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LYTHRACEAE

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LYTHRACEAE

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Herbs, shrubs or trees. Leaves opposite or verticillate, rarely alternate, simple, stipulate or exstipulate. Flowers arranged in axillary, dichasial spikes or panicles, often with 2-bracteolate pedicels. Flowers actinomorphic or zygomorphic with a cup-shaped, or cylindrical persistent hypanthium. Heterostyly and dimorphic flowers occur in some genera. Calyx 3-16-lobed, usually with accessory teeth. Petals as many as sepals, sometimes fewer or none. Stamens numerous or rarely one, inserted at various levels in the calyx tube. Gynoecium 2-6-carpellary; gynophore sometimes present. Ovary (1-) 2-6-celled; ovules many on axile or thick basal placentas (when the ovary is 1-celled, the ovules arise from parietal placentas); style 1. Fruit a septicidal or irregularly dehiscent capsule, surrounded by the persistent calyx. Seeds exalbuminous.

A family of 25 genera and about 550 species, widely distributed in tropical and temperate regions of the world; represented by 4 genera and 9 species in Libya, of which 2 genera and 2 species are known from cultivation and are marked with an asterisk (*); occurrence of the rest of the taxa seems very rare.

- | | | |
|----|---|--------------------|
| 1. | +Annual or perennial herbs | 2 |
| | –Shrubs or trees | 3 |
| 2. | +Upper leaves opposite. Calyx teeth 4, accessory teeth minute or lacking. Petals very small or lacking. Fruiting hypanthium globular or hemispherical | 1. Ammannia |
| | –Upper leaves alternate. Calyx teeth 6, accessory teeth prominent. Petals usually conspicuous. Fruiting hypanthium cylindrical to campanulate | 2. Lythrum |

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3. +Calyx-lobes 4; stamens 8; stigma simple.
Fruit irregularly dehiscent 3. **Lawsonia***
–Calyx-lobes 6; stamens indefinite; stigma
capitate. Fruit a septicidal capsule 4. **Lagerstroemia***

1. **AMMANNIA**

L., Sp.Pl.119.1753; Gen.Pl.ed.5: 55.1754

Erect or procumbent, hygrophilous annual herbs. Leaves opposite or verticillate rarely alternate, at least upper ones opposite. Flowers in (1-) 3-flowered axillary cymes, 4-merous, small, subsessile or pedicellate. Calyx herbaceous, 8-nerved, campanulate or urceolate, hemispherical or spherical after anthesis, outer teeth (appendages) absent or very small. Petals 4 or absent, obovate or orbicular, fugacious. Stamens (2-) 4-8. Ovary sessile, globose, enclosed in the hypanthium; placentation axile; style absent or short. Capsule globose or ellipsoid, thinly membranous, irregularly circumscissile dehiscent, many seeded. Seeds minute, with leathery coat.

About 30 species, distributed in the tropical and subtropical regions of the world; represented here by the following species only.

Ammannia senegalensis Lam., Illustr. n. 155 t. 77. f. 2.1791; Corti, Fl. Veg. Fezzan & Gat. 199.1942; Keith, Prelim. Check List Lib. Fl. 220.1965.

An erect or procumbent, hygrophilous, polymorphic herb, up to 60 cm tall. Stem usually slender, wiry, quadrangular or narrowly winged. Leaves opposite, lanceolate to linear, sessile, auriculate and amplexicaul at the base, up to 5 cm long. Flowers in pedunculate axillary umbellate cymes, subsessile. Petals 4 or absent, pink, caducous. Stamens 4. Capsule globose, almost double the length of calyx.

Type: Described from Senegal.

Reported from Ghat by Corti (l.c.)

Distribution: N. & S. Tropical Africa, Palestine.

