
Family 54. PAPAVERACEAE

D. R. MCKEAN

Annual or perennial herbs, usually with milky or coloured latex. Leaves mainly alternate, rarely opposite or in a basal rosette, often lobed or deeply dissected. Stipules absent. Flowers actinomorphic, bisexual, solitary or in cymes or racemes. Sepals 2(–3), free, caducous. Petals 4–6, free, usually soon caducous. Stamens 4–6 or numerous; filaments free. Ovary superior, 1-celled or apparently 2–20-celled because of deeply intrusive placentas; placentation parietal. Fruit a many-seeded capsule opening by valves or pores or a lomentum (*Hypecoum*).

- | | |
|---|--------------------|
| 1. Fruit a capsule dehiscing by terminal pores | 4. Papaver |
| + Fruit a capsule dehiscing by longitudinal valves or a lomentum | 2 |
| 2. Leaves armed with prickles | 1. Argemone |
| + Leaves unarmed | 3 |
| 3. Petals yellow, in 2 dissimilar pairs, the inner pair lobed; fruit a lomentum | 5. Hypecoum |
| + Petals red or purple, all similar, never lobed; fruit a linear capsule | 4 |
| 4. Flowers red or yellow; fruit 10–20cm long | 2. Glaucium |
| + Flowers purple; fruit up to 4.5cm long | 3. Roemeria |

1. ARGEMONE L.

Annual or short-lived perennial herbs, armed throughout with sharp prickles; latex white or yellow. Leaves sinuate to pinnatifid, glaucous, with conspicuous white veins, margins spiny, amplexicaul at the base. Flowers showy, solitary in the upper leaf axils. Sepals 2–3, spine-tipped. Petals 4–6, yellow. Stamens numerous. Ovary 1-

locular, with 3–5 placentas. Stigma sessile, star-shaped. Fruit a many-seeded capsule, splitting by 3–6 valves at the top; seeds black.

1. Petals golden yellow; buds spherical; the top of the capsule obscured by the stigmatic arms **1. A. mexicana**
- + Petals pale whitish yellow; buds oblong; the top of the capsule visible between the stigmatic arms **2. A. ochroleuca**

1. A. mexicana L., Sp. pl.: 508 (1753). Illustr.: Collenette (1985 p.388).

Stems erect, up to 1m. Leaves somewhat fleshy, pinnatifid, elliptic-oblong, up to 12 × 5cm, the margins and the veins beneath armed with sharp prickles. Flowers sessile. Petals golden yellow, obovate, 2–3.5 × 1.5–2.5cm. Capsule oblong, 3–4 × 1.5–2cm, armed with prickles, the top surface obscured by the stigmatic arms. **Map 458, Fig. 65.**

Fields and dry waste places; 0–1850m.

Saudi Arabia, Yemen (N & S), Socotra, Oman, Bahrain. A pantropical weed, originally a native of the New World.

2. A. ochroleuca Sweet, Brit. fl. gard. 3, t.232 (1829). Illustr.: Collenette (1985 p.389).

Similar to *A. mexicana* but the leaves more pointed and less fleshy; petals pale yellow; the top surface of the capsule visible between the stigmatic arms. **Map 459.**

A weed of cultivation; 400–1850m.

Saudi Arabia, Yemen (N). A pantropical weed, originally a native of C America.

Often confused with *A. mexicana* and consequently possibly under-recorded in Arabia.

2. GLAUCIUM Miller

Annual, biennial or perennial herbs, pubescent; latex yellow. Leaves fleshy, lobed or dissected, sometimes in a basal rosette, glaucous. Flowers showy, solitary. Sepals 2. Petals 4, red or yellow. Stamens numerous, the filaments filiform. Ovary 2-locular. Stigma 2-lobed. Fruit a linear capsule, 2-horned at the apex, 2-valved, many-seeded, the valves dehiscing from the apex almost to the base.

