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CONVOLVULACEAE

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CONVOLVULACEAE

M. A. SIDDIQI

Herbs, sometimes shrubby or woody, often twining, rarely thorny and xerophytic, with tuberous roots or stem, usually containing latex. Leaves exstipulate, alternate, simple or compound. Flowers usually large and showy, solitary and axillary or in axillary clusters, regular, hermaphrodite, hypogynous, pentamerous and bracteate. Calyx free rarely united, imbricate, sometimes zygomorphic, persistent. Corolla gamopetalous, actinomorphic, variously shaped usually infundibuliform, campanulate or salverform; lobes 5, contorted in bud. Stamens 5, inserted at the base of the corolla-tube and alternate with the lobes, introrse. Intrastaminal disk usually present, annular or cupshaped. Ovary usually bicarpellary, syncarpous, bilocular; placentation axile with 1-2, anatropous ovules in each locule; style terminal with 1-2(-3)-lobed stigma. Fruit a loculicidal capsule. Seeds sometimes hairy.

A family of c. 47 genera and nearly 1100 species, chiefly in warm temperate regions; represented here by 3 genera and 17 species. It includes many ornamental, medicinal and food plants.

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|----|--|-----------------------|
| 1. | + Styles 2, free (not forked); anthers and stigma exerted beyond the corolla-tube | 1. <i>Cressa</i> |
| | — Style 1, (sometimes forked); anthers and stigmas included within the corolla-tube | 2 |
| 2. | + Outer sepals not much exceeding the inner; stigma filiform, often revolute or forked; pollen grains smooth | 2. <i>Convolvulus</i> |

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— Outer sepals much exceeding the inner; stigma
capitate, bilobed, globose (or 3 globose). Pollen
grains spinulate

3. *Ipomoea*

1. *CRESSA*

L., Sp. Pl.: 223. 1753; Gen. Pl. ed. 5: 104. 1754.

Prostrate or ascending, much-branched, small perennial herbs. Leaves small, sessile, entire. Flowers small, subsessile, bracteate in terminal spike-like clusters. Sepals obovate, unequal, imbricate, Corolla lobed to the middle, tube campanulate, lobes ovate, imbricate, spreading. Stamens and styles exerted; filaments filiform. Ovary 2-locular, 4-ovuled. Styles 2, free to the base; stigmas large, capitate. Fruit a 2-4-valved, usually 1-seeded capsule. Seed glabrous and shiny, dark brown.

About 5 tropical and subtropical species; represented by 1 species in Libya.

Cressa cretica L., Sp. Pl. 223. 1753; Durand & Barratte, Fl. Lib. Prodr. 166. 1910; Pamp., Prodr. Fl. Cir. 370. 1931; Ozenda, Fl. Sahara, 378. 1958; Keith, Prelim. Check List Lib. Fl. 394. 1965. (Fig. 1)

Perennial, usually spreading herb, much branched and somewhat woody below; branchlets slender, with long patent intermixed with short retrorse grey hairs, very leafy, up to 5 cm long. Leaves small, sessile, ovate-lanceolate, 1.5-5.5 x 1-5.5 mm, acute cuneate, rounded or sometimes subcordate at the base, grey-green, sericeous. spike-like clusters, up to 1.5-2 cm long. Calyx as long as the corolla tube, pubescent. Corolla tube 4-5 mm long, lobes oblong-ovate, as long as the tube. Style and stamens exerted 2.5-3.5 mm from tube; anthers 0.5 mm long. Capsule ovoid, 3-3.5 mm long, 1-seeded, 2-valved; seeds oblong-ovoid, 2 x 1 mm, dark brown or almost black.

Type: Crete, Herb. Linn. 317.1 (LINN.).

A-6 Near Benghazi, sandy saline wet ground, common, 27.10.1975, *S. M. H. Jafri* 6170 (ULT); id, 21.10.1977, *M. A. Siddiqi & F. B. Ratib* 128 (ULT); **E-8** El-Gof, Kufra Oasis, common in sand between fields, 7.10.1968, *L. Boulos* 3180 (ULT); **G-8** Gebel Uweinat, 7.11.1968, *L. Boulos* 3180 (ULT).

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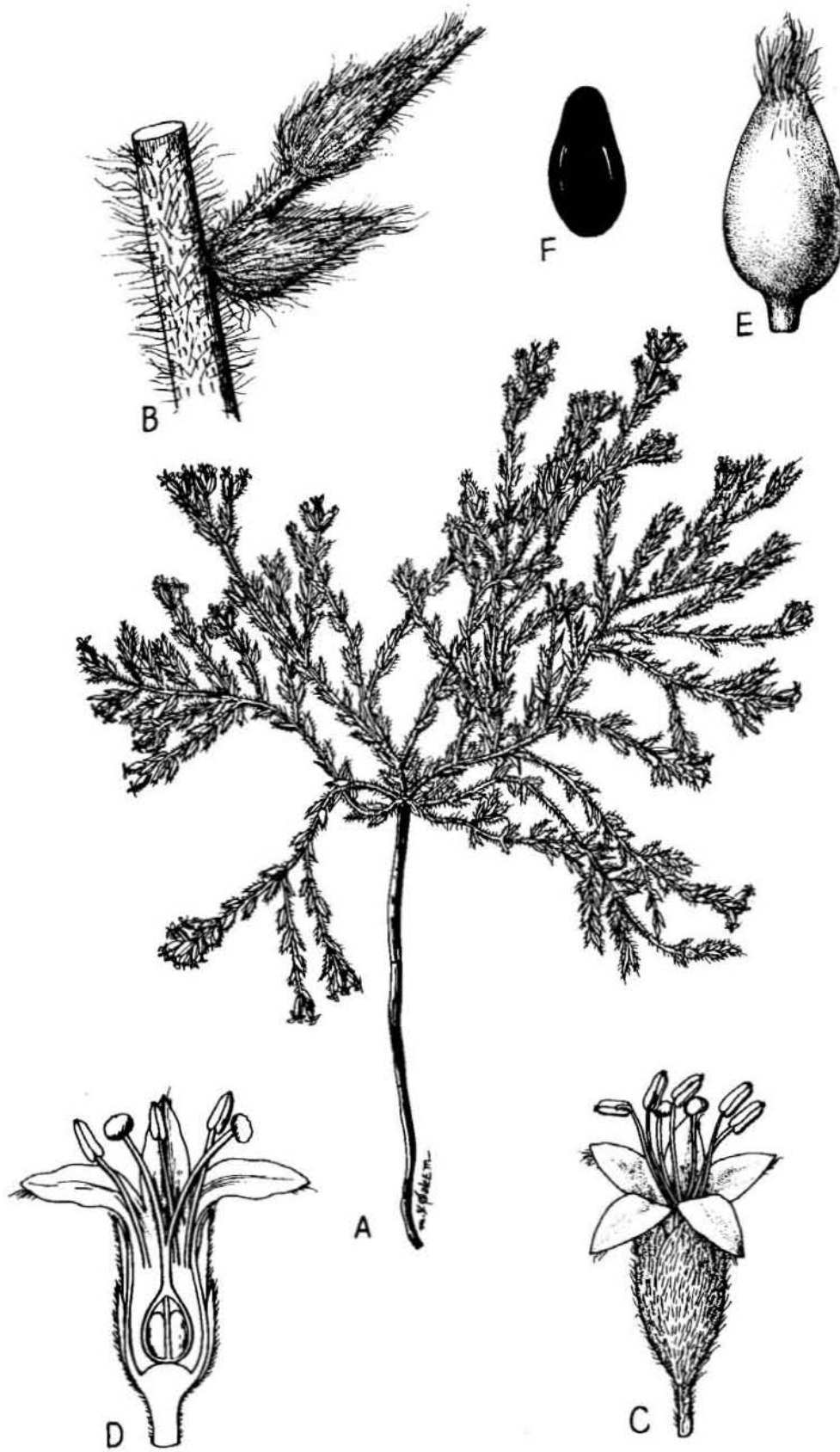


