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ANACARDIACEAE

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ANACARDIACEAE

M. A. SIDDIQI

Trees or shrubs (rarely climbers); bark resinous. Leaves alternate (rarely opposite), simple or compound, exstipulate. Flowers in panicles, hermaphrodite or polygamous, 5-merous, regular, hypogymous to perigynous. Sepals (3-) 5. Petals (3-) 5, usually imbricate, rarely absent (in *Pistacia*). Stamens 5-10 rarely less or more, situated at the margin of a disk or at base of ovary. Gynoecium 1-3 (-5) carpellary; carpels free or united, each with 1 anatropous ovule, often only one fertile, others abortive. Fruit a drupe with resinous mesocarp or a nut; seeds exalbuminous.

A family with c. 60 genera and nearly 600 species, mostly in tropical regions but some subtropical or in temp. Europe, Asia and America; represented here by 3 genera and 6 species, of which some are known from cultivation only.

- | | | |
|----|--|--------------------|
| 1. | + Petals absent. Stamens sessile or subsessile inserted at the base of the calyx | 1. Pistacia |
| | -- Petals present. Stamens with long filaments, free, inserted at the base of an annular nectariferous disk | 2 |
| 2. | + Leaves digittate or pinnate; buds naked. Stamens 5. Placentation basal | 2. Rhus |
| | -- Leaves pinnate; buds scaly. Stamens 10. Placentation apical i.e. ovules attached to the roof of the ovary | 3. Schinus |

1. PISTACIA

L., Sp. Pl. 1025. 1753; Gen. Pl. ed. 5: 450. 1754.

Dioecious trees or shrubs, deciduous or rarely evergreen, bark resinous. Buds scaly; leaves pinnate or ternate, sometimes reduced to 1 leaflet; leaflets entire. Flowers in lateral, axillary panicles, unisexual. Petals absent. Stamens 3-5 in male flowers. In female flower, ovary superior, 1-locular, placentation basal, style short, 3-lobed; one lobe of stigma usually larger than the others. Fruit a drupe with thin pericarp and hard endocarp (stone).

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A genus with c. 20 species, distributed in the subtropical and tropical regions of the world, represented here by 2 wild and 1 cultivated species, which is marked with an asterisk (*).

1. + Leaf rachis winged. Fruit not more than 5 mm in diam. 2
— Leaf rachis not winged. Fruit more than 5 mm i.e. up to 25 mm in diam. 1. **P. vera***
2. + Plant evergreen; leaves paripinnate; leaflets slightly mucronate; petiole glabrous 2. **P. lentiscus**
— Plant deciduous; leaves imparipinnate; leaflets not mucronate; petiole puberulent 3. **P. atlantica**

1. ***Pistacia vera** L., Sp. Pl. 1025. 1753; Durand & Barratte, Fl. Lib. Prod. 62. 1910; Pamp., Prodr. Fl. Cir. 313. 1931; Keith, Prelim. Check List Lib. Fl. 772. 1965.

P. reticulata Willd., Sp. Pl. 4: 751. 1797.

Deciduous shrub or small tree, 5-8 (-10) m tall. Leaves trifoliolate or imparipinnate, with leaflets 1-2 (-3)-paired, rachis scarcely winged; petioles pubescent; leaflets subsessile, coriaceous, smooth, pale green, glabrous and glossy above, dull beneath, puberulent or subglabrous, broadly elliptic or suborbicular-ovate, subacuminate or submucronate, rarely obtuse, (2.5-) 5-7 (-10) x (1-) 4-5 (-6) cm. Panicles straight 3.5-4.5 (-6) x 3-4 cm. Drupe (0.6-) 0.8-1.5 (-2) x 0.5-0.8 (-1) cm, oblong-linear, ovate, broadly ovoid to subglobose, apiculate, pink, reddish, dark red or dark violet, endocarp (stone) nearly always with oblique base, obtusely keeled at one side; seeds with large green edible cotyledon.

Type: Described from S. Europe (Sicily) from cultivated specimen.

A-3 6 km from Tarhuna (86 km from Tripoli) olive farm, 14.4.1972, *S. I. Ali* 188 (ULT).

Also reported from Tripoli by Durand & Barratte, (l.c.) and Keith, (l.c.)

Distribution: C. Asia, N. E. Iran, Afghanistan and coastal Mediterranean region.

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Fl. March-April *Vern.* Fustuq, fustug. *Eng.:* Pistachio

Grown for its edible Pistachio nuts and usually grafted on *P. atlantica* Desf.