1. Stem-leaves mainly with 5 or more pairs of lobes, sparsely villous; peduncles shorter than the subtending leaves; annual or biennial **1. G. corniculatum**
- + Stem-leaves mainly with c.3 pairs of lobes, densely villous at least initially; peduncles longer than the subtending leaves; perennial **2. G. arabicum**

1. G. corniculatum (L) J. H. Rudolph, Fl. jen. pl. 13 (1781). Illustr.: Fl. Palaest. 2: t.339 (1966).

Annual or biennial herb up to 50cm. Basal leaves petiolate, oblong, c.10–20 × 6cm,

pinnatipartite with narrowly oblong coarsely-toothed lobes, sparsely villous; stem-leaves amplexicaul, with 5 or more pairs of lobes. Flowers usually red with a dark base, sometimes orange or yellow, 2.5–5cm across; peduncles shorter than or equalling the subtending leaf. Sepals c.3cm, glabrous or sparsely hirsute. Capsule up to 10–20cm long. **Map 460.**

Field margins and rocky deserts; 1750–2150m.

Saudi Arabia, Kuwait. SE Europe, the Mediterranean region, N Africa, SW Asia to W Iran, C Asia.

2. *G. arabicum* Fresen., Mus. Senckenberg. 1: 174 (1834); Illustr.: Fl. Palaest. 2: t.340 (1966); Collenette (1985 p.389).

Similar to *G. corniculatum* but a generally much more densely hairy perennial herb; basal leaves usually forming a large basal rosette, with the terminal lobes much larger than the lateral segments; stem-leaves smaller, with c.3 pairs of lobes; flowers yellow or orange-red with a dark base, the peduncles much exceeding the subtending leaves. **Map 461, Fig. 65.**

Wadi beds and dry rocky slopes in deserts; c.650m.

Saudi Arabia. Egypt, Sinai and Palestine.

Very similar to the preceding species but generally a much showier plant with a branched inflorescence and mainly basal leaves. *G. corniculatum* is generally a bushier and more leafy plant. Both species can have a black blotch at the base of the petals.

3. ROEMERIA Medic.

Annual herbs, with foetid yellow latex. Leaves deeply 2–3-pinnatisect into narrow segments. Flowers solitary. Sepals 2. Petals 4, red or violet. Stamens numerous. Ovary 1-locular. Stigma globose, 3–4-lobed. Fruit a linear-cylindrical capsule, 3–4-valved, many-seeded, the valves dehiscent from the apex almost to the base, unilocular.

Kadereit, J.W. (1987). The taxonomy, distribution and variability of the genus *Roemeria* Medic. *Flora* 179: 135–153.

1. *R. hybrida* (L.) DC. subsp. **dodecandra** (Forsskal) E.A. Durande & Barratte, Fl. libyc. prodr.: 6 (1910). Syn.: *Chelidonium dodecandrum* Forsskal (1775 p.100). *R. dodecandra* (Forsskal) Stapf in Akad. Wiss. Wien, Math.-Naturwiss. Kl., Denkschr. 51: 295 (1886); *R. hybrida* subsp. *hybrida* sensu Fl. Kuwait (1985). Illustr.: Collenette (1985 p.392); Mandaville (1990 pl.12); Fl. Kuwait 1: pls. 76–78 (1985) as subsp. *hybrida*.

Erect or ascending annual herb up to 5–50cm, hispid throughout and sometimes also thinly pilose, rarely glabrous. Leaves 2-pinnatisect (except in depauperate forms), 3–12 × 4–5cm, the segments linear to ovate-oblong or triangular, the apex terminated by a straight bristle, the lower and basal long-petiolate. Sepals oblong, c.10 × 3mm. Petals violet-purple, obovate, 10–20mm long. Capsule 2–4.5cm long, covered with setae, rarely glabrous. **Map 462, Fig. 66.**

Rocky and silty deserts, and a weed of cultivated and waste places; 100–1550m.

Saudi Arabia, Kuwait. N Africa & SW Asia.

