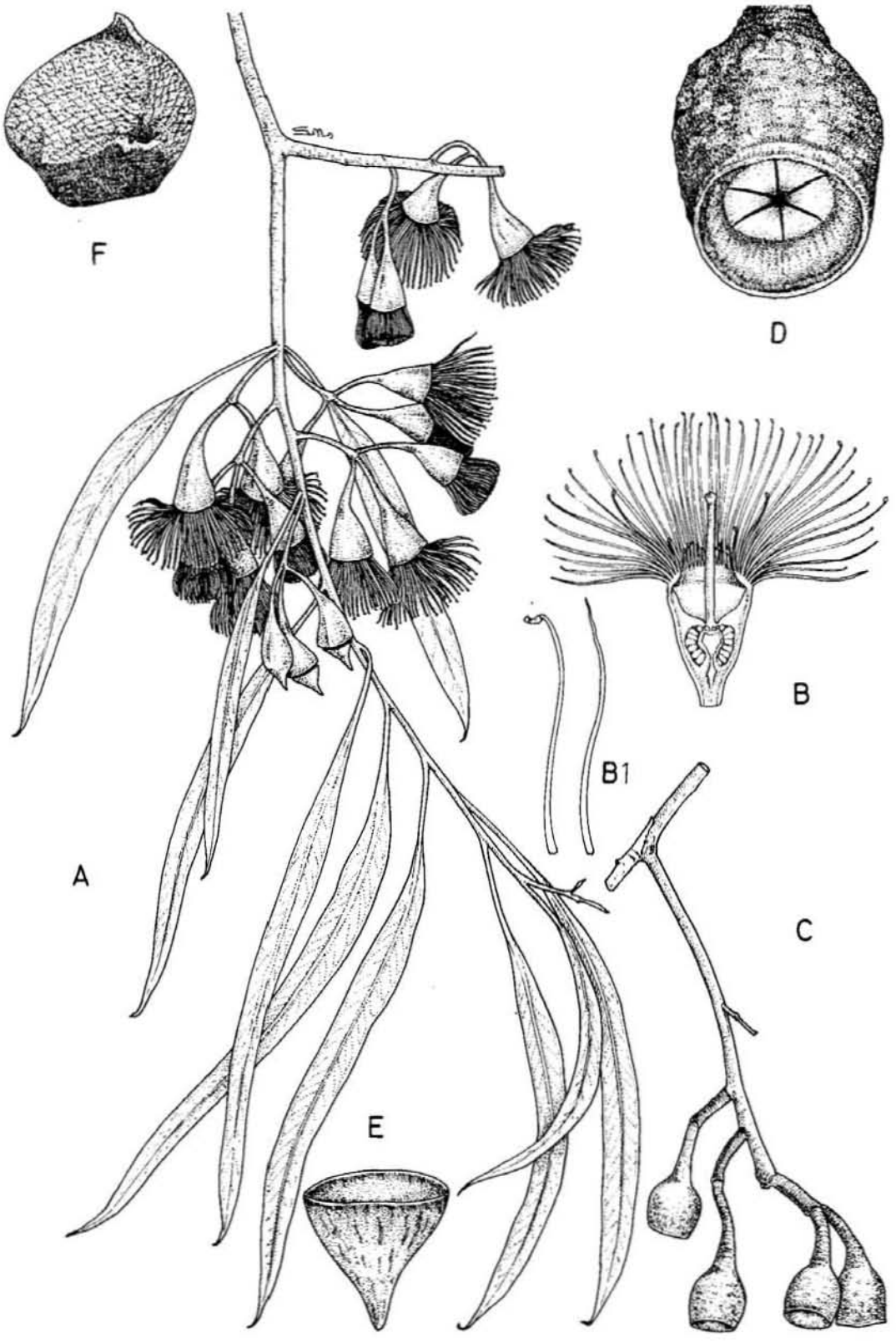


Fig. 4 **Eucalyptus leucoxylon:** A, a flowering branch x 0.5; B, v.s. of flower x 1.5; B1, stamens x 3; C, a bunch of fruits x 0.5; D, fruit x 2; E, operculum x 2; F, seed x 15.

Type: Described from Australia.

A-3 Tripoli, Al-Faateh University campus, Faculty of Agriculture garden. Flowers yellow, 14.10.1980, *M.A. Siddiqi* 421 (ULT); id., flowers red, 25.10.1980 *M.A. Siddiqi* 427 (ULT).

Distribution: A native of Australia, introduced an cultivated in Libya since 1964; does well in upland areas like Garian etc.

Fl. Per.: Sept.-Oct. *Vern.:* Serwel.

var. **minor** F. Muell. in Benth., Fl. Aust. 178. 1866. (Reprinted 1967). (Fig. 4a)

Similar to the type variety but flowers somewhat small and 6 in an umbel.

Type: Described from Australia

A-3 Tripoli, AL-Faateh University campus, very big tree, flowers reddish-pink 2-7 on each peduncle, 29.10.1980, *M.A. Siddiqi* 428; id., near student hostel. Tree c. 10 m high, flowers pinkish, bark fissured, brownish, fruits with shining dark-brown hypanthium. Cultivated, 8.11.1983, *S.M.H. Jafri* 1856 (ULT).

Distribution: A native of Australia. Sometimes cultivated here.

Fl. Per.: Oct.-Nov. *Vern.:* Serwel.

2. **Eucalyptus gomphocephala** DC. Prodr. 3: 220. 1828; F. Muell in Benth., l.c. 479; Meikle. Fl. Cyprus 1: 661. 1977. (Fig. 5)

A tall tree up to 40m, bark soft or brown, finely fibrous. Mature leaves lanceolate or falcate, acuminate, 10-18 x 2-4cm, coriaceous, dark green, with 2-3cm long petiole. Inflorescence an umbel of 3-6 (-8) sessile flowers, peduncle thick, 2-3 cm long, flat. Hypanthium usually funnel shaped or campanulate, 10-12 x 8-9 mm in diam. at the apex; operculum usually dome shaped or bluntly conical, 8-10 mm long, distinctly wider than the apex of the hypanthium. Fruit campanulate, angled, 15-17 x 12-14 mm, capsule hardly sunk, rim distinct, valves 3-4, slightly raised.

Type: Described from Australia.