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2. LYTHRUM

L., Sp.Pl.446.1753; Gen.Pl.ed.5:205.1754

Annual or perennial, usually hygrophilous herbs. Leaves opposite or whorled below, alternate above. Flowers solitary or paired, axillary or terminal, paniculate-spicate, heterostylous, $\pm$ zygomorphic, purple or pink. Calyx tubular or tubular-campanulate, 4-6-toothed; teeth usually very short and alternating with as many as accessory teeth. Petals 4-6, inserted at the top of the calyx-tube, very rarely absent. Stamens 2-12, in 1 or 2 whorls, inserted at the bottom or middle of the calyx; calyx-tube, longer or shorter than the ovary, or subobsolete; stigma subglobose or capitate. Capsule bilocular, dehiscent by 2-valves. Seeds many, triangular.

A genus of about 35, cosmopolitan species; represented by 6 species in Libya.

- | | | |
|----|--|----------------------------|
| 1. | +Hairy, tall perennial herb. Inflorescence subspicate | 1. L. salicaria |
| | –Glabrous or glabrescent small annual (rarely perennial) herbs. Flowers axillary, usually solitary axillary or in pairs | 2 |
| 2. | +Stamens 12, exserted | 2. L. junceum |
| | –Stamens 2-6, included | 3 |
| 3. | +Calyx teeth 0.5 mm; sometimes almost obsolete; the outer accessory teeth $\pm$ as long as the inner calyx teeth, triangular, obtuse | 3. L. tribracteatum |
| | –Calyx (inner) teeth longer than above | 4 |
| 4. | +Calyx teeth subulate, as long as the outer accessory teeth, or somewhat shorter; stamens 5-6. Stem erect | 4. L. hyssopifolia |
| | –Calyx (inner) teeth broadly ovate, apiculate, much shorter than the outer additional teeth. Stamens usually 2. Stem prostrate or procumbent | 5. L. thymifolia |

1. **Lythrum salicaria** L., Sp. Pl. 446. 1753.

L. biflorum (Salzm.) J. Gay, in Ann. Sc. Nat. Ser. 1.26:277.1832; Keith,

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Prelim. Check List Fl. Lib. 633. 1965.

L. salicaria var. *tomentosum* DC., Cat. Hort. Monsp. 123. 1813.

Erect perennial, 40-100 (-150) cm tall, subglabrous to densely pubescent; stem usually with 4-5 raised lines; leaves mostly opposite in whorls of 3, ovate, lanceolate, acute to acuminate with cordate-amplexicual base, 6-60 x 2.5-15 mm. Spikes 9-45 cm long, flowers trimorphic in the axils of small bracts. Hypanthium 12-ribbed, 4.5 x 1.5-2 mm broadly tubular; accessory lobes 2.5-3 mm, subulate, longer and narrower than or equalling calyx teeth. Petals 5.5-8.5 (-10) mm long, obovate-spathulate or obovate-lanceolate, reddish purple; stamens 12, some or all exserted; ovary subsessile, 2-5 mm long. Capsules 3-4 mm long, ovoid; seeds obovate, tip $\pm$ membranous.

Type: Described from Europe. Herb. Linn. 626/1 (LINN)

Distribution: Europe, S.E. and C. Asia, Siberia, N. Africa, N. America, Australia.

Keith (l.c.) reported *L. biflorum* (Salzm) Gay from west of El-Marj. We have not seen any authentic specimen of this taxon which has been considered tentatively as a synonym of *L. salicaria*.

2. **Lythrum junceum** Banks & Soland in Russell, Nat. Hist. Aleppo, ed. 2, 2:252. 1974; Davis, Fl. Turk. 4:176. 1972; Meikle, Fl. Cyperus 1.665. 1977. (Fig. 1)
L. graefferi Ten., Fl. Nap. Prodr. 48. 1811; Pamp., Pl. Trip. 159. 1914; Keith, l.c. 633.