All Arabian material is referable to subsp. *dodecandra* which differs from subsp. *hybrida* in its shorter capsules (up to 4.5cm), smaller seeds (up to 0.8mm long) and the capsules entirely covered by setae. For a discussion of the distribution and variability of *R. hybrida* see Kadereit (op. cit.). Two specimens (*Collenette* 6535 and 9064) from Saudi Arabia are totally glabrous and may be referable to *R. latiloba* (Hausskn. & Bornm.) Fedde.

4. PAPAVER L.

Annual or biennial herbs with milky latex (in Arabia). Leaves variously dissected or lobed. Flowers solitary on long peduncles. Sepals 2. Petals 4–6, red, violet, white or yellow. Stamens numerous. Ovary 1-celled but often appearing 3–20-celled because of intrusive placentas. Stigmas 4–20, radiating from the centre of a sessile lobed disc. Fruit a many-seeded, globose or ellipsoid capsule dehiscent from pores beneath the stigmatic disc.

Kadereit, J.W. (1988). A revision of *Papaver* L. section *Rhoeadium* Spach. *Notes Roy. Bot. Gard. Edinburgh*. 45: 225–286.

- | | |
|---|---------------------------------------|
| 1. Stem-leaves amplexicaul | 2 |
| + Stem-leaves sessile, but not amplexicaul | 4 |
| 2. Petals lilac or white with a purple blotch at the base; capsules 3–7 × 4–5cm; leaves simple, serrate-dentate | 1. P. somniferum |
| + Petals red; capsules up to 3 × 2cm, leaves usually deeply dissected | 3 |
| 3. Capsule globose, rounded at the base, not or obscurely ribbed | 2. P. glaucum |
| + Capsule obconical, tapered to the base, ribbed | 3. P. decaisnei |
| 4. Capsule beset with ascending setae | 8. P. hybridum |
| + Capsule glabrous | 5 |
| 5. Capsule subglobose, rounded at the base | 5. P. rhoeas |
| + Capsule obconical or oblong-elliptic, tapered to the base, usually at least 2 × as long as broad | 6 |
| 6. Stigmatic rays distinctly ridged, the sinuses between them extending to over half the radius of the disc | 4. P. macrostomum |
| + Stigmatic rays not ridged, the sinuses between them very shallow, inconspicuous | 7 |
| 7. Capsule with a pronounced conical apex or umbo; terminal leaf-lobes much broader than the laterals | 6. P. umbonatum |
| + Capsule flat-topped or slightly conical; terminal leaf-lobes about as broad as the laterals | 7. P. dubium subsp. laevigatum |