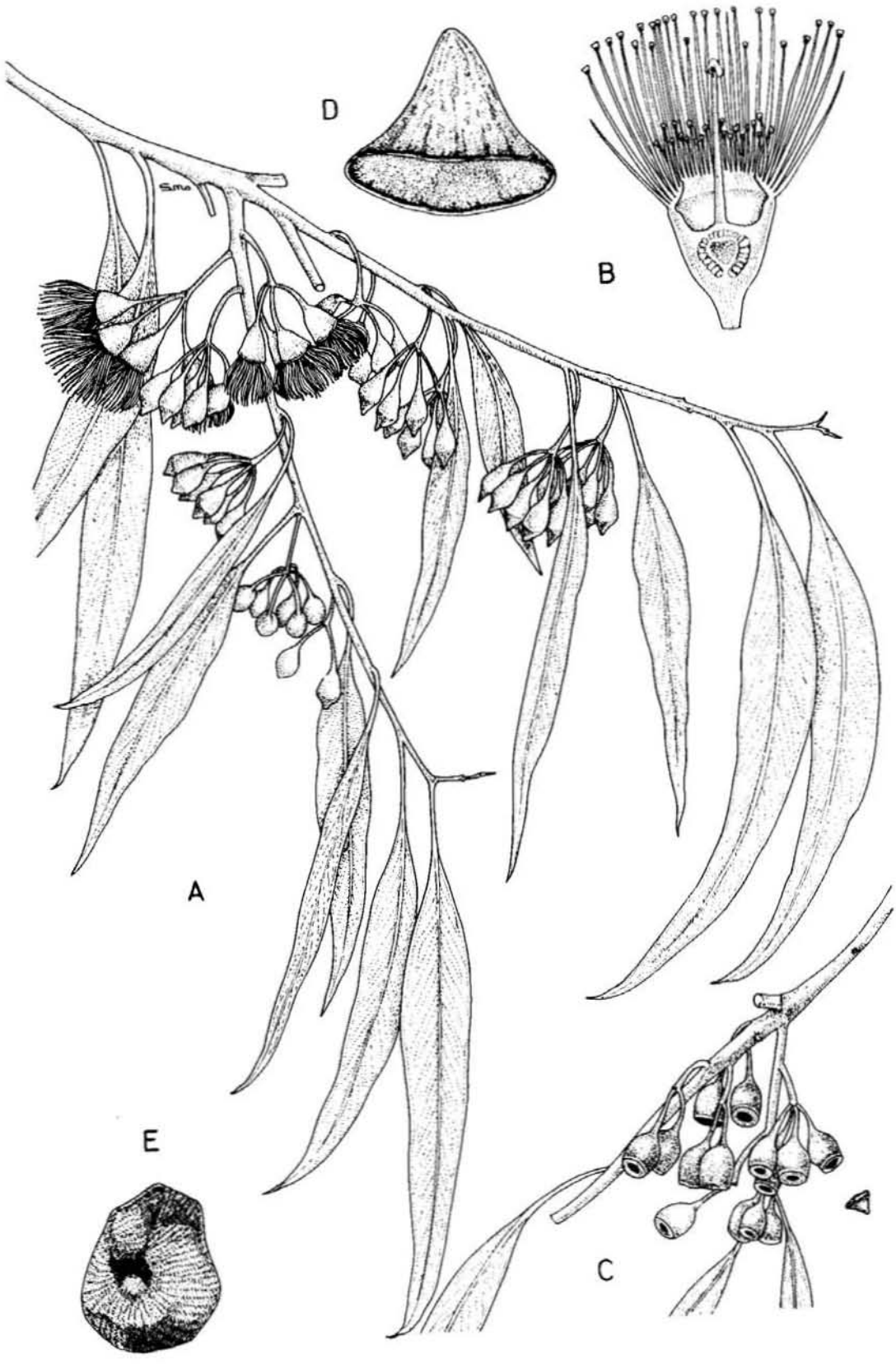


Fig. 4a **Eucalyptus leucoxylon** var **minor:** A, a flowering branch x 0.5; B, V.S. of flower x 1.5; C, a fruiting branch x 0.5; D, operculum x 5; E, seeds x 15.

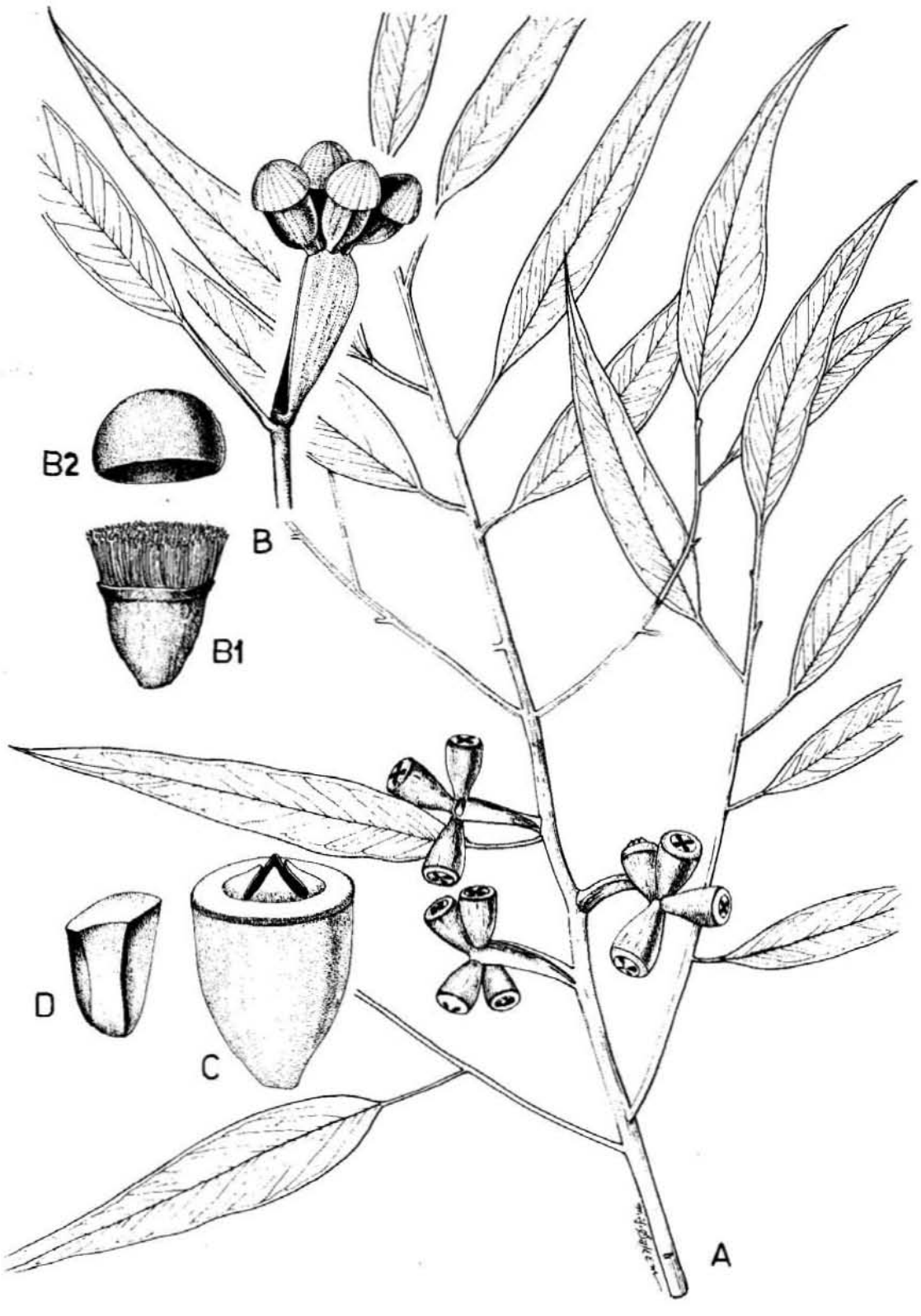


Fig. 5 **Eucalyptus gomphocephala:** A, a fruiting branch x 0.5; B, a bunch of floral buds x 1; B1, flower with operculum removed x 1.5; B2, operculum x 1.5; C, fruit x 2; D, seed x 20.