2. ***Pistacia lentiscus*** L., Sp. Pl. 1026. 1753; Durand & Barratte, l.c. 62; Pamp., l.c. 312; Keith, l.c. 771. (Fig. 1).

Ever green small tree or shrub, 1-3 (-5) m tall. Leaves abruptly paripinnate; leaflets 2-4 (-5)-paired, oblong, lanceolate or oblanceolate obtuse, mucronulate, 1.5-3.5 (-5) x 0.6-1.5 cm, leathery; rachis distinctly winged; petiole glabrous. Inflorescence spike like, compact. Flowers yellowish purple or purplish. Fruiting panicle short stiff; drupe (3.5-) 5-8 x 5-7 mm, globular-obovate, somewhat compressed, obliquely apiculate.

Syntype: Described from Spain, Portugal & Italy, Herb. Linn. 1170/8 (LINN)

A-2 Safaet (c. 57 km from Garian) sandy ground, tree, cultivated field, slight slope, 9.4.1974, *S.I.Ali* 1801 (ULT); **A-6** c. 60 km from Benghazi on way to Baida, almost prostrate shrub, fruits turning red to black, common, 23.10.1975, *S.M.H.Jafri* 6014 (ULT); Near Taknis, Gebel Akhdar, 23.1.1967, *L. Boulos* 1384 (ULT); c. 55 km from Benghazi on way to Tokra, c. 1.5 m tall, dark brown soil, 17.6.1972, *S.I.Ali* 504 (ULT); 50 km from Benghazi on way to Al-Baida, subsaline soil along roadside, shrub, c. 2 m tall, 23.10.1975, *S.M.H.Jafri* 6013 (ULT); Al-Bakur, near Tocra, Gebel Akhdar, 10.3.1968, *L. Boulos* 2068 (ULT); **A-7** Gebel-el-Akhdar, 7 km from Shahat, tree, compound leaf, red flower, 26th. Feb. - 3 March, 1973, *Samira Tushani* s.n. (ULT); Al-Ghareeb, 10 km before Al Baida, a shrub with red fruits, very common, 16.10.1977, *M. A. Siddiqi & F. B. Ratib* 2 (ULT); Shahat foothills, 17.10.1977, *M. A. Siddiqi & F. B. Ratib* 5 (ULT); Shahat-Susa coastal road, 17.10.1977, *M. A. Siddiqi & F. B. Ratib* 12 (ULT); Ras-el-Hilal, a shrub with beautiful red fruits in bunches very common, *M. A. Siddiqi & F. B. Ratib* 109 (ULT); Wadi, Kouf, W. of Beida, 300 m. rocky gorge, 1-2 m. shrub, plants differ in leaflet numbers (2-4 pairs), 28 March 1970, *P. H. Davis* 50201 (ULT); 5 km E. Tocra, Gebel Akhdar, 17.1.1967, *L. Boulos* 1105 (ULT); Wadi El Hussaien, along the coastal road, Ras-El-Hilal - Shahat, Gebel Akhdar, 24.1.1967, *L. Boulos* 1429 (ULT); Wadi El Mahbool, 1.3.1973, *A.-S. Sharif* 90 (ULT), 10 km from Shahat on way to Susa, 28.2.1973, *S. I. Ali & S. A. Faruqi* 1025 (ULT); 5 km W. of Baida (El Marj - Beida) 300-350 m, limestone macchie (*Juniperus phoenicia* - *Pistacia lentiscus*) 25 March 1970, *P. H. Davis* 49951 (ULT); Suda, shrub, white flowers