Erect or ascending glabrous perennial, 30-60 cm long, usually much branched near the base. Leaves alternate above, linear lanceolate to linear, opposite below, elliptic-oblong, sessile or very shortly petiolate, 1-4 x 0.2-1 cm, obtuse to subacute. Bracteoles small, narrowly subulate, membranous. Flowers 1-1.5 cm across, heterostylous, solitary, sub sessile; hypanthium cylindrical to obconical, 5-7 (-9) x c. 2 mm, 10-12 nerved, occasionally with red or purple spots in the middle. Accessory lobes 6, usually deltoid, acute, 0.7 x 0.5 mm. Sepals 6, somewhat shorter than the accessory lobes. Petals 6, inserted at the apex of hypanthium, up to 1 cm long, pink or purplish, obovate. Stamens 12, 6 exserted and 6 included in the hypanthium; anthers yellow, broadly oblong, c. 0.5 mm long. Capsules cylindrical dark brown c. 5 x 1.5 mm. Seeds broadly ovoid c. 0.8 x 0.6 mm, gibbous or strongly convex on the dorsal surface, rugulose.

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Fig. 1 *Lythrum junceum*: A & B, habit x $\frac{1}{2}$; C, flower x 5.

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Type: Syria; near Aleppo. *Russell* (BM).

Pampanini (l.c.) and Keith (l.c.) reported from Garian.

Distribution: Widespread in Atlantic Islands, Mediterranean region, Africa, Asia.

Fl.: June-Sept.

33. ***Lythrum tribracteatum*** Salzm. ex Sprengel, Syst. Veg., 4 (2):190.1827; Durand & Barratte, Fl. Lib. Prodr. 98.1910; Pamp., Fl. Cir. 335.1931; Keith, l.c. 634. (Fig. 2)

Glabrous, erect, ascending or prostrate annual, 5-20 (30) cm long, usually branched from the base; stem distinctly 4-angled or $\pm$ winged. Leaves opposite below, alternate above, sessile, linear oblong to linear, 0.5-2 x 0.1-0.5 cm, tapering at the base. Bracteoles as long as the hypanthium or much shorter. Flowers 4-5 mm across, solitary axillary along the main leafy branches. Hypanthium narrowly funnel shaped, c. 4 mm long. Accessory lobes 6, small, bluntly deltoid, less than 0.5 mm long; calyx teeth broadly deltoid, less than 0.5 mm long. Petals rosy purple, 2.5-3 x 1 mm with rounded apex, obovate-oblong. Stamens 4-6 included. Capsules narrow, enclosed within the hypanthium, swollen at the base c. 5 x 1.3 mm. Seeds broadly ovoid, compressed, 0.6 x c. 0.5 mm, minutely rugulose.

Type: Described from Montpellier (France).

Reported from Benghazi by Durand & Barratte (l.c.).

Distribution: Mediterranean Europe, Aegean Island, N. & S. Africa and Asia.

Fl.: May-Sept.

4. ***Lythrum hyssopifolia*** L., Sp. Pl. 447. 1753; Durand & Barratte, l.c. 97; Pamp., l.c. 159; Il.cc. 335; Keith, l.c. 633. (Fig. 3)

Annual, glabrous, with erect or decumbent stem, 6-20 (-30) cm long, sometimes diffusely arranged. Leaves alternate, linear or narrowly oblong, 1-2.5 x 0.2-0.5 mm, sessile or subsessile, sometimes papillose with subobtuse or acute apex. Flowers solitary axillary, shortly pedicellate, c. 8 mm across, subtended by 2 small, caducous