A-3 Tripoli, Al-Faateh University, Faculty of Agriculture, 2.4.83. *M.A. Siddiqi* 535 (ULT).

Distribution: Widely distributed in Australia, cultivated elsewhere. Sometimes cultivated as a roadside tree in Libya. Introduced in Zorda 1920 & Benghazi 1926.

Fl. Per.: Nov.-Jan. *Vern.:* Serwel.

3. **Eucalyptus cosmophylla** F. Muell in Trans. Vict. Inst. 1. 32. 1855; in Benth, l.c. 225; Keith, l.c. (Fig. 6).

A tall shrub or small tree with smooth ash coloured bark. Leaves ovate - lanceolate, acute or acuminate, 7.5-13 x 2.5-4.5 cm, very thick and rigid, entire, petiole c. 3.5 cm long. Peduncles axillary or lateral, short, thick, terete or angular,bearing 3 rather large sessile to shortly pedicellate, cream-yellowish flowers, upto 3cm in diam.; hypanthium broad and short, thick, 10-15 mm in diam.; obtuse at the base, operculum hard, acuminate, scarcely shorter than the calyx - tube; stamens 8-10 mm long, inflexed in bud. Fruit subglobose-truncate, hard, smooth, 1.5-2 (-2.25) x 1-1.25 cm, the rim thick and slightly convex, valves not exserted.

Type: Described from S. Australia.

A-3 Tripoli, Al-Faateh University, Faculty of Agriculture garden, tree, 10-12ft high. Flowers cream-yellowish in colour, 14.10.1980, *M.A. Siddiqi* 420 (ULT).

Distribution: Australia. Introducted in Libya and elsewhere.

Fl. Per.: Oct.-Nov. *Vern.:* Serwel.

4. **Eucalyptus erithrocorys** F. Muell., Fragm. 2: 33.1860; in Benth l.c. 258. 1866; Keith, l.c.(Fig. 7).

A tall shrub to medium sized tree, 4-8 m high. Leaves subopposite to opposite, upper ones alternate, long lanceolate or broadly linear 10-20 x 1.5-2 (-2.5) cm, rigid with distinct veins on both sides; petiole c. 2-4 cm long. Peduncles axillary or lateral, thick and broad, 1.25-2 cm long with 3 large flowers. Flowers sessile or with a small thick flattened pedicel up to c. 1cm long; hypanthium usually obconical, irregularly ribbed, 1.5-2.5 cm long with 4 prominent obtuse teeth; operculum red, thick, fleshy,

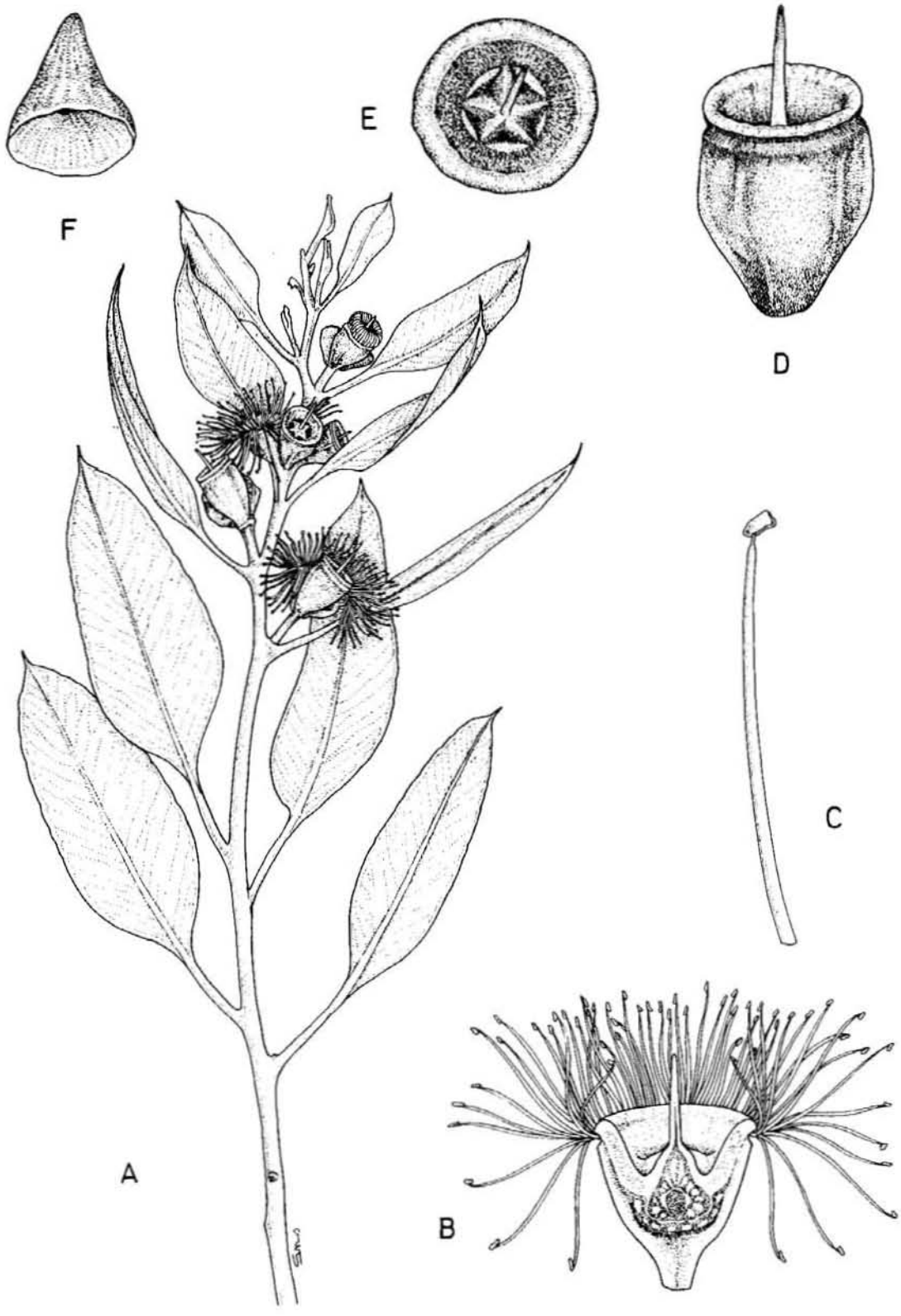


Fig. 6 **Eucalyptus cosmophylla:** A, a flowering branch x 0.5; B, flower x 1.5; C, stamen x 5; D, fruit x 2; E, lid x 2; F, operculum x 2.