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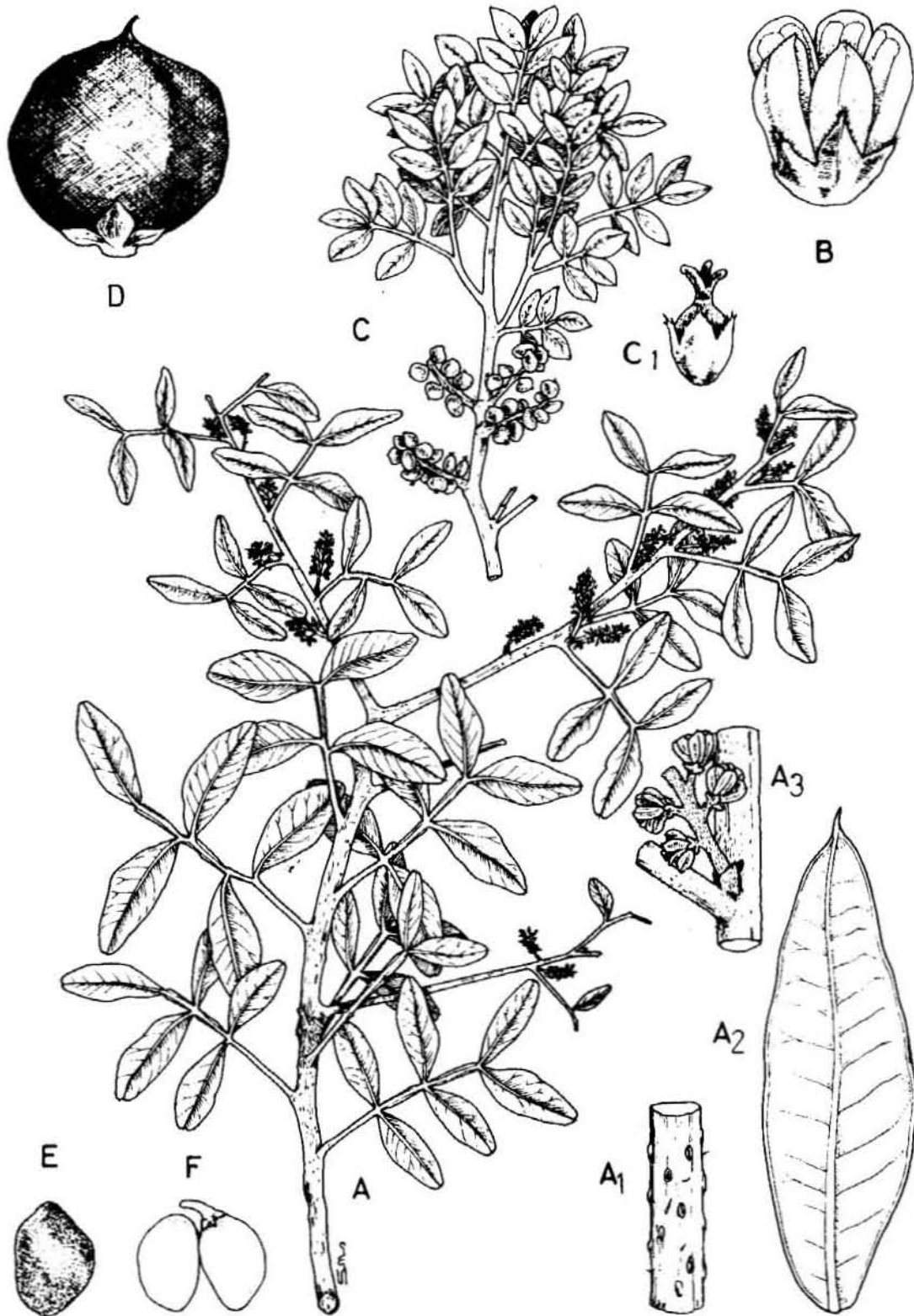


Fig. 1 **Pistacia lentiscus**: A, male flowering shoot x 0.5; A₁, portion of stem showing pubescence and lenticels x 3; A₂, leaf x 3, portion of inflorescence showing pubescence x 3; B, male flower x 10; C, fruiting branch x 0.5; C₁, female flower x 10; D, fruit x 6; E, seed x 3; F, embryo with 2 cotyledons x 3.

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male flowers only, 1.4.1973, *S. I. Ali & S. A. Faruqi* 1081 (ULT); 10 km from Shahat, on way to Susa 4.9.1974, *S. I. Ali & S. A. Faruqi* 1028 (ULT).

Distribution: Portugal, Canary Islands, N. Africa, Cyprus, Anatolia, Syria, Caucasia, Iran, Afghanistan and Pakistan.

Fruit is utilized for making chewing gum, sweets, Batum oil and alcohol.

Fl. March-April *Vern:* Baatoom, dhorru, Buttoon

3. ***Pistacia atlantica*** Desf., *Pl. Atl.* 2: 364, 1799; Durand & Barratte, *l.c.* 62; Pamp., *l.c.* 313; Keith, *l.c.* 770. (Fig. 2).