Fig. 1 *Cressa cretica*: A, habit x 1; B, portion of stem and leaves in detail x 8; C, flower x 8; D, v.s. of flower x 8; E, fruit x 8; F, seed x 8.

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Distribution: N.W. Africa, Lusitania, Mediterranean region - N. Africa (Sahara), S. W. Asia, Iran, Turkestan, Pamir-Alaj mountains and Pakistan.

2. CONVULVULUS

L., Sp. Pl. 153. 1753; Gen. Pl. ed. 5: 76. 1754.

Annual or perennial herbs with erect, prostrate or twining stems. Leaves simple, various, hastate or sagittate. Flowers axillary in one to few-flowered cymes or dense heads. Sepals 5, equal or subequal, obtuse to acute. Corolla infundibuliform or campanulate, variously coloured with 5 stripes on the outside, tapering from the base to the apex, stripes hairy (rarely glabrous) but the tube is always glabrous. Stamens and styles included. Ovary 2-locular, 4-ovuled; style simple, filiform; stigmas 2, filiform, often revolute or forked. Capsule 1 to 2-locular, 4-valved and usually 4-seeded.

A large genus of c. 250 species, chiefly in temperate and subtropical regions; represented by 14 species in Libya.

- | | | |
|----|---|--------------------------|
| 1. | + Twiners (sometimes trailing), lamina hastate, sagittate or cordate at the base | 2 |
| | — Not twiners; lamina not as above | 5 |
| 2. | + Upper leaves and bracts very deeply divided | 2. <i>C. althaeoides</i> |
| | — Upper leaves and bracts not divided except for basal lobe | 3 |
| 3. | + Leaves \pm entire; sepals obtuse to emarginate | 1. <i>C. arvensis</i> |
| | — Leaves margin crenate, dentate or irregularly lobed | 4 |
| 4. | + Peduncle short, not exceeding leaf. Flower pink, 8-10 mm long. Stigma of central flower not 3-lobed | 3. <i>C. fatmensis</i> |
| | — Peduncle very long much exceeding leaf. Flower white, 28-40 mm long. Stigma of central flower 3-lobed | 4. <i>C. maireanus</i> |

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| 5. + Leaf-blade very abruptly narrowed into a distinct petiole; cuneate to truncate at base. Flowers blue | 5. C. siculus |
| — Leaf-blade sessile or gradually tapered into a petiole. Flowers pink | 6 |
| 6. + Mature stems woody and very much divaricately branched above | 6. C. dorycnium |
| — Mature stems herbaceous, at least above, not so divaricately branched | 7 |
| 7. + Annual or short-lived perennial, totally herbaceous | 8 |
| — Perennial; shoots woody below, herbaceous above | 11 |
| 8. + Peduncle and pedicel together not exceeding the calyx | 9 |
| — Peduncle and pedicel together several times exceeding the calyx | 10 |
| 9. + Leaves ovate or lanceolate, acute to obtuse, sometimes mucronulate. Corolla white | 7. C. supinus |
| — Leaves spatulate, attenuate at the base, obtuse or subacute. Corolla violet | 8. C. humilis |
| 10. + Sepals pubescent, with distinct distal and proximal regions. Capsule pubescent | 9. C. tricolor |
| — Sepals glabrous or sparsely pubescent with scarious margins, not as above. Capsule glabrous | 10. C. petnapetaloides |
| 11. + Inflorescence a compact head | 12 |
| — Inflorescence lax, not a compact head | 13 |
| 12. + Corolla pink (15-) 18-22 mm long. Style a stout, hairy with stigma 1-5 times as long. Capsule hairy; seeds brown | 11. C. oleifolius |

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- Corolla rosy yellow (6-) 10-12 mm. Style filiform, glabrous with stigmas 3 times as long. Capsule glabrous; seeds black 12. *C. prostratus*
13. + Plants c. 10 (-15) cm tall, unbranched or slightly branched. Base of the radical leaves with broad scarious margins. Cymes short pedunculate. 13. *C. lineatus*
- Plants usually more than 30 cm tall, branched from the base. Base of the radical leaves without scarious margins. Cymes long pedunculate 14. *C. cantabarius*
1. ***Convolvulus arvensis*** L., Sp. Pl. 153. 1753; Durand & Barratte, Fl. Lib. Prodr. 165. 1910; Pamp., Prodr. Fl. Cir. 373. 1931; Keith, Prelim. Check List Lib. Fl. 382. 1965; F. Saad, Convolvulus of Medit, Reg. Canar. Is. & Mid. East, 214. 1967. (Fig. 2).

Perennial herb, glabrous or pubescent; stems trailing or twining, herbaceous. Leaves petiolate, glabrescent, ovate-oblong to lanceolate, 1.5-8 x 1-4 cm, hastate or sagittate at the base, entire, obtuse or mucronate; petiole 0.5-2 cm long. Peduncles axillary, 1(-2-3)-flowered, 2-4.5 cm long; bracts linear, c. 3 mm long. Sepals elliptic-orbicular, 3.5-5 x 2-3.5 mm obtuse to emarginate, often apiculate. Corolla white or pink, broadly infundibuliform, c. 2 cm long. Capsule glabrous, ovoid-globose, 2 cm long, 4-seeded. Seeds dark brown or black, 3-4 mm long.

Type: « In Europae agres », Herb. Linn. 218.1, lectotype (LINN).