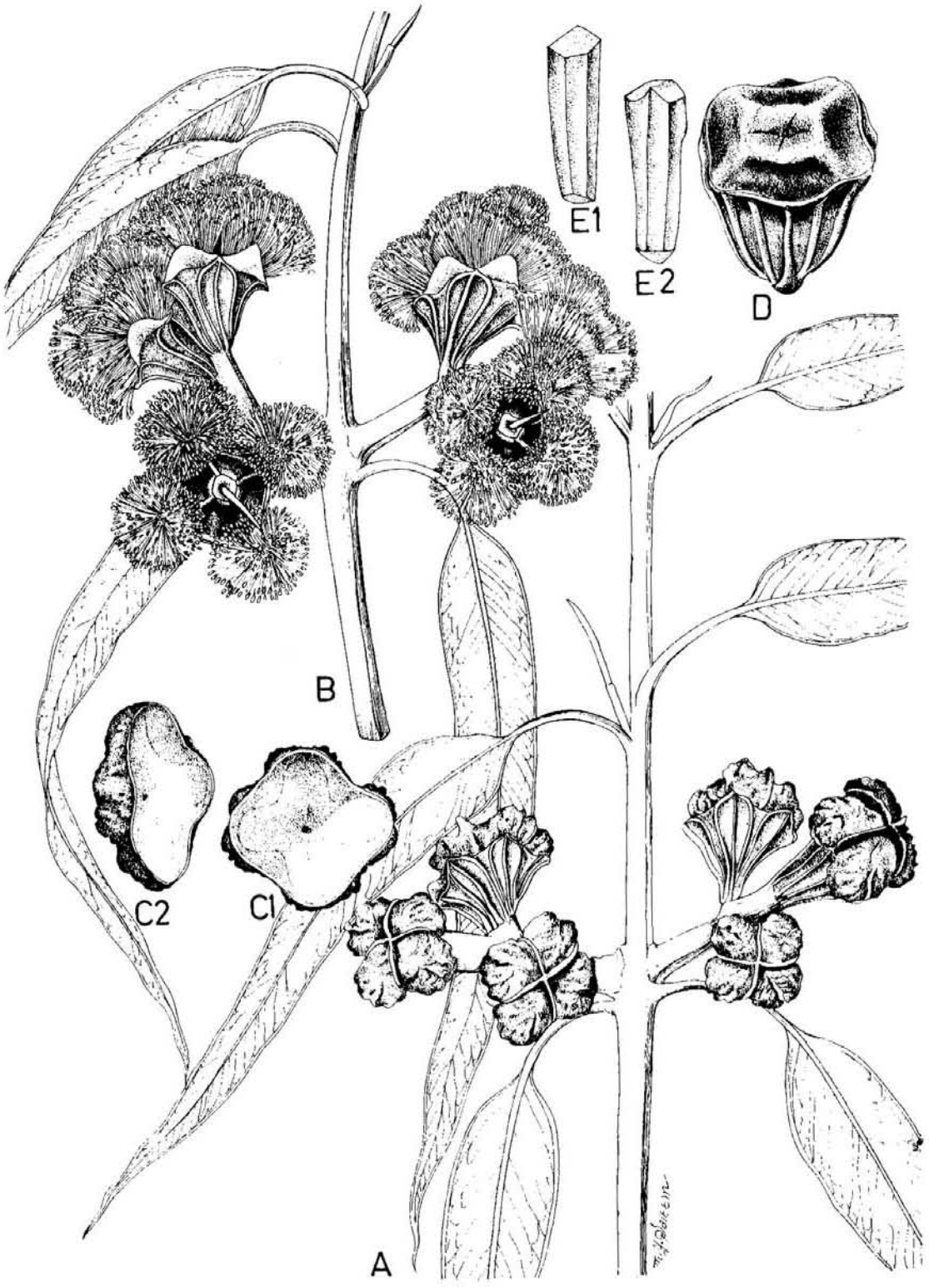


Fig. 7 **Eucalyptus erithrocorys:** A, a flowering branch with floral buds x 0.5; B, a flowering branch x 0.5; C1, ventral view of operculum x 1; C2, lateral view of operculum x 1; D, fruit x 0.5; E1, dorsal view of seed x 6; E2, ventral view of seed x 6.

depressed and flat topped, broader and shorter than the calyx-tube, transversely wrinkled, usually with raised ribs along the centre; stamens numerous, in 4 bundles, alternating with the calyx-teeth. Fruit nearly hemispherical, 3-5 cm in diam., disc broad and obtusely prominent, valves not raised.

Type: Described from Oldfield (Western Australia).

A-3 Tripoli, behind faculty of Agriculture, Al-Faateh University, flowers very large, bright yellow in bud, operculum red and depressed with raised ribs, 3.9.1980, *M.A. Siddiqi* 414 (ULT).

Distribution: Australia, introduced in Libya. Sometimes cultivated for its fine yellow flowers and scarlet cups.

Fl. Per.: Sept.-Oct.

5. **Eucalyptus rudris** Endl., Enum. Plant. Nov. 49. 1837; F. Muell in Benth, l.c. 244; Meikle, l.c. 663 (Fig. 8)

A tree up to 18 m high, bark usually rough, fissured, dark grey, branches smooth grey. Mature leaves narrowly lanceolate, acuminate, 15-18 x 1.5-3 cm, dull glaucous green often distinctly falcate, petioles 1.5-2 cm long. Inflorescence a 3-8 (-10)-flowered, axillary umbel; peduncles 0.6-1.5 cm long, ± slender, terete. Flowers 1 cm or a litle more in diam.; pedicels short, rather thick, usually less than 5 mm long; hypanthium broadly funnel shaped, c. 4 mm long, 6 mm in diam. at the apex; operculum shortly and bluntly conical, c. 5-7 mm long, rarely with a very short bluntish beak; stamens whitish. Fruit hemispherical, 6-7 mm long, 8-9 mm in diam. at the apex with very conspicuous flattened rim, valves (-3) 4 (-5) triangular, 2-3 mm long, often distinctly incurved.

Type: Described from Australia, Huegel.

A-3 6 km from Tarhuna, 14.4.1972, *S.I. Ali* 203 (ULT); Barley field in front of the Faculty of Science, erect tall tree, *Assem* et. al. 4c (ULT); **B-4** 30 km East of Harawa, 28.3.1983, *Ftaym M. Bakkar* (ULT).

Distribution: Australia, cultivated as a roadside tree in Libya and elsewhere.