P. mutica Fisch. & Mey., in Hoen., *Enum. Pl. Talysch* 102, 1837.

Deciduous tree or shrub, 5-7 m tall with dense globose crown. Leaves imparipinnate, leaflets 2-4 (-5)-paired, very variable, orbicular-ovate, ovate-oblong or lanceolate, 2-4.5 x 0.5-1.8 cm, obtuse, emucronate, glabrous, dark green above, pale green beneath, margin ciliolate, rachis uniformly very narrowly winged; petioles puberulent. Flowers somewhat brownish arranged on long branches (paniculate). Drupes obovoid or sub-globose, (4-) 5-8 x 5-6 mm, reddish at first, brownish later.

A-2 Erhebat-Eshiab Zone, a tree, 6.6.1974, *B. Faris* 455 (ULT); **A-3** Gebel Nefousa, near Jefren 700 m. rocky calcareous fields, small trees, scaree, female pressed, 15 March, 1970, *P. H. Davis* 49540 (ULT); Near Ragrag Tejween, Gebel Nefousa, *M. Khalifa* s.n. (ULT); c. 10 km before Garian (Gebel Nefoussa range) dry west slopes, soil rocky, shrub, c. 2.5 m tall, inflorescence pale brown, 27.3.1977, *S. A. Alavi M.A. Siddiqi & M. Ahmed* 1178 (ULT); **A-6** Dariana, c. 4 km from Benghazi, 16.6.1972, *S. I. Ali* 455 (ULT).

Distribution: Canary Islands, Mediterranean region, N. Africa, Anatolia, Cyprus, N. E. Greece, Crimea, Caucasia, Iran, Afghanistan & Pakistan.

Seeds are used for tanning and for soap making; the gum is applied as an antiseptic to cure wounds as well as in making lacquer paint, and oil paint for the artists. Dried resin known as «Loban» is chewed in Libya, Iran and elsewhere.

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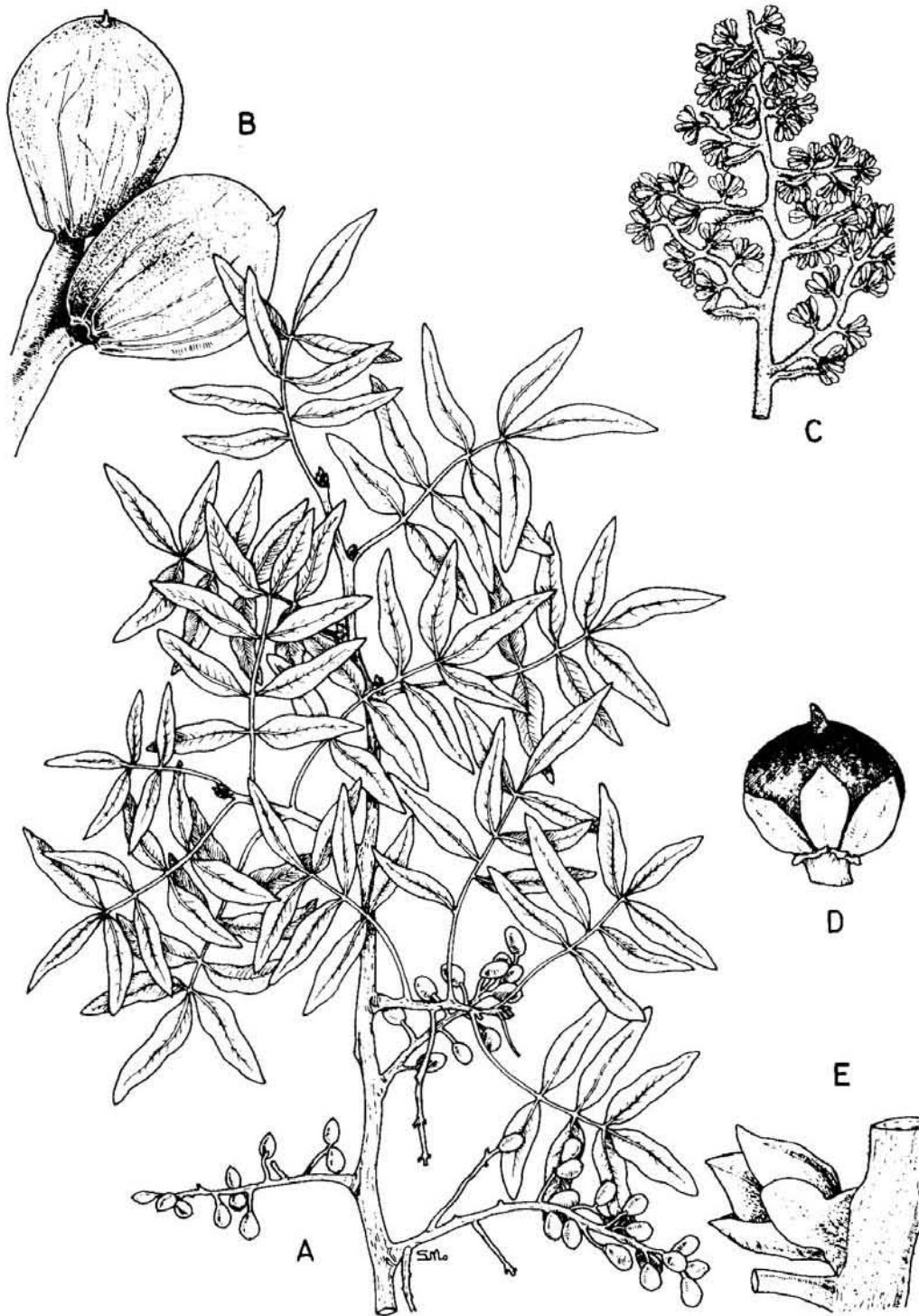