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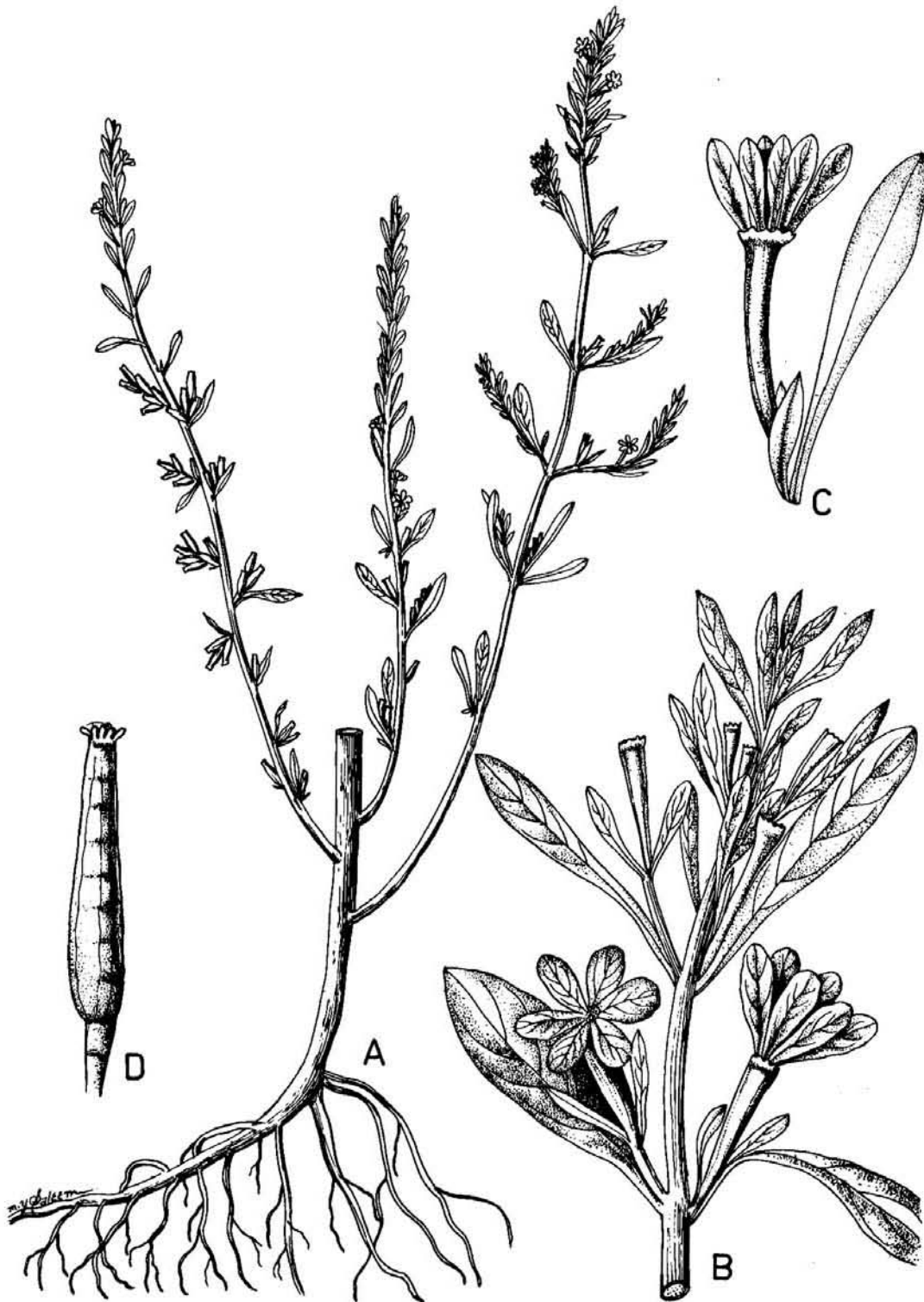


Fig. 2 **Lythrum tribracteatum**: A, habit x $\frac{1}{2}$; B, flowering branch x 6; C, flower x 8; D, fruit x 8.