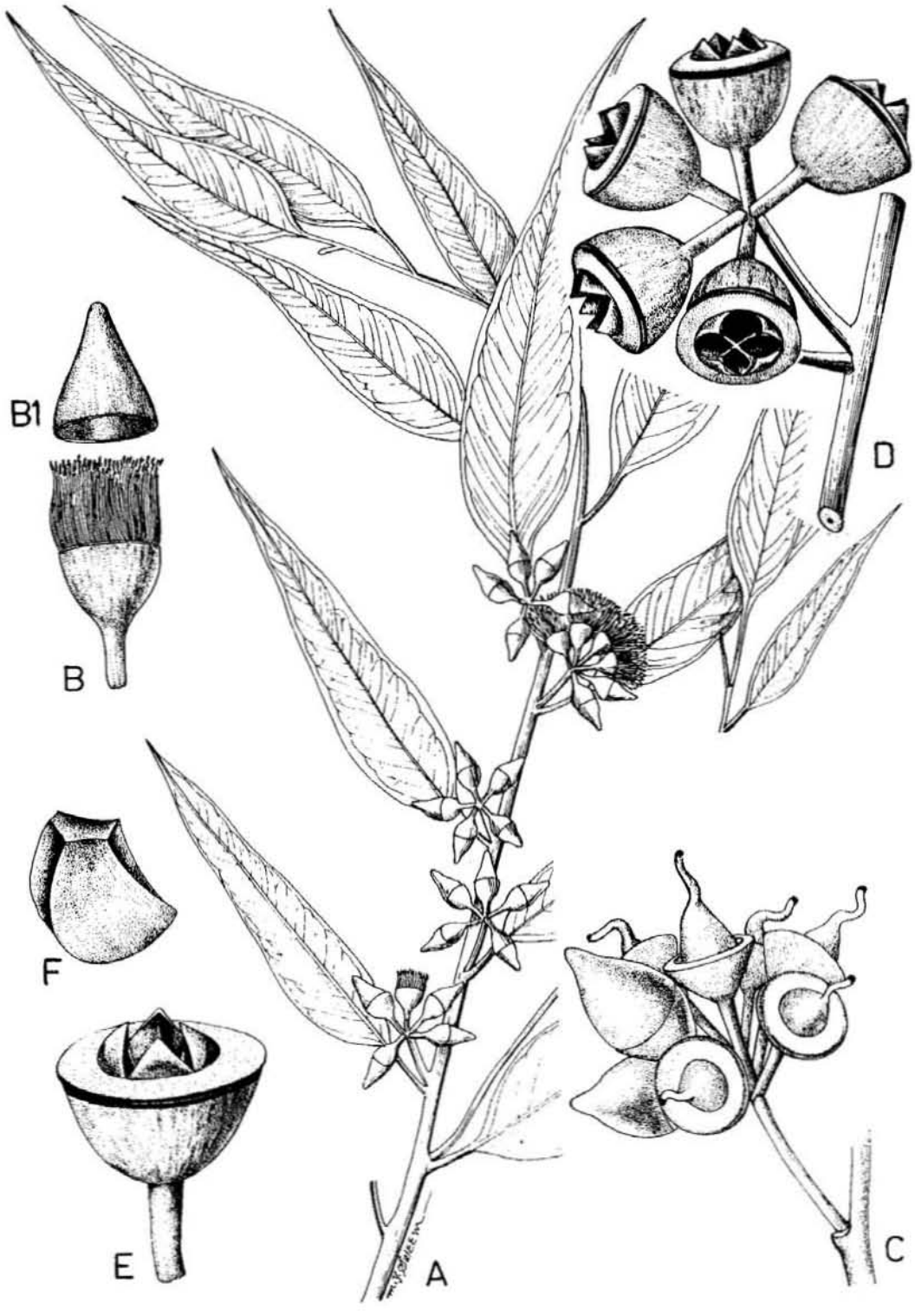


Fig. 8 **Eucalyptus rudris:** A, a flowering branch x 0.5; B, flower with operculum removed x 2; B1, operculum x 2; C, a bunch of immature fruits x 2; D, a bunch of mature fruits x 2; E, a mature fruit x 3.5; F, seed x 40.

Fl. Per.: March-April *Vern.:* Serwel.

6. **E. camaldulensis** Dehnhardt, Pl. Hort. Camald. ed. 2.20.1832; Keith, Prelim. Check List. Lib. Fl. 476. 1965; Meikle, Fl. Cyprus 1: 662. 1977 (Fig. 9).
E. rostrata Schlecht., Linnaea 20: 655. 1847; *E. acuminata* Hook., Mitch. Trop. Aust. 390. 1848; *E. tereticornis* var *rostrata* Ewart, Hanb. For. Tr. Vict. For. 301. 1925. (Fig. 9)

A tall tree 15-20 (-30) m high, with dense-crown and smooth greyish white bark. Juvenile leaves petiolate, narrowly to broadly lanceolate 6-9 (-10) x 2.5-4 cm, slightly glaucous Mature leaves narrowly lanceolate 6-15 (-20) x 0.8-2 cm, coriaceous usually falcate, acuminate with 1.5-3 cm long petiole, nerves distinct. Inflorescence a (-3) 5-10 (-15) flowered axillary umbel; peduncle 10-15 mm long, terete. Hypanthium usually hemispherical 2-3 mm long; operculum conical to rostrate 5-10 mm long. Stamens whitish. Fruit hemispherical to broadly turbinate; disc dome shaped, sharp edged, 8x6 mm; valves 4-5 exserted, 1-1.5 mm long, deltoid, acute, incurved.

Type: Described from Australia.

A-3 Tripoli, University campus, 17.3.1972, *S.I. Ali,* 202 - 214 (ULT).

Distribution: A native of Australia. Cultivated and somewhat naturalized in Libya and elsewhere.

This is our most common and successful species. According to Keith (l.c.) there are very few pure E. camaldulensis and practically all reputed E. camaldulensis in Libya are hybrids (*E. camaldulensis* x *E. rudris*, the so called *E. algeriensis* Trabut), which is inferior form. This cross appears to be the only likely to occur in Libya.

Fl. Per.: Nov.-April

7. **Eucalyptus algeriensis** Trabut in Rev. Hort. Alg. 1904; Bull. Station Resch. For. N. Afric. 1: 140. 1917; Maiden. Crit. Rev. gen. Eucalyptus 6: 72. 1924; Keith, l.c. 476. (Fig. 10).
E. camaldulensis x *E. rudris*

A tree similar to *E. camaldulensis* and *E. rudris* but with leaves 5-7 x 1.5-2.5 cm, lanceolate, very finely acuminate. Peduncles 10-15 mm long. Flowers smaller like *E.*