A-3 Tripoli, Faculty of Science garden, sandy soil, prostrate, flowers pink, 24.4.1972, A. S. Sharif, A. A. Misellti & A. M. El Morayed 29 (ULT); id. Samira, Abdal Moti & Nuria 44 (ULT); Hadba Sharquia - university lane, flowers white with pink stripes, prostrate, 25.3.1976, S. M. H. Jafri 6458 (ULT); Tajora, twining plant in association with *Opuntia* on farm border, 3.6.1977, A. El-Gadi 280 (ULT); **A-7** Wadi Derna, 20.1.1967, Boulos 1273 (ULT); Shahat, prostrate, flowers white, 18.6.1972, S. I. Ali 650 (ULT); **B-1** Gebel Bakkar-Tkoot, soil sandy, 8.6.1974, Bashir Faris 545 (ULT).

Distribution: Widely distributed in temperate regions throughout the world except Australia, as a weed of cultivation.

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Fig. 2

Convolvulus arvensis: A, habit x 0.5; B, flower x 1; C, portion of corolla spread open with stamens x 2; D, pistil surrounded by a cushion like nectary x 4.

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Fl. March-August *Vern.* Ullak, muddayd

2. ***Convolvulus althaeoides*** L., *Sp. Pl.* 1: 156. 1753; Durand & Barratte, *l.c.* 165; Pamp., *l.c.* 373; Keith, *l.c.* 381; F. Saad, *l.c.* 210. (Fig. 3).

A perennial herb 50-100 cm long, appressed-villous or hirsute; stems slender, trailing or climbing. Lower leaves long-petioled, very variable, 15-50 x 8-35 mm, cordate-ovate, obtusely crenate or lobed; upper deeply lobed, pedately-cleft, lobes oblong to linear, entire to dentate. Peduncle axillary much longer than the leaves, 1-2 (3-5)-flowered; pedicels longer than the calyx, bracts setaceous, deeply lobed; sepals variable, (7-) 8-9 (-10) mm, ovate-oblong, scarious margined, sometimes mucronulate; corolla showy, pink or violet, 25-30 (-40) mm long, infundibuliform with hairy bands on the outside. Capsule c. 7 x 7 mm, subglobose, bilocular, 4-seeded; seeds brown tubercled, 4-5 x 2.5 mm.

Type: Herb. Linn. 218.26 (LINN).

A-2 Rumia (limestone hill), 15 km from Yafran, flowers light violet, 9.4.1974, *S. I. Ali* 1831 (ULT); A-3 Tarhuna, pink flowers, 30.3.1975, *Amina Gammudi* 259 (ULT); Sharshara, flowers pink, 30.3.1975; *Amina Gammudi* 270 (ULT); Tarhuna, 30.3.1975, *Zenab Abou Raya* 225 (ULT); Sahrshara, plant climber, flower pink, 20.3.1974, *G. Faris* 123 (ULT); Tajaira seashore, corolla violet pink, 40-70 cm high, 1.3.1974, *Bashir Faris* 101 (ULT); 8 km West Khoms, in barley fields, 25.4.1967, *Loutfy Boulos* 1816 (ULT); Al Dafnia, pink flowers, 29.3.1975, *Amina Gammudi* 189 (ULT); El-Neggiza 97 km from Tripoli, herbaceous, prostrate, pink flowers, 1.5.1974, *A. M. Abdelrazig* 499 (ULT); id. *Bashir Faris* 288 (ULT); Masrata, 30.3.1975, *Zenab Abou Raya* 172 (ULT); A-6 Toukra, herb, climber, red flower, simple leaf, 3.3.1973, *A. Eltiafe* 8 (ULT); A-7 Sahaht, prostrate, 18.6.1972, *S. I. Ali* 658 (ULT); c. 5 km from Susa, on way from Shahat, prostrate, flowers violet, 20.6.1972, *S. I. Ali* 775 (ULT); Gebal El-Akhdar, herb, violet flowers, leaves spirally arranged, 26 Feb. - 3 March, 1973, *Nuria Elmigirby* 8 (ULT); Susa, erect, 30-35 cm, flowers pink, 28.2.1973, *A. S. Sharif* 54 (ULT); c. 5 km from Susa, on way from Shahat, prostrate, flowers violet, 20.6.1972, *S. I. Ali* 775 (ULT); Susa, Gebel Akhdar, 24.1.1967, *Loutfy Boulos* 1445 (ULT); 15 km S.W. Massah, Gebel Akhdar, *Loutfy Boulos* 1121 (ULT); Ras El Hilal, Gebel Akhdar, c. 23 km E. Susa, 19.1.1967, *Loutfy Boulos* 1220 (ULT); Road between Al-Kuwayfiah and Daryanab, N. E. Benghazi, 10.3.1968, *L. Boulos* 2031 (ULT); Susa, prostrate, violet flowers, *S. I. Ali* 6561 (ULT); A-8 Al-Tamini, S. E. Derna, 13.3.1968, *L. Boulos* 2274 (ULT);