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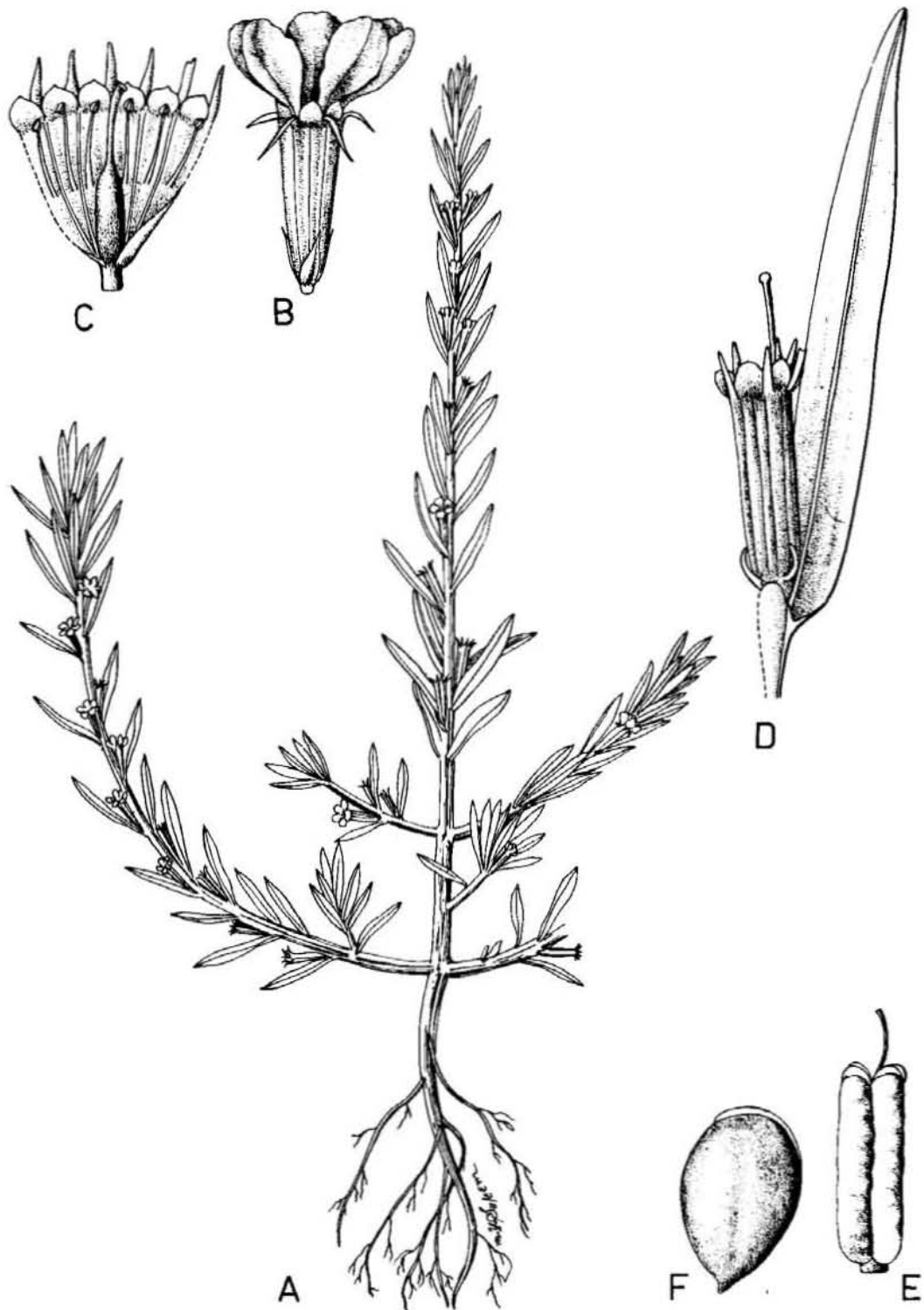


Fig. 3 ***Lythrum hyssopifolia*** : A, habit x 1; B, flower x 5; C, dissected flower x 5; D, part of flowering branch showing a flower with corolla removed x 6; E, fruit x 5; F, seed x 20.

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bracteoles; homostylous; hypanthium c. 5 mm long, tubular or narrowly funnel shaped. Accessory lobes 4-6, narrowly deltoid. Sepals 4-6, broadly deltoid, much smaller than the accessory lobes. Petals 4-6, shorter than the hypanthium, oblanceolate, 2.5-3 mm long. Stamens (1-) 2-6 (-8), included. Capsules enclosed within the hypanthium, dark brown; seeds ovoid, c. 0.8 x 0.6 mm, shortly winged at one end, rugulose.

Syntypes: "in Germaniae, Helvetiae, Angliae, Galliae inundatis".

Reported from Tripoli by Durand & Barratte (l.c.) and from Derna etc. by Pampanini (l.c.).

Distribution: C. & S. Europe to C. Asia. N. Africa, Atlantic Islands, Australasia, parts of tropical and S. Africa, N. & S. Americas.