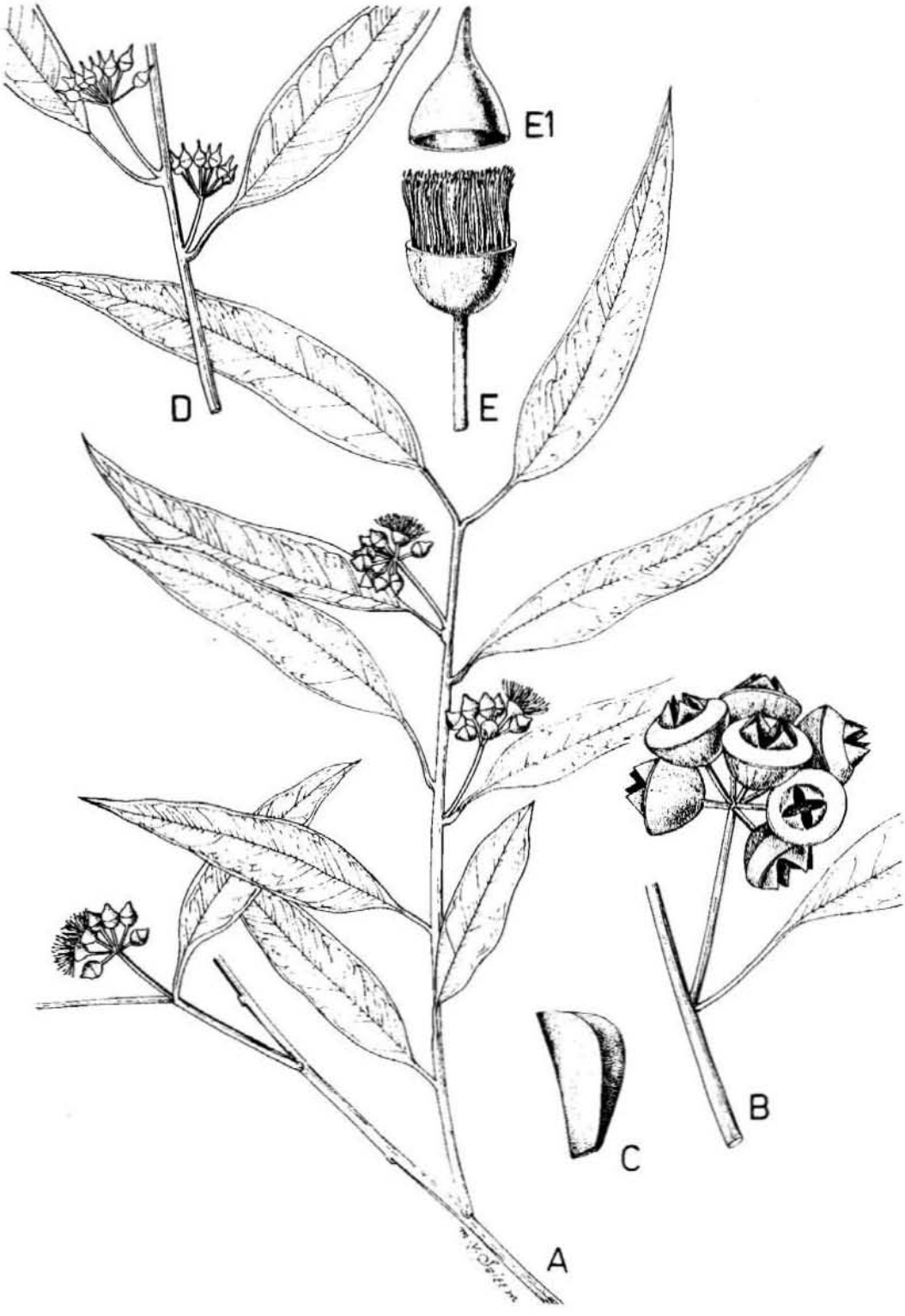


Fig. 9 **Eucalyptus camaldulensis:** A, a flowering branch x 0.5; B, a bunch of fruits x 2; C, seed x 20; D, a flowering branch with floral buds x 0.5; E, flower with operculum removed x 4; E1, operculum x 4.

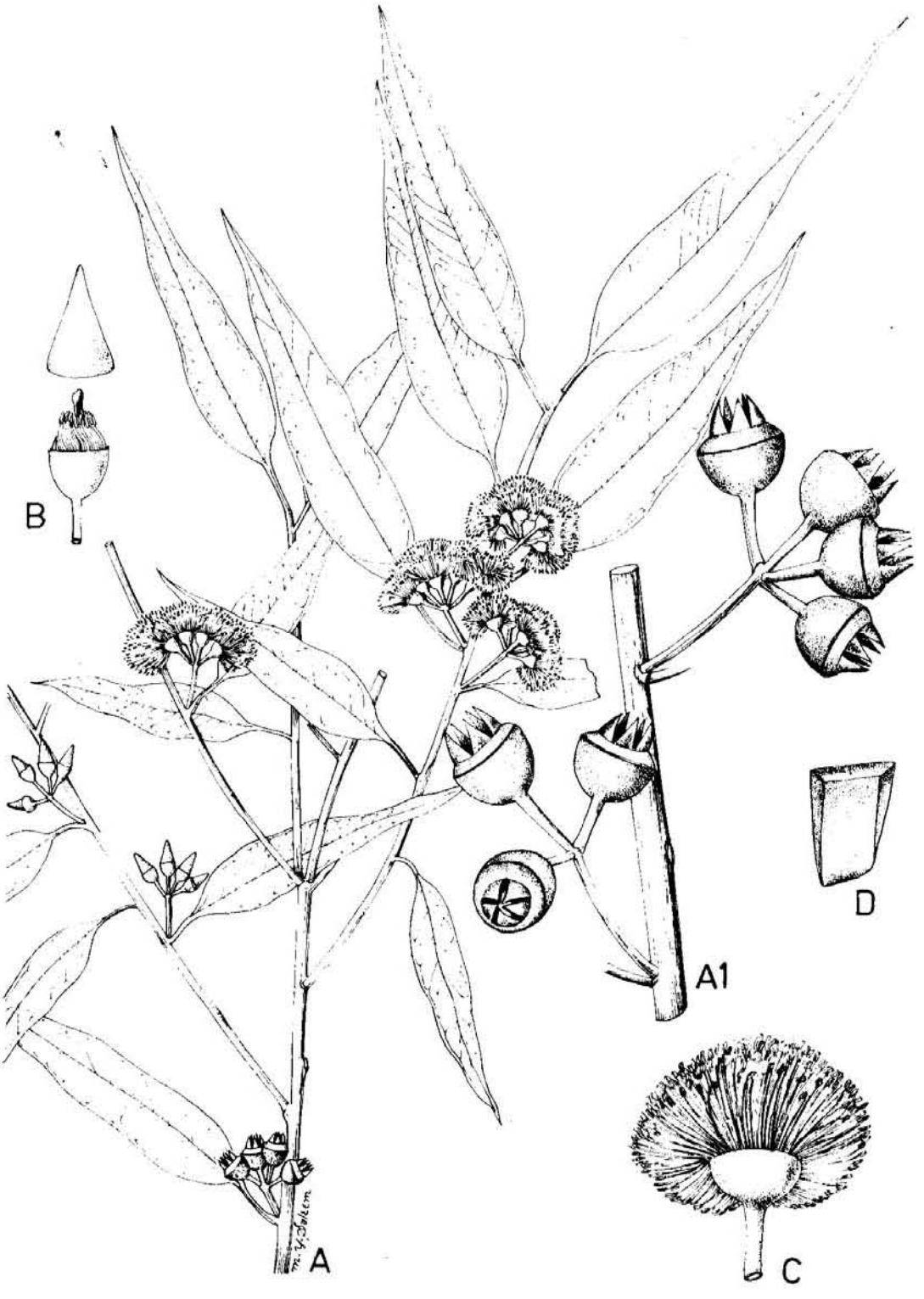


Fig. 10 **Eucalyptus algeriensis:** A, a flowering branch x 0.5; A1, a bunch of fruits x 2; B, young flower x 2, B, operculum x 2; C, mature flower x 2; D, seed x 40.

camaldulensis and the pedicel and calyptra conical like *E. rudris*. pedicels 2-4 mm long; calyptra 6-7 x 4-5 mm. Flowers 10 mm in diam., in axillary or inter axillary umbel of 6-7-flowers ; stamens whitish. Fruit 3-4 x 3-4 mm, valves 4-5, distinctly exserted, 1.5-2 mm long.

Type: Described from Algeria.

A-3 20 km from Tripoli on way to Benghasir. Tree c. 12 m tall, cultivated along road side, flowers white, bud obconic 14.11.1976, *A. Ghafoor* et al. 3 (ULT); Tripoli, Al-Faateh University campus, near old Faculty of Agriculture Building, tall tree bark fissured, grey coloured; flowers white, cultivated, 8.4.1983, *S.M.H. Jafri* 1835 (ULT).

Distribution: N. Africa (Algeria to Libya), coastal area.

Fl. Per.: Nov.-April *Vern.:* Serwel.