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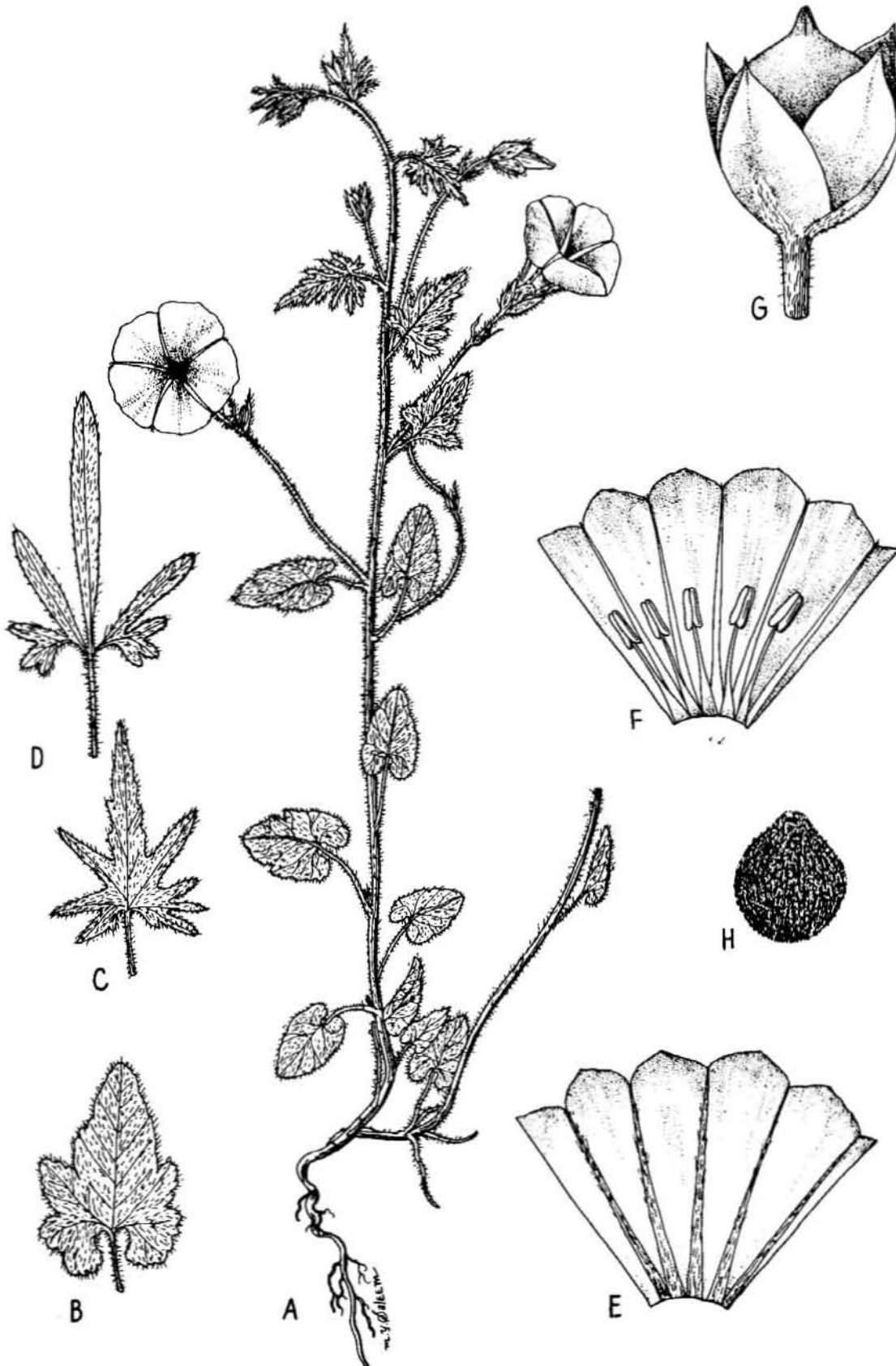


Fig. 3 *Convolvulus althaeoides*: A, habit x 0.5; B-D, leaf variation x 0.5; E, corolla spread (from outside) showing hairy bands x 0.5; F, corolla spread open (from inside) showing fixation of stamens x 0.5; G, fruit with persistent calyx x 4; H, seed x 4.

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Between Derna and Tamini, c. 5 km before Tamini, trailing on sandy ground, roadside, flowers violet, 24.10.1975, *S. M. H. Jafri* 6051 (ULT); **B-2** Ain Al-Rumaiya, violet flower, climbing, 9.4.1974, *Karima Rotami* 134 (ULT); id, pink flower, 10.4.1975, *Anina Gammudi* 308 (ULT).

Distribution: S. Europe, Canary Islands & Mediterranean region. Common in sandy calcareous fields, thickets and hedges and in bare fields.

Fl. March-June *Vern.* Ullak, Ullag, Maddadah, Khwejtemah

3. ***Convolvulus fatmensis*** Kunze in *Fl. Alleg. Bot. Zeit.* 23 (1): 172. 1840; Durand & Barratte, l.c. 165; Keith, l.c. 383; F. Saad, l.c. 226.

An annual herb, 15-50 cm tall, branched at the base. Leaves ovate-oblong, 15-40 x 10-20 mm, obtuse or subacute, base cordate, margin wavy, glabrous or appressed puberulous, pinnately nerved. Flowers 1-3 on a peduncle. Pedicels with appressed hairs, as long as the calyx. Sepals \pm densely appressed-puberulous, the outer ones 4 x 3, retuse, mucronulate; middle one with unequal halves. Corolla pink, 8-10 mm long, with 5 hairy bands on the outside. Capsule glabrous, exserted from the calyx, subglobose, 6 x 6 mm; seeds brown, rugulose, 4 x 3 mm.

Type: Arabia: Wadi Fatima, *Schimper* 839, lectotype (LZ), Isotypes (L,P,W).

Reported from Tripolitania by Durand & Barratte (l.c.) and Keith (l.c.).

Distribution: N. Africa (Algeria, Libya, Egypt) N. Sudan, Lebanon, Arabia & Iran.

4. ***Convolvulus maireanus*** Pamp. in *Archiv. Bot., Forli*, 12. n.s. 2. 178. 1936; Keith, l.c. 383; F. Saad, l.c. 234.

A perennial twining herb, branching from the base. Stems quadrangular. Leaves chartaceous, ovate to ovate-oblong, 25-60 (-70) x 20-50 (-55) mm, acute and mucronulate, base cordate-sagittate, crenate, entire or dentate, slightly sericeous, pinnately nerved. Flowers crowded at the top of the long, axillary, peduncles, exceeding the leaves. Pedicels as long as the calyx. Calyx densely appressed-puberulous. Sepals 9 mm long, slightly unequal, convex, obovate, obtuse & mucronulate, the inner ones with narrow scarious margins. Corolla white 28-40

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Fig. 4 *Convolvulus siculus*: A, habit x 0.5; B, flower x 5; C, seed x 5.

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mm long. Style filiform, stigmas cylindrical-clavate (stigmas of the central flower always 3-lobed).

Type: Described from Cyrenaica.

Reported from Cyrenaica (Tolmeta & Tamimi) by Pampanini & Pichi-Sermolli, Park and others vide Saad, l.c. 234.

Distribution: Endemic

5. ***Convolvulus siculus*** L., Sp. Pl. 156. 1753; Pamp., Prodr. Fl. Circ. 372. 1933; Keith, l.c. 384; F. Saad, l.c. 197. (Fig. 4).

A sparsely pubescent, 10-40 (-60) cm tall, annual herb. Stem slender, probumbent or erect, herbaceous. Leaves petiolate, ovate or lanceolate, 13-26 x 5-20 mm, base cordate, cuneate or slightly truncate, acute or subacuminate, entire, ciliate, appressed hairy. Flowers distributed along the whole length of the shoot. Peduncles axillary, usually shorter than the leaves 1- (-2)- flowered. Pedicel very short, Sepals acute or subacuminate, pubescent. Corolla 8-10 (-12) mm long, blue. Capsule subglobose, 5 x 5 mm, bilocular, glabrous, 4-seeded; seeds almost black, tuberculate, 3 x 2 mm.

Type: Herb. Linn. 218. 40, lectotype (LINN).