Fl.: May-Sept.

5. **Lythrum thymifolia** L., Sp. Pl. 447. 1753; Boiss., Fl. Orient 2:740. 1872; Durand & Barratte, l.c. 97; Keith, l.c. 634. (Fig. 4)

Prostrate or procumbent, glabrous annual, usually somewhat scabrid, 5-12 cm long. Leaves alternate, linear, lower ones usually oblong-lanceolate, 0.6-2 x 0.15-0.3 cm. Bracteoles 2, minute, much smaller than the hypanthium, caducous, linear lanceolate. Flowers 5-7 mm long, 4-5-merous, solitary axillary, $\pm$ sessile. Hypanthium 4-5 mm long, obconical, 8-nerved. Accessory lobes 4, triangular, lanceolate, acute, longer than the calyx teeth. Sepals 4, broadly ovate, apiculate. Petals 1-3 mm long, pinkish violet-white, obovate-oblong. Stamens included within the hypanthium. Capsules enclosed by the hypanthium, 4-5 mm long, oblong.

Type: Described from Italy and France. Herb. Linn. 626/19 (LINN).

A-7 Ain Mara, an annual herb, fls. pink, 13.4.1979, *Ramadan, Fathi & Siddiqi* 2290.

Durand & Barratte (l.c.) and Keith (l.c.) also reported this from Tripoli.

Distribution: Euro-Siberian, Mediterranean and Irano-Turanian.

Fl.: May-July

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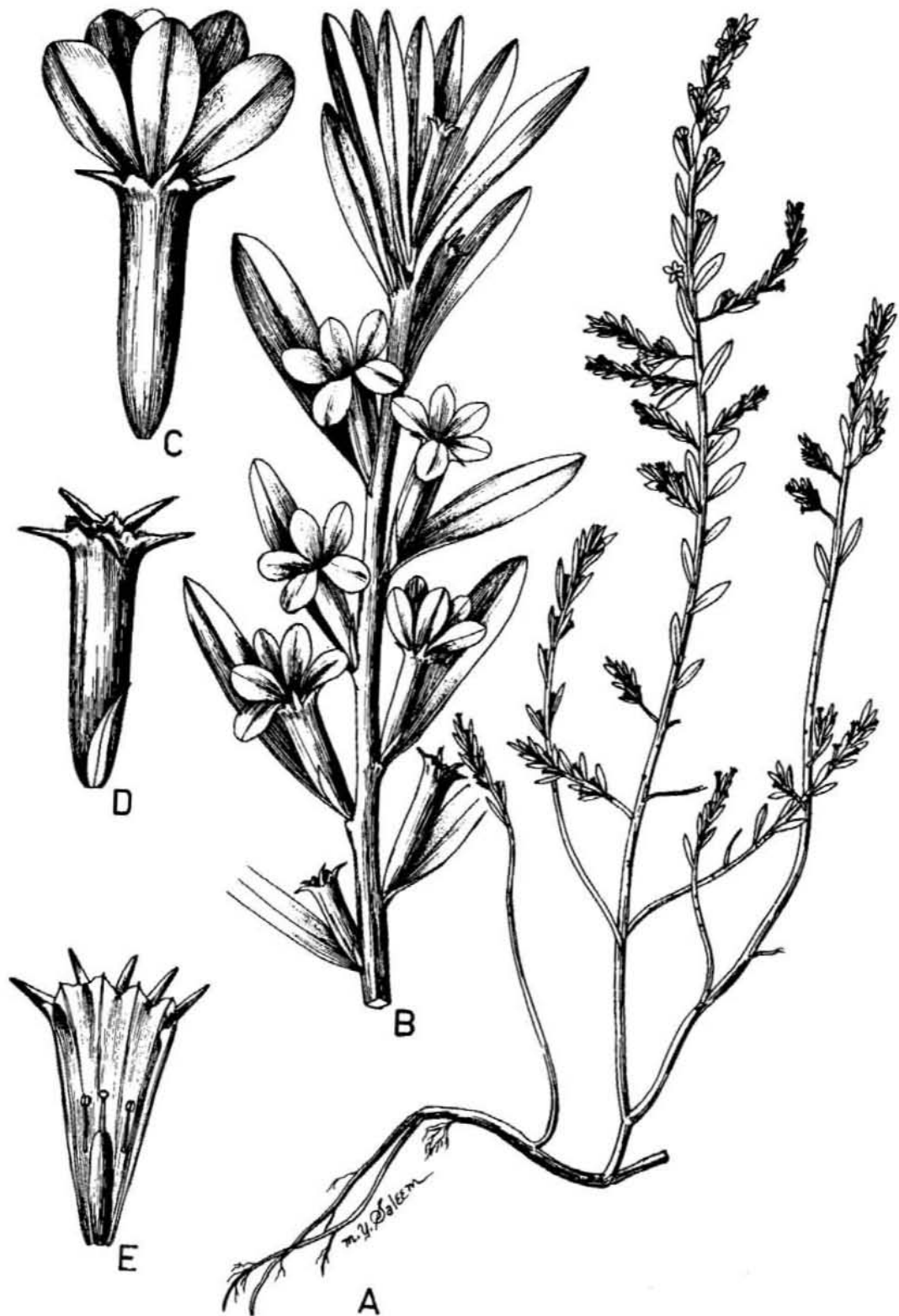