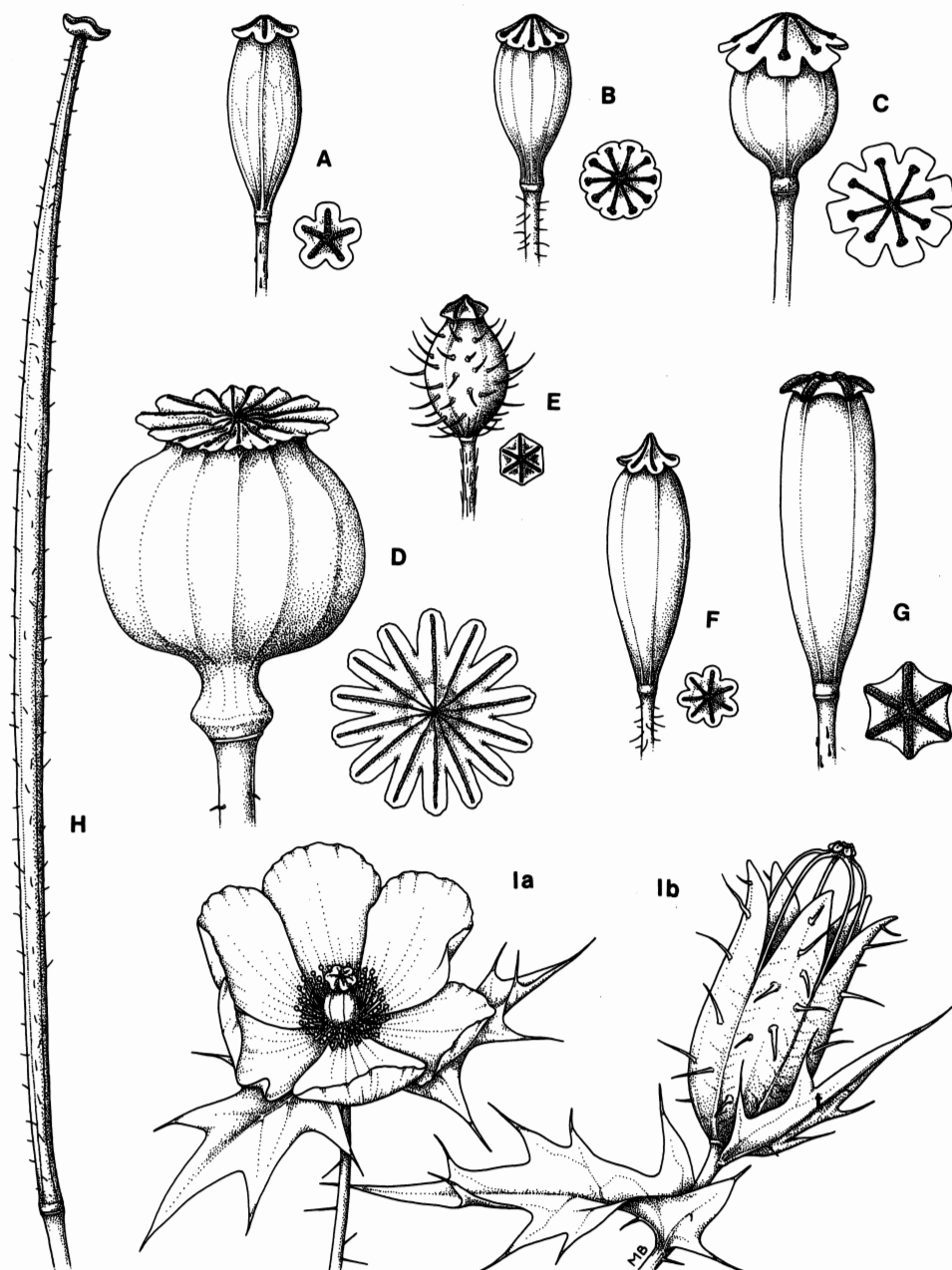


Fig. 65. Papaveraceae. A–G, *Papaver* fruits (all $\times 1$): A, *P. dubium*; B, *P. rhoeas*; C, *P. glaucum*; D, *P. somniferum*; E, *P. hybridum*; F, *P. umbonatum*; G, *P. macrostomum*. H, *Glaucium arabicum*: fruit ($\times 1$). I, *Argemone mexicana*: Ia, flower ($\times 1$); Ib, dehiscent fruit ($\times 1$).

1. *P. somniferum* L., Sp. pl.: 508 (1753).

Erect glaucous annual, simple or branched, up to 30–100cm, usually glabrous, rarely sparsely setose. Leaves ovate-oblong, undulate, irregularly serrate-dentate; stem-leaves amplexicaul. Flowers large and showy; peduncles glabrous or setose. Petals orbicular, lilac to white, usually with a dark purple blotch at the base. Filaments clavate. Capsule subglobose, 3–7 × 4–5cm, glabrous; stigmatic disc mainly flat or slightly conical. **Map 463, Fig. 65.**

Weed of waste places, rubbish dumps, etc; 10–2000m.

Saudi Arabia, Yemen (N), ?Kuwait. A widespread weed in the warm temperate regions of the world.

Rarely (?still) cultivated in the SW escarpment mountains. Recorded from Kuwait (Dickson et al. 1973) but not seen recently.

2. *P. glaucum* Boiss. & Hausskn. in Boiss., Fl. orient. 1: 116 (1867). Illustr.: Collenette (1985 p.391); Fl. Iraq 4 (2): 800 (1980).