A-2 Nera Ragrag Tejween, Gebel Nefousa, 11.5.1970, *M. Khalifa* s.n. (ULT); A-7 Al-Bakur; near Tocra, Gebel Akhdar, 10.3.1968, *L. Boulos* 2085 (ULT); Wadi El Kouf, Gebel Akhdar, 24.1.1967, *L. Boulos* 1458 (ULT); Wadi El-Teir, Gebel Akhdar, c. 24 km W. Derna along the coastal road to Susa, 19.1.1967, *L. Boulos* 1203 (ULT); c. 8 km S. Al-Qubbah, 22.1.1967, *L. Boulos* 1203 (ULT); c. 8 km S. Al-Qubbah, 22.1.1967, *L. Boulos* 1332 (ULT); A-8 Al-Tamimi, S. E. Derna, 13.3.1968, *L. Boulos* 2302 (ULT).

Distribution: Canary Isles, Madeira, Morocco, Algeria, Libya, Egypt, Palestine, Syria, Saudi Arabia, Italy, S. France, Spain, Portugal, Corsica, Sardinia, Malta, Euboea, Balearic Island.

Common in sandy places, on calcareous soils.

Fl. March-June

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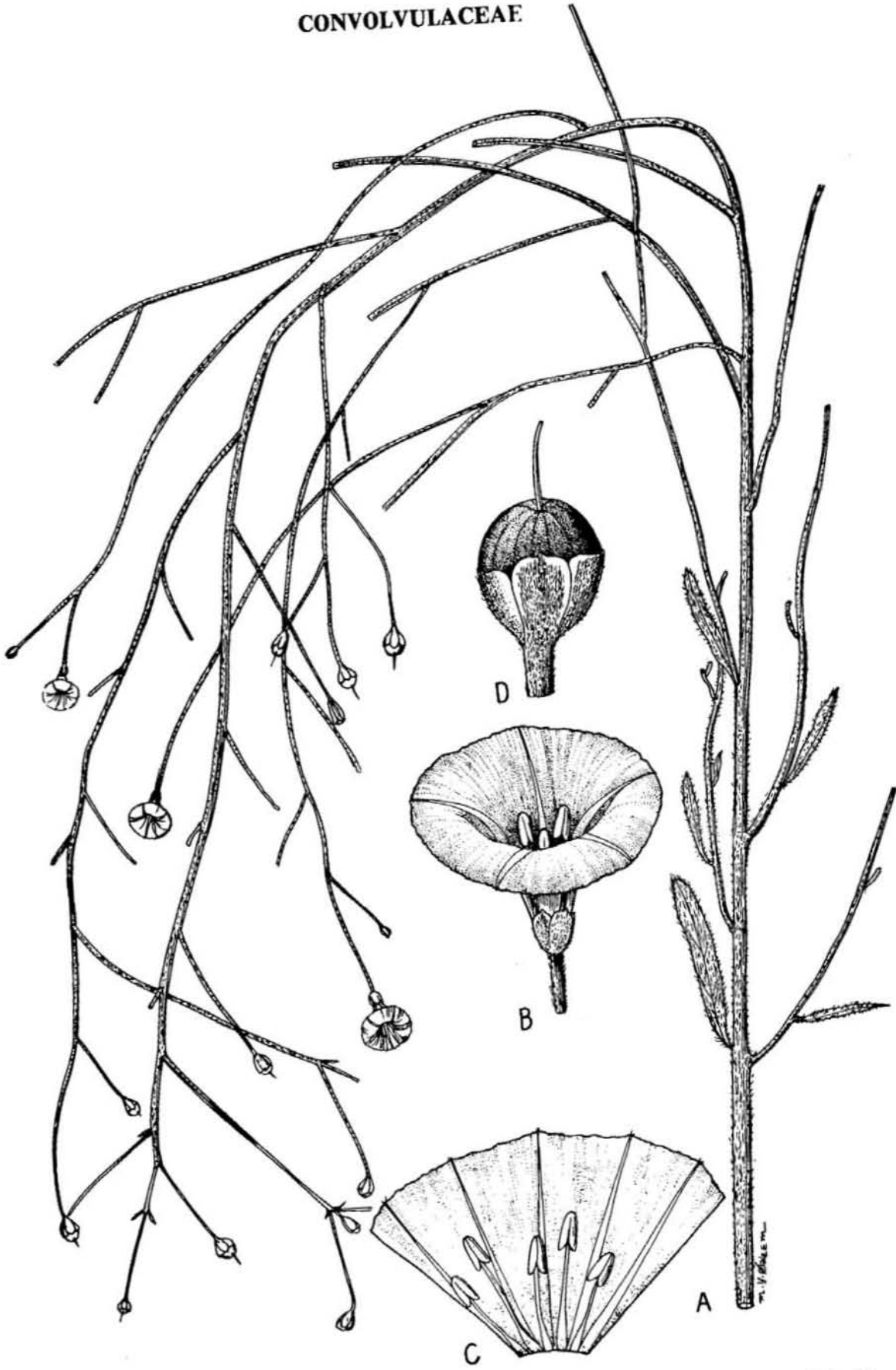


Fig. 5 *Convolvulus dorycnium*: A, flowering and fruiting branch x 0.5; B, flower x 2; C, corolla spread open with stamens x 2; D, fruit with persistent calyx x 4.

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6. **Convolvulus dorycnium** L., Syst. Nat. ed. 10,2: 923. 1759; Pamp., Prodr. Fl. Cir. 373.1933; Dinsmore in Post., Fl. Syr. Pal. & Sin. 2: 204. 1933; Keith, l.c. 283; F. Saad, l.c. 90 (Fig. 5).

Densely pubescent, suffrutescens, 50-100 cm tall, perennial herb, very much divaricately branched from above. Leaves sessile, the lower ones linear spatulate to oblanceolate, (2) 3-3.5 (-6) upper ones linear. Peduncles long, 1-3-flowered. Sepals 3-4 mm long, obtuse-retuse or mucronate. Corolla 10-20 mm long, pink, funnel shaped with hairy bands on the outside. Stamens unequal, anthers oblong, apex retuse. Ovary glabrous, ovoid with a cup-shaped disc at the base, style thick, stigmas filiform or cylindrical. Capsule obovate, 5-6 x 4 mm, unilocular, 1-seeded; seed densely puberulous subglobose, 3 x 2.5 mm.

A-2 Wadi Elmaiet Project 80-90 cm high, 28.5.1974, *Bashir Faris* 379 (ULT); A-3 Al-Kussabat, bushy, leaves lanceolate at the base \pm on the ground level, 10.6.1977, *A. El Gadi* 282 (ULT); A-6 Bumaria, c. 20 km from Al Abier, flowers pink-light pink, branches spreading, c. 50-60 cm tall, 23.6.1972, *S. I. Ali* 903 (ULT); A-7 20 km from Taknes, flowers pink, branches thin, spreading, entangling with each other, 17.6.1972, *S. I. Ali* 568 (ULT); B-2 15 km from Jado, undershrub, very much branched 30-40 cm high, leaves except basal leaves lanceolate, entire, pilose hairy. Corolla white purple, 10.6.1974, *Bashir Faris* 632 (ULT).