Fig. 2 *Pistacia atlantica*: A, fruiting shoot x 0.5; B, fruits x 4; C, male inflorescence x 2; D, female flower x 15; E, scaly leaf bud 4.

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Fl. March-April Vern.: Baatoom

2. RHUS

L., Sp. Pl. 265. 1753; Gen. Pl. ed. 5: 129. 1754.

Polygamous small trees or shrubs. Leaves usually deciduous, alternate, simple, ternate or imparipinnate compound with rounded or winged petioles. Flowers very small, 5-merous, in dense terminal panicles or terminal and lateral compound-spicate cymes. Sepals 5. Petals 5 spreading. Stamens 5, inserted on the orbicular disc; placentation basal; style short, terminal, 3-partite. Fruiting pedicel short. Fruit a small, reddish globose, one seeded drupe, with thin pericarp and cresty or bony, resinous endocarp, finally separating from the mesocarp; testa thin.

About 250 species, mostly in subtropical and warm temperate regions of the world; represented by 1 species in Libya.

Rhus tripartita (Ucria) Grande in Bull. Orto Bot. Napoli 5: 62. 1918; Pamp., l.c. 314; Corti, Fl. Veg. Fezzan 181.1942; Keith, l.c. 833; Tutin in Tutin et al, Fl. Europ. 2: 237. 1968 (Fig. 3).

Rhamnus tripartita Ucria in Roem., Arch. i. I: 68. 1796; *Rhus oxyacantha* auct., non Schousboe ex Cav. Icon. 111, 36. 1794; Durand & Barratte, l.c. 61.

Dioecious shrub, 1-2 m tall, with much branched stem bearing twisted, glabrous, brown and spiny branches. Leaves glabrous, ternate, the leaflets sessile, up to 10-15 (-30) x 3-10 mm, oblanceolate or cuneate-obovate, entire or 2-3-toothed. Flowers minute in small panicles. Calyx 5-lobed. Petals 5, ovate, pale green. Drupes dark or reddish brown, glossy, glabrous, somewhat globose and flattened.

Type: N. Africa, Arabia and Syria.

A-2 7 km from Shakshuk on way to Jadoo plains at base of mountains, sandy clayey soil with gravel, erect shrub, spiny, c. 2.5 m, flower yellowish-green, 27.11.1976, A. Ghafoor, S. A. Alavi — F. B. Ratib 176 (ULT); Wadi Al-Ramlah, 5 km N Al-Makili, 22.1.1967, Loutfy Boulos 1354 (ULT); **A-3** Msallata, c. 300 m, area between Gherreem and Emseendara, limestone, 20.1.1978, A. El-Gadi 627 (ULT); **A-6** km from Benghazi, on way to Baida, shrub up to 3 m tall, flower greenish, associated with *Pistacia lentiscus* L. common. 23.10.1975, S. M. H. Jafri 6051 (ULT); **A-7** c. 8