Keith (l.c. 474-484), lists a number of species for Libya, either tried for cultivation or cultivated. In addition to those confirmed and described above, some of the following may also be found, if a thorough search is made, aas listed by Keith.

1. **E. baueriana** Schau.
2. **E. bicolor** A. Cunn.
3. **E. bosistoana** F. Muell.
4. **E. botryoides** Sm.
5. **E. cladocalyx** F. Muell.
6. **E. cornuta** Labill.
7. **E. dealbata** A. Cunn.
8. **E. divisersicolor** F. Muell.
9. **E. globulus** Labill.
10. **E. grandis** (Hill) Maiden.
11. **E. maculata** Hook.
12. **E. melliodora** A. Cunn.
13. **E. occidentalis** Endl.
14. **E. oleosa** F. Muell.
15. **E. platypus** Hook.
16. **E. punctata** DC.
17. **E. resinifera** Sm.

18. **E. robusta** Sm.
19. **E. saligna** Sm.
20. **E. sideroxylon**(A. Cunn.) Benth.
21. **E. torquata** Lehm.

5. CALLISTEMON

R. Br., Flind. Voy. Terra Austr. 2 (App. 3): 547.1814; Gen. Rem. 15. 1814.

Evergreen tall shrubs or small trees. Leaves alternate usually crowded, terete-linear or lanceolate, entire, with or without a conspicuous nerve, sessile or subsessile, hard in texture. Inflorescence a dense oblong or cylindrical spike. Flowers showy, pale yellow or crimson, sessile, bracteate or ebracteate. Calyx tube ovoid, campanulate or urceolate, usually adnate to the ovary at the base, lobes 5, imbricate, usually scarious and deciduous. Petals 5, longer than the calyx lobes, usually orbicular, accrescent, persistent. Stamens numerous much longer than the petals, free or sometimes united in bundles or very slightyly united in a continuous ring, anthers versatile, dehiscing longitudinally. Ovary villous on the top, 3-4-locular, style filiform, with small terminal stigma. Fruit a capsule enclosed in the calyx, opening loculicidally. Seeds linear or linear lanceolate.

A genus of c. 25 species, confined to Australia and Tasmania. Represented in Libya by the following cultivated species.

Callistemon citrinus (Curt) Stapf, in Bot. Mag. t. 9050. 1924; Chittenden, Dict. Gard. 2: 360. 1965. (Fig. 11).
Metrosideros citrinus Curt. in Bot. Mag. t. 260. 1794; *C. lanceolatus* DC., Prodr. 3: 223. 1828; Bailey. Stand. Cyclop. Hort. 1: 630. 1963.

Tall shrub, 2-3 m high, tomentose hairy becoming glabrescent. Leaves linear to lanceolate, 4-7.5 x 0.4-0.7 cm, usually acute with prominent midrib and leteral veins, younger leaves silky hairy, older ones glabrous. Inflorescence a spike, 5-10 cm long with pubescent rachis, somewhat lax. Flowers often distant in the axils of leaf bracts. Hypanthium 4-5 mm long, calyx lobes ovate, pubescent hirsute. Petals greenish or reddish, 4-6 mm in diam. Stamens bright red, long exserted, free or very shortly united at the base. Fruiting calyx slightly enlarged, fruit ovoid, c. 0.5 cm long, usually contracted at the top.

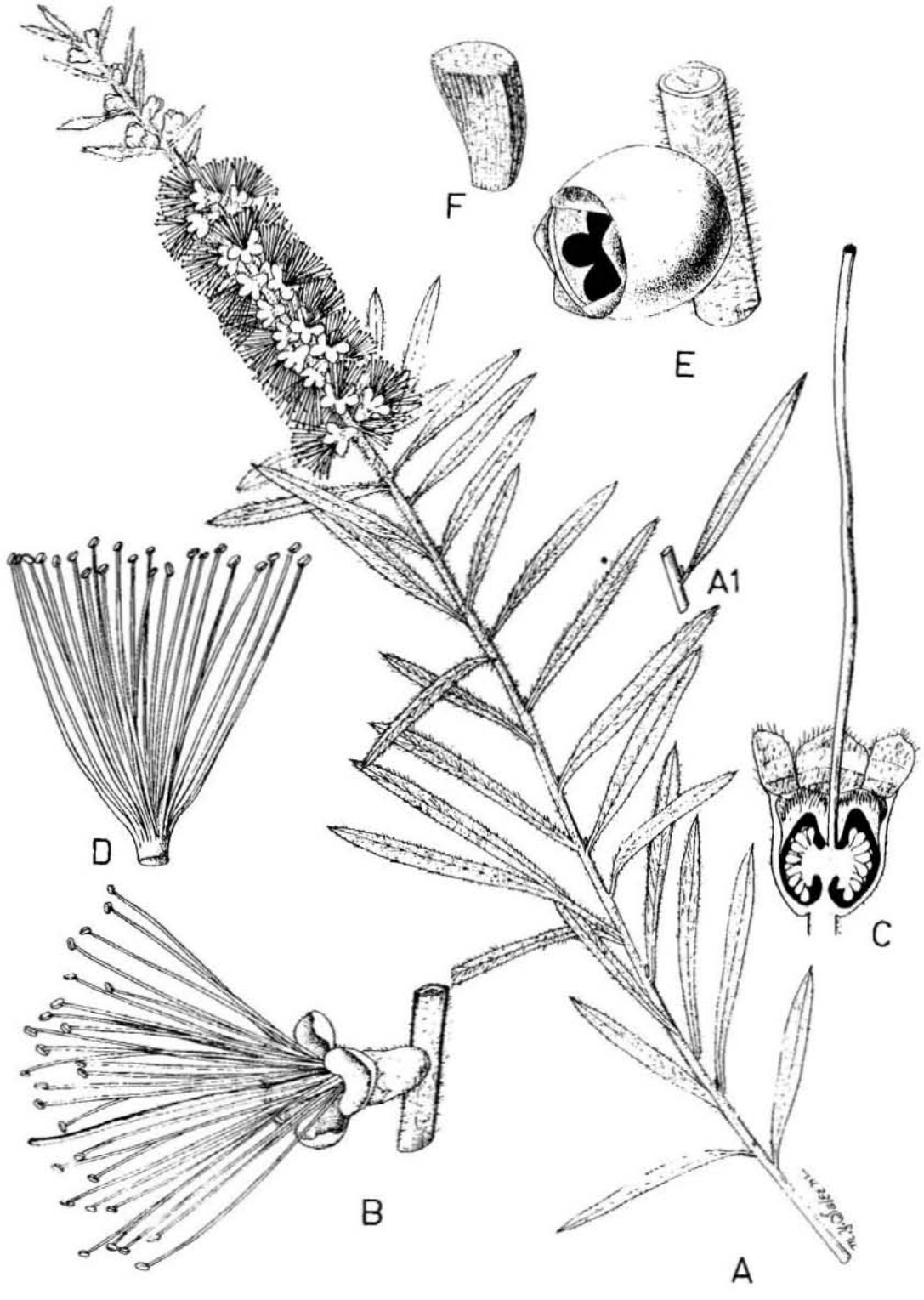


Fig. 11 **Callistemon citrinus:** A, a flowering branch x 0.5; B, flower x 4; C, v.s. of flower x 4; D, stamens x 3; E, fruit x 6; F, seed x 18.