Distribution: Greece, Crete, Tunisia, Libya & Egypt.

In arid, rocky places and calcareous soils.

Fl. March-July.

7. **Convolvulus supinus** Coss. et Kral. in Bull. Soc. Bot. Fr. 4: 400. 1857; Durand & Barratte, l.c. 164; Corti, Fl. Veg. Fezzan, 214. 1942; Quezel & Santa, Nouv. Fl. Alger. 2: 757. 1963; Keith, l.c. 384; F. Saad, l.c. 202 (Fig. 6).

A densely villous, suffrutescens herb, 10-35 cm tall. Branches flowering in the upper half. Leaves 9-15 x 4-7 mm ovate or lanceolate, acute or mucronulate, base subcordate, entire, villous. Flowers 1-3 in axillary monochasial cymes with peduncles exceeding the leaves. Pedicel half as long as the calyx. Sepals 8-11 mm, densely villous, green above colourless below, 3 mm wide, convex ovate-lanceolate, acuminate. Corolla 20-25 mm, white with hairy bands on the outside. Capsule subglobose, 5 mm long and wide, glabrous or with few hairs at the top, 4-seeded, seeds black, 3 x 2 mm tuberculated.

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Fig. 6 *Convolvulus supinus*: A, habit x 0.5; B, flower x 1.5; C, fruit with persistent calyx x 4; D, seed x 13

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Type: Algeria, S. W. prov. Oran, Ain Sefra, *Bourgeau* 60, lectotype(P).

A-2 Yefren, 26.3.1975, *Zenab Abou Raya* 88 (ULT); Between Bir Shakshuk and Qaser Alhag opposite mountain valley, *S. M. H. Jafri* 6625 (ULT); Wadi Al Aital, 10.4.1975, *Fouzia* 354 (ULT); id, *Amina Gammudi* 365 (ULT); *S. M. H. Jafri* 6561; **A-3** Tarhuna, 30.3.1975, *Amina Gammudi* 260 (ULT); 8 km West Khoms, in barley fields, 25.4.1967, *Loutfy Boulos* 1815 (ULT); **B-2** Ommerramel, Cabau sandy soil, 20-25 cm. Corolla white, 7.6.1974, *Bashir Faris* 458 (ULT); **B-4** Abou Nagim, white flower, 26.3.1975, *Zenab Abou Raya* 138 (ULT); **C-4** Weshka, prostrate, 25.3.1975, *K. Sifaw* 18 (ULT); c. 27 km from Weshka, roadside, sandy soil. Flowers white. Branches procumbent, 25.3.1975, *S. I. Ali* 2304 (ULT); c. 5 km before Weshka, sandy soil, flowers, white, 1.4.1973, *S. I. Ali* 1519 (ULT);

Distribution: Morocco, Algeria, Tunisia, Libya.

In sandy and gravelly soils and calcareous rocks.

Fl. April-June *Vern.* Ullag.

8. ***Convolvulus humilis*** Jacq., Coll. 4: 209. t. 32. 1790; Pamp., Prodr. Fl. Cir. 372. 1931; Keith, l.c. 383; F. Saad, l.c. 183. (Fig. 7, A & B).

C. undulatus Cav., Ic. 3: 39. t. 277. 1794.

A 10-30 (-40) cm tall, perennial herb, branched from the base, appressedly puberulous. Leaves sessile, radical spatulate, cauline oblanceolate or lanceolate 8-35 x 3-5 mm, base half clasping; acute to obtuse, entire or slightly crenate, appressedly hairy, pinnately nerved. Flowers solitary, axillary, clustered at the tip of the branches. Pedicel shorter than the calyx. Sepals unequal, sparsely pubescent, outer 2 x 1.25 mm, middle 3 mm long, subacuminate. Corolla 7-20 mm long, violet with hairy bands on the outside. Capsule hairy, subglobose, 5-6 mm long. Seeds brown, covered with sharp tubercles, 3 x 2 mm.

Type: A specimen grown from seed of unknown origin (W±?).

A-7 10 km from Shahat on way to Susa, 28.2.1973, *S. I. Ali* 1042 (ULT); Wadi El-Teir, Gebel Akhdar, c. 24 km W. Derna, along the coastal road to Susa, 19.1.1967, *L. Boulos* 1178 (ULT).

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Fig. 7 *Convolvulus humilis*: A, habit x 0.5; B, leaf x 1.5; C. *tricolor*: C, habit x 0.5; D, a sepal x 2.5.

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Distribution: Portugal, Spain, Morocco, Algeria, Tunisia, Libya, Egypt, Palestine, Cyprus, Sicily, Italy.

Grows in on calcareous and clayey soil and limestone slopes.

Fl. March-June.

9. ***Convolvulus tricolor*** L., Sp. Pl 158. 1753; Durand & Barratte, l.c. 164; Pamp., l.c. 371; Corti, Fl. Veg. Fezzan 216. 1942; Keith, l.c. 385; F. Saad, l.c. 204. (Fig. 7C-D).

An annual herb, (10-) 15-60 cm tall. Leaves sessile usually spatulate to oblanceolate, 20-60 x 5-15 mm, obtuse or subacute, attenuate. Pedicel as long as the calyx or longer. Sepals unequal with distinct distal and proximal regions, 5-8 (-9) mm long, pubescent, herbaceous, acute or acuminate. Corolla 15-20 (-30) mm long, with sparsely hairy bands on the outside, 3-coloured i.e. with blue limb, white throat and yellow tube. Capsule pubescent, globose, 5-7 mm long and broad, shorter than calyx, 4-seeded, seeds dark brown, tuberculate, 3 x 2 mm.

Type: In Hortus Siccus Cliffortianus (BM).

Reported from Tripoli, Fezzan (Sebha), Cyrenaica (Benghazi, Barce, et Gatres, Shahat, Ain el Genein, Safsaf) by Durand & Barratte, Pampanini, Corti & Keith.

Distribution: Portugal, Spain, S. France, Italy, Greece, Algeria, Tunisia and Libya...

Usually grows in dry open habitat up to 900 m

Fl. March-July.

10. ***Convolvulus pentapetaloides*** L., Syst. Nat. ed. 12. (3): 229. 1768; Pamp., l.c. 372; Keith, l.c. 384; F. Saad, l.c. 188.