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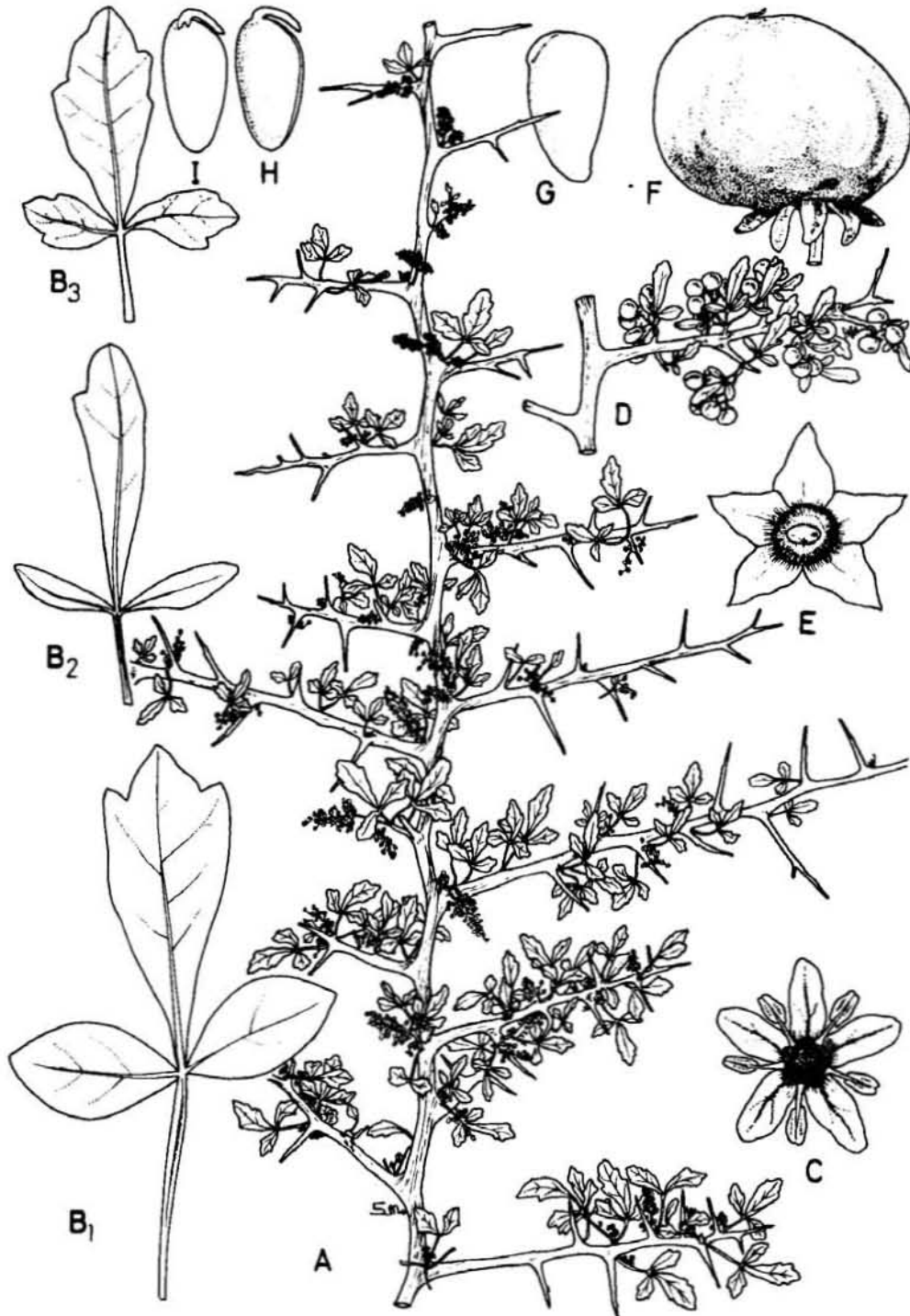


Fig. 3 *Rhus tripartita*: A, flowering shoot x 0.5; B₁-B₂, leaved variation x 2; C, male flower x 10; D, fruiting shoot x 0.5; E, female flower x 10; F, fruit x 5; G, seed x 3; H, seed without testa x 3; I, seed with one cotyledon showing embryo x 3.

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km S. Al-Gubba, 22.1.1967, *Loutfy Boulos* 1330 (ULT); **A-8** 2 km before Tamini (on way to Tobruk), a spiny shrub, flowers small, greenish, 18.10.1977, *M. A. Siddiqi & F. B. Ratib* 53 (ULT); **B-1** Al Ghazaya towards Wazzen, off the road, 25.1.1977, *M. A. Siddiqi* 266 (ULT); **B-2** Kabao mountain ascent along the road, a spiny shrub with dark brown or purplish brown fruits in clusters, 26.1.1977, *M. A. Siddiqi & F. B. Ratib* 358 (ULT); Wadi Boraghwa, Cabaw, rocky soil, 7.6.1975, *B. Faris* 529 (ULT); **B-4** 2 km east Bugrein, 27.1.1967, *L. Boulos* 1501 (ULT).