Type: Described from Australia (probably from Queensland)

A-3 Tripoli, Al-Faateh University campus, 5.2.1978, *A. El-Gadi* 700 (ULT); id., cultivated garden ornamental with bright red stamens 21.8.1980, *M.A. Siddiqi* 412 (ULT).

Distribution: A native of Queensland and New South Wales, cultivated in Libya and other parts of the world as a garden ornamental.

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6. **MELALEUCA**

L., Mant. 1: 14. 1767 (*nom. cons.*)

Kajuputi Adanson, Fam. 2: 84. 530. 1763.

Shrubs or trees. Leaves simple, alternate or sometimes opposite usually small and crowded, 3-9-veined, thick in texture, with often 3-9-veins running parallel. Flowers arranged in spikes, heads, rarely solitary, usually the axis of spike continues to grow after flowering, bracteate. Calyx tube urceolate often adnate to the ovary at the base, limb 5-lobed, imbricate or open. Petals 5-orbicular, patent. Stamens much longer than the petals, united, few to many, in 5' bundles, anthers versatile, dehiscing longitudinally. Ovary inferior or sub inferior, enclosed in the calyx tube, 3-loculed, ovules numerous, style filiform with a peltate capitate or frequently very small stigma. Fruit a capsule, enclosed in the accrescent and hardened calyx, crowned by the free parts of the tube, opening loculicidally at the top into 3 valves. Seeds ± cuneate.

A genus of c. 100 species, distributed in Australia and Indo-Malayan region, represented in Libya by the following cultivated species.

Melaleuca preissiana Schau. in Lehm. Pl. Preiss. 1: 143. 1844; Benth. & Mueller, Fl. Aust. 3: 145. 1866; Chittenden, Dict. Gard. 3: 1278. 1965 (Fig. 12).

M. pubescens Schau in Walp. Rep. 2: 928. 1845, Keith, Prelim. Check List Lib. Fl. 660. 1965; *M. parviflora* Lindl. Swan Riv. App. 8. 1840 non Link 1822, Bailey, Stand. Encyclop. Hort. 2: 2022. 1961.

Tall shrub or small tree up to 6 m high. Young shoots ± pubescent becoming glabrous with age. Leaves alternate erect, spreading or recurved, lanceolate or broadly linear, acute, thick and coriaceous, obscurely veined, 13x2 mm. Flowers

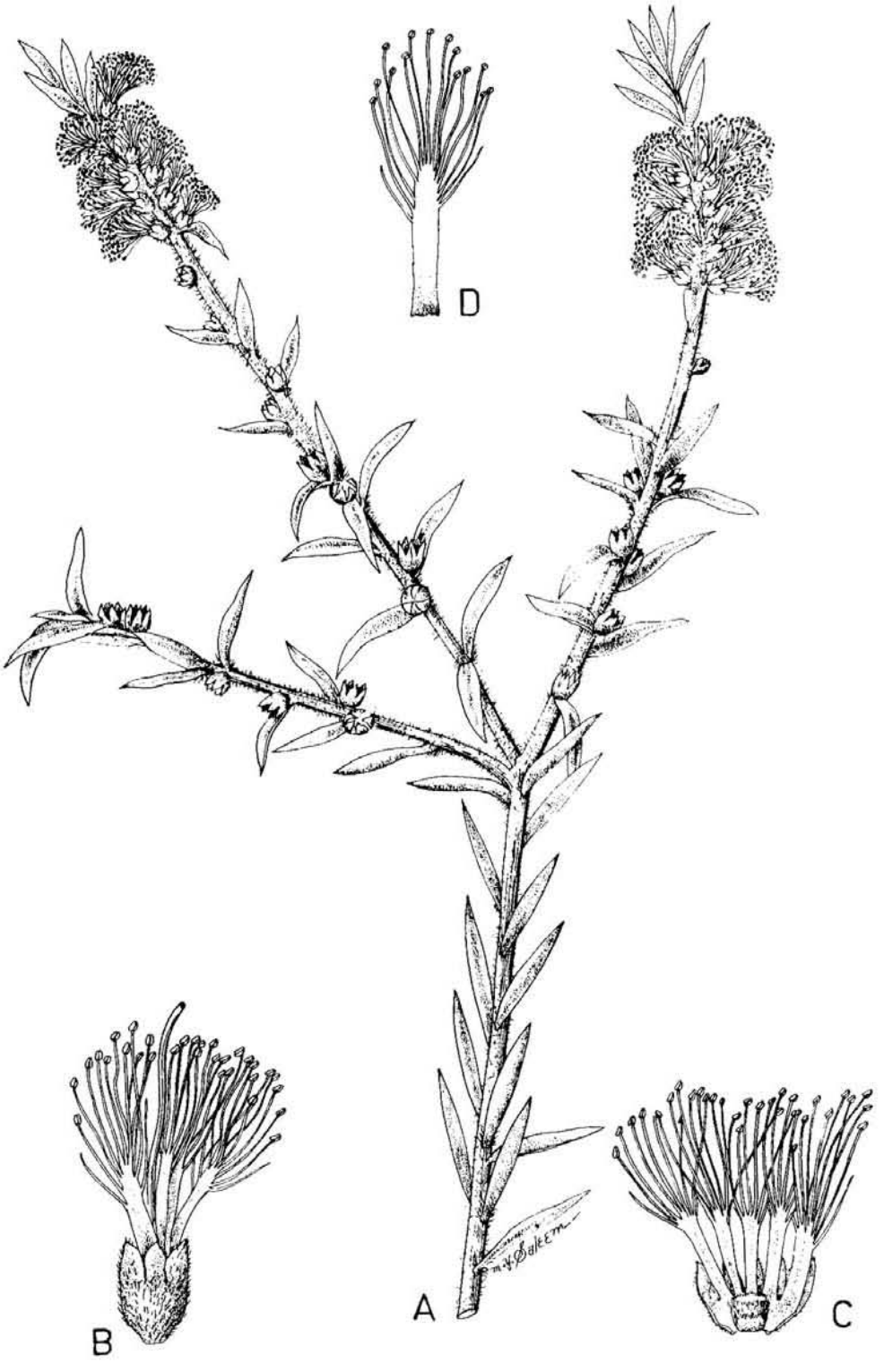


Fig. 12 **Melaleuca preissiana:** A, a flowering and fruiting branch x 0.5; B, flower x 6; C, dissected flower x 5; D, a bundles of stamens x 6.

small, yellowish or white, in lax cylindrical or oblong spikes, 4-10 cm long, the shoot growing on beyond. Calyx tube ± ovoid, c. 3 mm long, thick and coriaceous, lobes very short c. 1.5 mm long, persistent. Petals c. 1.5 mm wide or smaller. Staminal bundles 5-6 mm long, claws longer than petals, each with 10-12 or more filaments at the apex. Ovules many, on a broad peltate placenta. Fruit small, globose narrowed to the base.

Type: Described from Australia.

A-3 Tripoli, Faculty of Agriculture, AL-Faateh University. Flowers cream coloured, tree, 20.6.1981, M. Qaiser 7007 (ULT).

Distribution: A native of W. Australia. Cultivated as an ornamental plant in the tropical and sub tropical regions of the world.

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