Glaucous annual or biennial, glabrous throughout, 10–50cm. Leaves mainly towards the base of the stem, oblong, pinnatisect with toothed segments; stem-leaves amplexicaul. Flowers c.6cm diam.; peduncles long, glabrous. Petals crimson with a dark basal spot. Capsule globose, 15–20 × 7–12mm, shortly stipitate, glabrous; stigmatic disc flat to conical. **Map 464, Fig. 65.**

Sandy wadi-beds and rocky ravines; 700m.

Saudi Arabia. SW Asia.

3. *P. decaisnei* Hochst. & Steud. ex Elkan, Tent. Mon. gen. Papav.: 26 (1839).

Erect glaucous annual, usually glabrous, sometimes sparsely setose, 10–50cm. Leaves oblong, pinnatifid or pinnatisect with entire or toothed segments; stem-leaves amplexicaul. Flowers c.2cm diam.; peduncles long, glabrous. Petals red to purple. Capsule obconical, to 16 × 8mm, ribbed, tapered at the base, glabrous; stigmatic disc flat. **Map 465, Fig. 65.**

Sandy and rocky deserts; 350–1220m.

Saudi Arabia, Oman, UAE. Egypt and SW Asia from Jordan to Pakistan and Afghanistan.

4. *P. macrostomum* Boiss. & Huet ex Boiss., Fl. orient. 1: 115 (1867). Illustr.: Fl. Iraq 4, 2: 800 (1980).

Erect or ascending annual, 15–40cm, adpressed-setose to glabrous above, hispid below. Leaves oblong, pinnatisect, with entire or toothed segments, hispid on the midrib beneath and sometimes above. Flowers 4–9cm diam.; peduncles adpressed-setose. Petals scarlet with a dark purple base. Capsule oblong-elliptic, 10–20 × 4–9mm, faintly ribbed, glabrous; stigmatic disc flat, the rays ridged with the sinuses between them extending to over half the radius of the disc. **Map 466, Fig. 65.**

Stony hillsides and wadi-beds in Iraq - no habitat details available for Arabia.

?Kuwait. Syria and Turkey eastwards to Afghanistan.

Recorded from Kuwait (Dickson et al. 1973) but not seen recently.

5. *P. rhoeas* L., Sp. pl.: 507 (1753). Syn.: *P. polytrichum* Boiss. & Kotschy ex Boiss., Diagn. pl. orient. sér. 2, 5: 14 (1856). Illustr.: Fl. Palaest. 1: pl.334 (1966) as *P. polytrichum*.

Erect, usually branched annual, 20–60cm, usually hispid throughout, sometimes adpressed-setose above. Leaves pinnatisect or pinnate into serrate segments; segments oblong, the terminal the largest, hispid especially on the main veins. Flowers 15–40mm diam.; peduncles hispid with adpressed or spreading hairs. Petals red with a dark blotch at the base. Capsule subglobose, 10–20 × 7–11mm, rounded at the base, glabrous; stigmatic disc flat. **Map 467, Fig. 65.**

A weed of cultivation and waste places; (50–)1500–2150m.

Saudi Arabia, ?Kuwait. Europe, N Africa and Asia.

Recorded from Kuwait (Dickson et al. 1973) but not seen recently. Its presence in Kuwait needs confirming.

6. *P. umbonatum* Boiss., Diagn. pl. orient. sér. 1, 2(8): 11 (1849). Syn.: *P. syriacum* Boiss. & Blanche ex Boiss., op. cit.: 11. Illustr.: Fl. Palaest. 1: pl.332 (1966).

Annual herb; stems erect to ascending, branched from the base, 10–40cm, sparsely hairy below. Leaves obovate, pinnatifid to pinnatisect, with the terminal segment much broader than the laterals. Flowers c.4cm diam.; peduncles hispid with adpressed to spreading hairs. Petals dark purple at the base. Capsule obovoid, 8–20 × 3–7mm, glabrous; stigmatic disc clearly umbonate, the stigmatic rays not ridged, the sinuses between the rays shallow. **Map 468, Fig. 65.**

Garden weed; 20m.