Distribution: Dry places in Sicily, Malta, N. Africa, S. W. Asia.

Fl. October-January *Vern.*: Ijdari

3. SCHINUS

L., Sp. Pl. 388.1753; Gen. Pl. ed. 5: 184. 1754.

Resinous polygamous or dioecious trees or shrubs with scaly buds. Leaves alternate, pinnate, leaflets sessile. Inflorescence axillary or terminal paniculate cymes. Flowers bracteate, small, pentamerous. Calyx 5-lobed. Corolla with 5 imbricated petals, whitish. Disc broad, annular, or cushion shaped in male and cup shaped in female flowers, usually 10-lobed, placentation apical. Stigma 3-fid. Fruit a globose drupe with a hard endocarp, an oily mesocarp and a papery exocarp.

A genus with 30 species extending from Mexico to Argentina; represented by 2 cultivated species in Libya. Cultivated mostly for shade or ornamental purposes.

- | | |
|--|---------------------------------------|
| + Branches rigid and erect. Leaflets 2-4 pairs, oblong or broadly lanceolate. Inflorescence dense. Drupe 3-4 mm in diam., bright red | 1. <i>S. terebinthifolius</i> |
| — Branches drooping. Leaflets 7-13 pairs, linear lanceolate, Inflorescence lax, much branched. Drupe 5-7 mm in diam., pink or rosy | 2. <i>S. molle</i> var. <i>ariera</i> |

1. **Schinus terebinthifolius* Raddi, Mem. Mat. Fis. Soc. Ital. Sci. 18 (Fig.): 399. 1820; Dinsmore in Post, Fl. Syr. Pal. & Sin. 1: 287. 1932; Keith, l.c. 869. (Fig. 4, A-C2).

Evergreen medium sized tree or shrub, branches stiff and rigid not drooping. Leaves imparipinnate, rachis winged in upper part, leaflets 2-4 pairs, oblong-ovate,

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25-45 x 8-22 mm. Inflorescence dense paniculate. Drupe small 3-4 mm, scarlet red.

Type: Described from Brazil (S. W. Brazil, Paraguay).

A-3 Tripoli, near Qasr-Asha'ab, an ornamental small tree with beautiful small red fruits in bunches, 26.12.1976, *M. A. Siddiqi & M. Y. Saleem* 259 (ULT); Agriculture Faculty, Al-Faateh University, a cultivated small tree, 28.10.1977, *M. A. Siddiqi* 270 (ULT).

Distribution: S. W. Europe.

A tree cultivated for shade as well as for its beautiful fruits which are of highest decorative value.

Fl. October-November *Vern.* Filfil *Eng.* Brazilian pepper tree, Christmas-berry tree.

2. **Schinus molle* L., *Sp. Pl.* 388. 1753; Durand & Barratte, l.c. 61; Keith, l.c. 869.

var. *areira* (L.) Fiori in *Nouv. Fl. Anal. Ital.* 2: 119. 1969 (Fig. 4, D-F).

S. areira L., *Sp. Pl.* 389. 1753.

Evergreen medium sized tree, 6 (-10) m tall. Branches drooping, slender. Leaves pinnate with 7-13 pairs of leaflets, alternate below, subopposite above, 3-30 x 1.5-6 mm, ± entire, rachis distinctly winged, strongly aromatic when crushed. Inflorescence much branched, lax, paniculate cymose. Flowers small; petals cream-coloured with yellow centres. Drupes 5-7 mm, globose, pink.

Type: Described from Peru.

A-3 Tripoli, Agriculture Faculty, Al-Faateh University, a cultivated ornamental tree, 28.10.1977, *M. A. Siddiqi* 269 (ULT).

Also reported to be cultivated in Kufra by Durand & Barratte (l.c.)

Distribution: C. & S. America, from Mexico to N. Chile & N. Argentina.

A native of S. America introduced as an ornamental and a roadside tree for its beautiful foliage and pink fruits.