Fig. 4 ***Lythrum thymifolia***: A, habit x $\frac{1}{2}$; B, flowering branch x 4; C, flower x 8; D, calyx x 8; E, dissected flower x 8.

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3. LAWSONIA

L., Sp.Pl.349.1753; Gen.Pl.ed.5.166.1754.

Shrub. Leaves simple, opposite. Flowers arranged in loose terminal leafy paniculate racemes. Flowers 4-merous. Calyx tube very short, broadly turbinate, 4-angled; lobes 4, spreading, ovate, without accessory teeth. Petals 4, corrugated, broadly obovate, sessile, inserted at the top of calyx tube. Stamens 8, alternating with petals in pairs, filaments $\pm$ thick. Ovary subglobose, 4-locular, ovules many in each loculus; style filiform; stigma capitate. Capsules globular, 1-or incompletely 4-loculed, irregularly dehiscent at maturity. Seeds many, pyramidal (cuneate angular), testa thick.

A monotypic and chiefly paleotropic genus.

Lawsonia inermis L., Sp. Pl. 349.1753; Keith, l.c. 601. (Fig. 5)

L. alba Lam., Encycl. Meth. Bot. 3: 106.1789; *L. spinosa* L., l.c. 349; *Rotanthe combretioides* Baker in Journ. Linn. Soc. 24:317. t. 41.1890.

Bark thin, greyish-brown, branchlets angular, older branches spinescent. Leaves elliptic or oblanceolate, tapering at both ends, 2-3.5 x 0.5-1 cm, glabrous, leathery, entire and acute; petioles 1-2 mm long. Flowers dirty white, fragrant, arranged in 10-15 cm long panicles, with leafy bracts. Pedicels 2-3 mm long. Sepals 4, persistent, ovate, c. 1.5 mm long. Petals 4, wrinkled, 2-2.25 x 1.25-1.25 mm. Stamens 8, inserted in pair between the petals, exserted. Capsules globose, 5-6 mm in diameter with persistent style. Seeds many, smooth, c. 2.25 mm, angular and pyramidal.

Type: Described from India & Egypt. Herb. Linn. 496.1 (LINN).

A-3 Tripoli, garden behind Faculty of Agriculture, Al-Faateh University, a cultivated shrub, 28.10.1977, *M.A. Siddiqi* 271 (ULT).

Distribution: Africa, Asia and Australia.

Naturalized and cultivated in tropical and sub-tropical countries for its fragrant flowers and the leaves which yield an orange red dye used for dying cloth, hairs, hands and feet, also in medicine.

Fl. Oct.-Nov.