Qatar. Turkey, Syria, Lebanon and Palestine.

Recorded as a garden weed from Qatar (Boulos 1978 p.390) but apparently not seen recently.

7. *P. dubium* L. subsp. *laevigatum* (M. Bieb.) Kadereit, op. cit.: 244 (1988). Illustr.: Collenette (1985 p.390).

Erect annual, 10–75cm, sparsely to moderately setose; basal leaves long-petiolate, up to 20 × 6cm; stem-leaves sessile, much smaller, obovate, mainly 1–2-pinnatisect. Flowers c.5cm diam.; peduncle adpressed-setose. Petals red with a small to large dark basal spot. Capsule obconical, c.18 × 6mm, ribbed, glabrous. Stigmatic disc conical, the rays not ridged, the sinuses between the rays shallow. **Map 469, Fig. 65.**

Weed of cultivation, under acacias in a grassy valley; 900–3000m.

Saudi Arabia, Yemen (N), ?Oman. Europe, the Mediterranean region, Ethiopia and SW & C Asia.

Blatter (1919–1936 p.6) doubtfully records this species from Oman. However, it has not been recollected and its presence there seems unlikely.

8. *P. hybridum* L., Sp. pl.: 506 (1753). Illustr.: Fl. Pakistan 61: 11 (1974).

Erect or ascending annual, slightly branched, up to 50cm, glabrous or hispid. Leaves 1–3-pinnatisect, with linear-oblong segments, the segments serrulate, the basal leaves long-petiolate, the stem-leaves sessile, sparsely setose beneath. Flowers solitary, up to 3.5cm diam.; peduncles 5–20cm, adpressed-setose. Petals light to dark red, dark blotched at the base. Capsules ovoid or ellipsoid, 8–18 × c.10mm, densely setose; stigmatic disc cone-shaped, narrower than the capsule, with 4–8 prominent rays. **Map 470, Fig. 65.**

Weed of cultivation and waste places; 50–2050m.

Saudi Arabia, ?Kuwait. Temperate Europe and Asia.

A literature record of this species is noted in the Flora of Kuwait (1985 p.69). However, it has not been seen recently and its presence in Kuwait needs confirming.

5. HYPECOUM L.

Glabrous, glaucous, low-growing annual herbs with watery latex. Leaves 2–4-pinnatisect, with narrow segments. Flowers in dichasial cymes, mainly yellow. Sepals 2. Petals 4, in 2 series, the inner pair 3-lobed, the outer pair lobed or simple. Stamens 4 with winged filaments. Fruit a lomentum, splitting into 1-seeded segments, articulated, transversely ribbed.

H. deuteroparviflorum Fedde has been recorded from Saudi Arabia (Migahid 1978, 1: 44) and Kuwait (Dickson et al., 1973). However, no verified Arabian material has been seen and these records are probably based on misidentifications of either *H. pendulum* or *H. geslinii*. It is distinguished from these species by its 3-lobed, not entire, outer petals.

1. Fruit pendulous; articulations of fruit scarcely thickened; central lobe of the inner petals as broad as or narrower than the entire lower part of the petal; inner petals with dark markings **1. *H. pendulum***
- + Fruit ascending; articulations obviously thickened; central lobe of the inner petals broader than the entire lower part of the petal; inner petals without dark markings **2. *H. geslinii***

1. *H. pendulum* L., Sp. pl.: 124 (1753). Illustr.: Fl. Kuwait (1985 pls. 80–81).

Ascending to decumbent herb with 1–several stems from a basal rosette, up to 35cm. Basal leaves up to 12cm long, 2–3-pinnatisect, the segments linear. Flowers pale to mid-yellow, 5–6(–10)cm long. Sepals ovate to lanceolate, c.3mm long. Outer petals variable, from lanceolate to obscurely lobed. Inner petals with dark purple markings, the central lobe as broad as or narrower than the base of the petal. Fruit pendulous, linear-cylindrical, 20–60 × 1.5–3mm, straight or slightly curved. **Map 471, Fig. 66.**

Silty and sandy soils, in wadis, deserts and fields; 10–1200m.