C. arcuatus Presl., Fl. Sic. 33. 1826.

Annual herb, (5-) 15-30 cm tall, \pm densely appressed-puberulus. Leaves sessile, radical leaves oblanceolate or spatulate, cauline ones linear-lanceolate. Pedicel as long as the sepals. Sepals not divided into distinct regions, ovate oblong 4 x 3 mm, scarious, glabrous, obtuse and mucronate. Corolla 8-10 mm long, blue distally, and yellow proximally. Ovary glabrous, style stout, small, stigmas

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cylindrical, 2.5 times as long as the style. Capsule subglobose, glabrous. Seeds brown tuberculate.

Type: Herb. Linn. 218.41, *Latourette*, (LINN).

Reported from Cyrenaica (el Merj, el Merj plain, et Gatres, Shahat, Wadi el Urf.) by Pampanini (l.c.) and Keith (l.c.)

Distribution: Portugal, Spain, Morocco, Libya, Malta, Sicily, Sardinia, Italy, Balearic Island, Greece, Turkey, Syria and Palestine.

Fl. March-May.

11. ***Convolvulus oleifolius*** Desr. in Lam., *Encycl. Meth. Bot.* 3: 552. 1792; Durand and Barratte l.c. 164; Pamp. l.c. 371; Keith, l.c. 383; F. Saad, l.c. 131. (Fig. 8,A-C).

An erect, appressed rusty-silky, suffrutescent undershrub, (5-) 25-40 (-50) cm tall. Lower leaves linear-spathulate, the upper narrow linear, acute. Flowers 1-3 in compact terminal cymes. Pedicel shorter than the calyx, densely hairy. Sepals (3-5) 7-9 mm long, acuminate or cuspidate, truncate at the base. Corolla pink, infundibuliform, (15-) 18-20 mm long, with hairy bands on the outside. Ovary hirsute, style stout, stigmas 1.5 times as long as the style. Capsule subglobose, hairy. Seeds brown, densely hairy.

Type: Herb. Lamarck (P).

A-6 Libya-Cirenaica, Tocreia-U. Bakur, 6 Apr. 1933, *R. Pampanini* 6212 (FI); vide Pamp. (l.c.).

Distribution: W & C. parts of Mediterranean, Libya, Egypt, Aegean region, Malta, S. Greece, Crete, Rhodes Islands, Cyprus, Syria & Palestine.

Grows on limestone rocks, tilled soil and sea cliffs up to 300 m.

Fl. Feb-June

12. ***Convolvulus prostratus*** Forsk., *Fl. Aegypt-Arab.*: 203.1775; F. Saad, l.c. 192.

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Fig. 8 *Convolvulus oleifolius*: A, habit x 0.5; B, flower x 2.5; C, sepal x 6.
C. lineatus: D, habit x 0.5; E, a sepal x 6.

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Ipomoea microphylla Roth. Nov. Sp. 112. 1821; *C. microphyllus* Sieb. ex Spreng., Syst. Veg. 1: 611. 1825; Corti, l.c. 215. Keith, l.c. 383; *C. pluricaulis* Choisy, Conv. Or. in Mem. Soc. Phys. Hist. Nat. Geneve, 6: 477. 1833.

A prostrate, suffrutescent, perennial herb, 15-30 (-50) cm long, hirsute, branched from the base. Leaves subsessile, 12-20 (-25) x 3-5 mm, narrowly attenuate at base, obtuse-mucronate, appressedly hairy. Flowers sessile or subsessile, 1-3 (-4) grouped together; peduncles filiform. Bracts linear, hirsute, c. 5 mm long. Sepals linear 6.5 mm long, acuminate, hirsute. Corolla (-6) 10-12 mm, rosy yellow (flesh coloured) with hairy bands on the outside. Ovary glabrous, style filiform, glabrous, stigmas 3 times as long as the style. Capsule glabrous, globose. Seeds blackish, with few short hairs.

Type: Yemen (Arabia Felix) Mor *Forskal* 438, (C).

Reported from Fezzan (Ghat) by Corti (l.c.) and Keith (l.c.)

Distribution: Sahara Central, N. Africa, Nubia, Somalia, Egypt, Sinai, Palestine, Syria, S. Arabia & Pakistan in sandy soil. A Saharo-Sindian species.

Fl. Jan-Apr.

Christensen (in Dansk. Bot. Art. 4(3): 1922) suggested that *C. prostratus* be regarded conspecific with *C. pentapetaloides*, but later on F. Saad (in *Convolvulus of Medit., Reg. Canar. Is. & Mid. East*, 193. 1967) found the type of Forskal's *C. prostratus* distinct from *C. pentapetaloides* and identical with *C. microphyllus* Sieb. ex Spreng. Therefore *C. microphyllus* was treated conspecific with *C. prostratus*. Rechinger's f., key (in *Fl. Iran, Convolvulaceae* 6.1963) shows little difference between *C. microphyllus* & *C. pluricaulis*, which is probably only a variational range within the species, therefore *C. pluricaulis* Choisy should also be treated as a synonym of *C. prostratus*.

13. ***Convolvulus lineatus*** L., Syst. Nat. ed. 10. 2: 923. 1759; Durand & Barratte, l.c. 164; Dinsmore in Post, l.c. 205; Quezel & Santa, l.c. 757; Keith, l.c. 383; F. Saad, l.c. 128. (Fig. 8, D & E).

A densely adpressed sericeous, procumbent or ascending herb 3-25 (-40) cm tall. Leaves oblanceolate or linear-lanceolate. Peduncles axillary and terminal, much shorter than bracts, (1-) to many flowered. Outer sepals unequal 6-12 mm,

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sericeous, linear to lanceolate, convex on the back below, cuneate to rounded at base, acute-acuminate. Corolla bright pink, 15-25 mm long, with hairy bands on the outside, distinctly 5 toothed. Capsules \pm appressed hairy, obovoid or ovate, 6-7 x 4-5 mm. Seeds 3 x 1.5 mm, covered with very short pubescent hairs.

Type: Herb Linn. 218. 43 (Coll. in Spain by Loefleng), lectotype (LINN).

A-3 Munga El-Bahr, herbaceous, prostrate. Sandy soil, 8.4.1974, A. M. Abdelrazig 133 (ULT).

Distribution: E & W. Mediterranean region, Balkan, round the Black Sea, Iran, Afghanistan, extending to Pamir-Alai & Tien-Shan.

In bare stony soil, sandy places from 300-1300 m.

Fl. March-July.

14. ***Convolvulus cantabarius*** L., Sp. Pl. 158. 1753; Dinsmore in Post l.c. 205; Keith, l.c. 382; F. Saad, l.c. 121.