Vern. Henna

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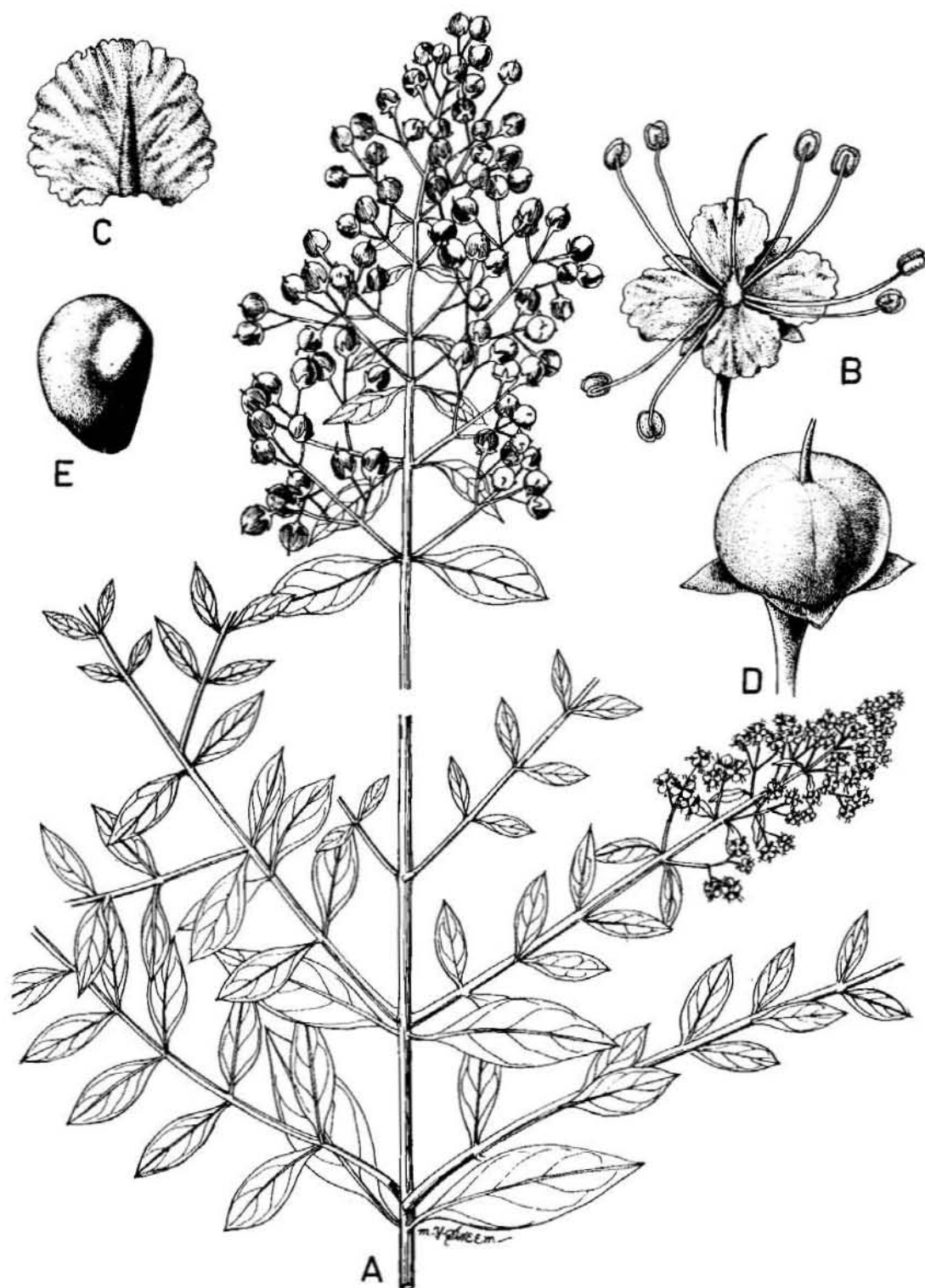


Fig. 5 *Lawsonia inermis*: A, fruiting branch x $\frac{1}{2}$; B, flower x 6; C, petal x 8; D, fruit x 5; E, seed x 10

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