Saudi Arabia, Bahrain, Kuwait. S Europe, N Africa and W Asia.

Mandaville (1990 p.51) remarks that specimens of *Hypecoum* with immature fruits can be difficult to distinguish but that the proportional width of the central lobe of the inner petal compared to that of the entire base of the petal is a reasonably reliable character. He also observes that the dark markings on the inner petals of *H. pendulum* are reasonably diagnostic but can be lost in dried specimens. The two species (at least in Eastern Saudi Arabia) have habitat preferences, *H. pendulum* for silty soils and *H. geslinii* for sand.

2. *H. geslinii* Coss. & Kral. in Bull. Soc. Bot. France 4: 522 (1857). Illustr.: Fl. Kuwait (1985 pl.79); Collenette (1985 p.389); Mandaville (1990 pl.13).

Ascending to decumbent herb with usually many stems from a basal rosette, 10–40cm. Basal leaves up to 15cm, 2–3 pinnatisect, the segments linear. Flowers yellow, 5–7mm long. Sepals lanceolate, c.2–3mm. Outer petals narrowly rhomboid, c. 6 × 2mm. Inner petals without dark markings, the central lobe broader than the entire lower part of the petal. Fruit ascending, 20–35 × 1.5–2mm. **Map 472, Fig. 66.**

Sandy deserts and fields; 250–1000m.

Saudi Arabia, Kuwait. N Africa, Palestine, Jordan and Iraq.

See comments under *H. pendulum*.