Perennial (15-) 30-40 (-50) cm tall, villous or hirsute with appressed or spreading hairs. Stem slender erect or decumbent, almost branched from the base. Leaves variable, the lower oblong-spathulate, attenuate, with wide scarious base, the upper sessile, oblanceolate to linear. Peduncles long, terminal or axillary. Flowers single, often few (2-4) in small compact dichasial cymes; bracts never with a half clasping base; pedicels shorter than the calyx. Sepals (5) 6-9 mm long, linear-lanceolate, acute or acuminate, hirsute. Corolla pink, (10) 15-20 (25) mm long, hirsute along the nerves outside. Capsule globose-ovoid, pubescent, 5 x 4 mm, seeds 2-4, dark brown.

Type: "Hab in Italia; Sicilia, Narbona, Verona".

Doubtfully reported from Tripolitania (Taorga). by Keith, l.c.

Distribution: Spain, France, Mediterranean region to N & C. Iran.

Fl. March-June

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3. IPOMOEA

Linn., Sp. Pl. 1: 159. 1753; Gen. Pl. ed. 5. 76. 1754;

Benth. & Hook., Gen. Pl. 2(2): 870. 1876.

Annual, biennial or perennial herbs or shrubs with woody or herbaceous, trailing or climbing stems. Leaves mostly simple, very variable, entire or lobed; alternate; petiolate. Flowers axillary, solitary or in few to many flowered cymes, usually with 2 very small bracteoles. Sepals usually unequal, very variable in shape and size. Corolla infundibuliform, campanulate or tubular, scarcely lobed, ± glabrous, variously coloured. Ovary 2 - to 4-locular; with 2 ovules in each locule; style filiform, stigma 1-2 (-3), globular. Capsule usually 4-seeded. Pollen grains spinulate.

A very large cosmopolitan genus of c. 500 species, mostly restricted to the tropics; represented by 2 cultivated and 1 wild species in Libya.

- | | | |
|----|---|--------------------------|
| 1. | + Underground root tubers present | 1. I. batatas* |
| | — Underground root-tubers absent | 2 |
| 2. | + Twiner or climber. Leaves adpressed pilose on both-sides and herbaceous. Corolla magenta coloured with paler tube | 2. I. hederacea* |
| | — Trailer. Leaves glabrous and fleshy. Corolla white or cream coloured with purple centre | 3. I. stolonifera |

1. ***Ipomoea batatas**(L.) Lam., Illustr. 1:465. 1793.

Convolvulus batatas L., Sp. Pl. 154. 1753; Durand & Barratte, Fl. Lib. Prodr. 165. 1910; *Convolvulus edulis* Thunb., Fl. Japan. 84.1784; *Batatas edulis* Choisy in DC. Prodr. 9: 338. 1845; Durand & Barratte, l.c. 165.

A perennial with underground, large, fusiform root tubers. Prostrate or ascending rarely twining. Leaves broadly ovate, 4-14 x 4-16 cm, entire or deeply 3-5 lobed, truncate or cordate at the base, glabrous or sometimes slightly pubescent; petiole 5-20 cm long. Inflorescences 1 to many flowered, axillary, peduncles 3.5-17 cm long. Sepals unequal, the inner ones longer, oblong to ovate-oblong, 7-12 x 3-5 mm, slightly coriaceous, acute and mucronate, glabrous to hairy. Corolla 30-48 mm, white, or violet to lilac, campanulate.

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Fig. 9 *Ipomoea hederacea*: A, habit x 0.5; B, flower x 1; C, flower with some petals removed showing the various parts.

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Type: India, collector not known. Herb. Linn. 218.12 (LINN)

Cultivated in irrigated areas for its edible tubers in Tripoli and elsewhere.

Distribution: The sweet Potato is cultivated in many parts of the world up to 1800 m.

Fl. March-August Vern. Batatah helua, batata hulwa.

2. **Ipomoea hederacea** (L.) Jacq. Ic. Pl. Rar. 1: t. 36. 1786.(Fig. 9)

Convolvulus hederaceus L., Sp. Pl. 154. 1753; *C. nil* L., Sp. Pl. ed. 2: 219. 1762; *Ipomoea nil* (L.) Roth, Cat. Bot. 1: 36. 1797; *Pharbitis nil* (L.) Choisy l.c. 343.

A twining or climbing herb, 1-3 m tall. Stems densely sericeous. Leaves ovate 7.5 x 6.5 cm, cordate at the base, 3-lobed, ± adpressed pilose on both sides; lobes ± acuminate at the apex; petiole pubescent, 2.5-4 cm long. Flowers solitary or in lax few flowered cymes; peduncle 2.5-4 cm, pedicels 0.5-1.2 cm. Sepals linear, or lanceolate. Corolla infundibuliform, c. 7 cm long, magenta coloured with paler tube.

Type: U.S.A., Virginia & Carolina: illustration of *Convolvulus caeruleus hederaceo folio magis anguloso* in Dill., Hort. Elth. t. 80, fig. 92. 1832 (syn)

A-3 Gargarish, climber, corolla violet 10.12.1975, Randa M. Bughrara 41 (ULT); Cultivated in Tripoli and elsewhere for its beautiful flowers.

Distribution: Usually cultivated in many parts of Eastern and Western hemisphere for its beautiful and showy flowers.

Fl. December-June.

3. **Ipomoea stolonifera** (Cyr.) Gmelin, Syst. Nat. 2: 345. 1791; Keith, l.c. 573; Tackh., St. Fl. Egypt, 432. 1974.

Convolvulus stoloniferus Cyr. Pl. Rar Neap. 1: 14. t. 5. 1788. *I. carnosus* R. Br. Prodr. 485. 1810; Keith, l.c. 573; *I. littoralis* (L.) Boiss., Fl. Orient. iv. 112. 1875; non Blume, Keith, l.c.

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A trailing undershrub 30-60 cm tall, rooting on the undersurface of the branches. Leaves fleshy, 10-40 mm long, oblong, fiddle shaped or 3-lobed, lateral lobes often bifid, terminal ones oblong-elliptical, obtuse. Peduncles solitary axillary, 1-flowered. Sepals elliptical, obtuse, mucronate. Corolla 35-40 mm long, cream coloured with purple centre. Stigma lobes globose.

Type: Described from Naples, Italy.

Reported from Tripolitania (Farwa Island, off the coast of Zuara) by Keith, l.c.

Distribution: S. Europe, Mediterranean region, Lebanon, Syria and Palestine in sandy sea shores and temperate regions.

Fl. April-August. Vern. Alleg, Eng. Coast Morning glory.

Ipomoea carnea Jacq. Sel Stirp. Amer. Hist. t. 18. 1763, a native of S. America is sometimes cultivated as an ornamental and a hedge plant in Benghazi and elsewhere.

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