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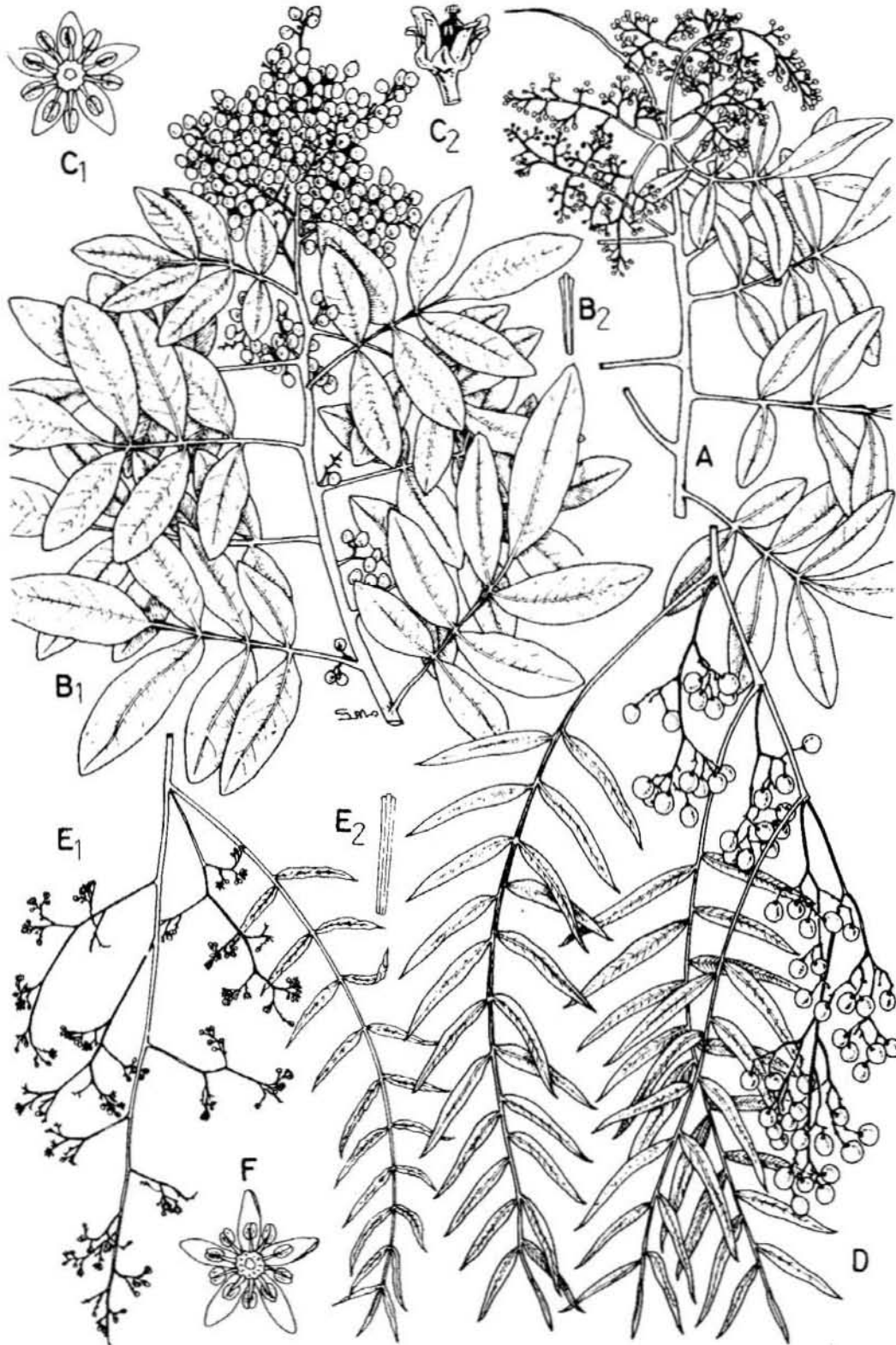


Fig. 4 *Schinus terebinthifolius*: A, flowering shoot x 0.5; B, fruiting shoot x 0.5; B₂, portion of upper winged rachis x 1; C₁, male flower x 5; C₂, female flower x 5. *Schinus molle* var. *areia*: D, fruiting branch x 0.5; E₁, flowering branch x 0.5; E₂, portion of uniformly winged leaf rachis x 1; F, male flower x 5.

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Fl. October-December. *Vern.* Filfil Rafih, Shajarat-ul-fil. *Eng.* California Pepper tree, Peruvian Mastic tree, Pepper tree.

The type variety does not occur here and it differs from var. **areira** (L.) Fiori in its dentate leaflets.

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