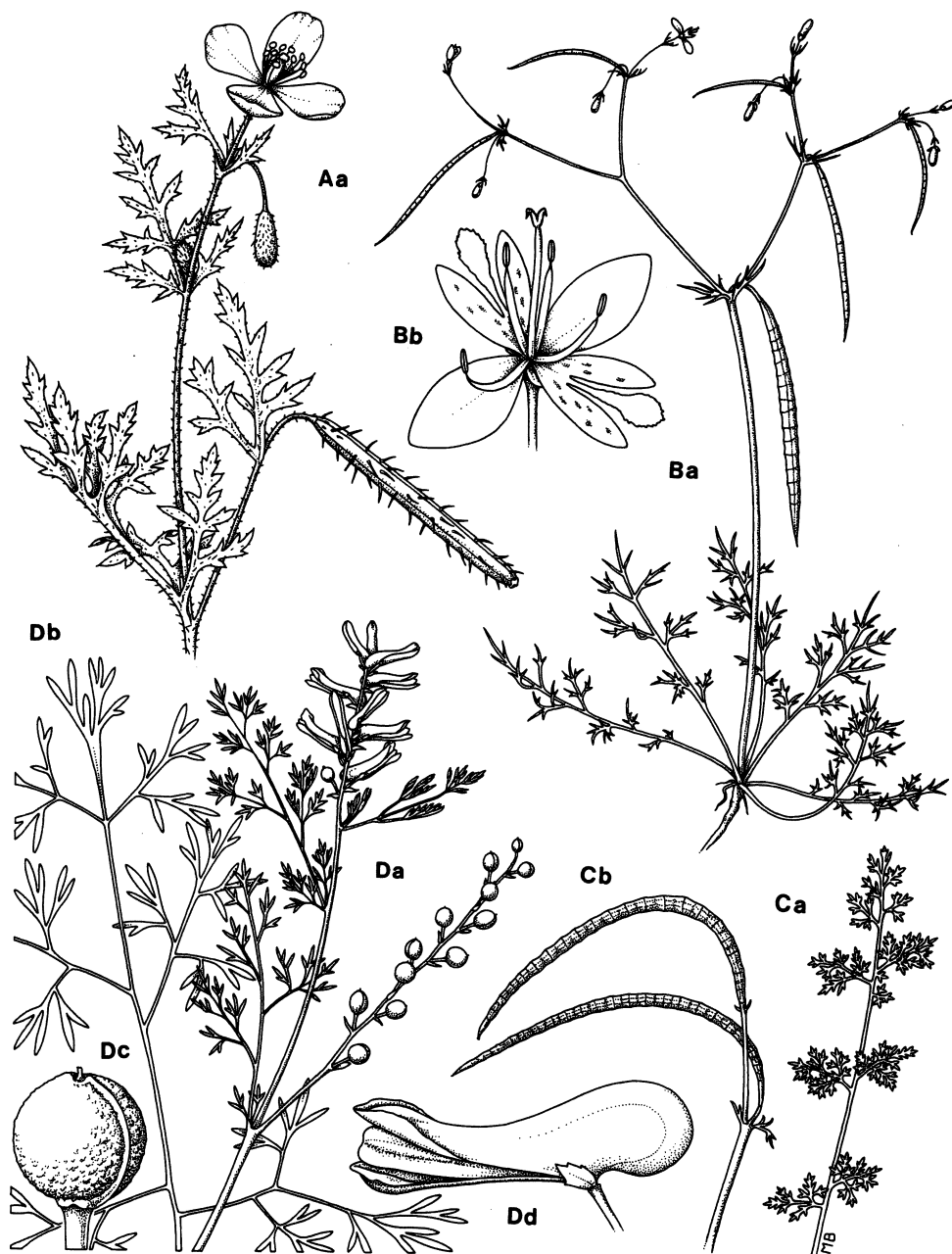
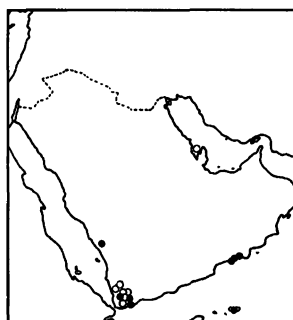
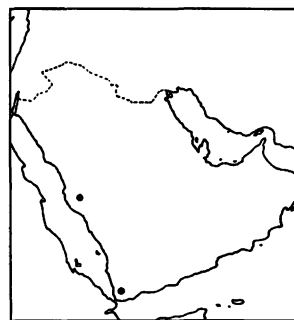


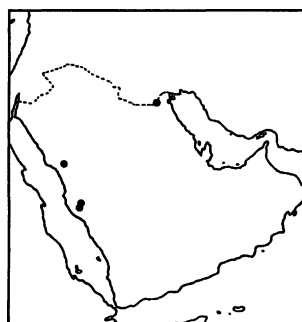
Fig. 66. Papaveraceae. A, *Roemeria hybrida* subsp. *dodecandra*: Aa, flowering and fruiting shoot ($\times 1$). B, *Hypocoum pendulum*: Ba, habit ($\times 0.6$); Bb, flower ($\times 5$). C, *H. geslinii*: Ca, leaf ($\times 1.5$); Cb, fruits ($\times 1.5$). **Fumariaceae.** D, *Fumaria parviflora*: Da, habit ($\times 2$); Db, leaf ($\times 10$); Dc, fruit ($\times 10$); Dd, flower ($\times 10$).



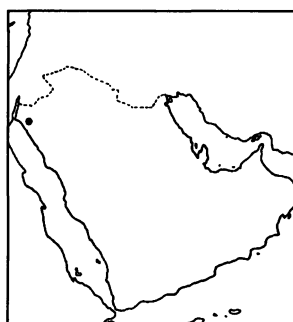
Map 458. *Argemone mexicana*



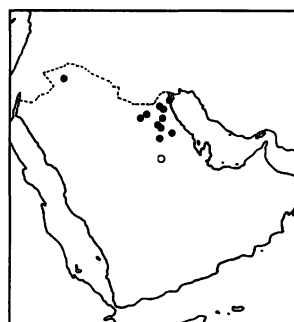
Map 459. *A. ochroleuca*



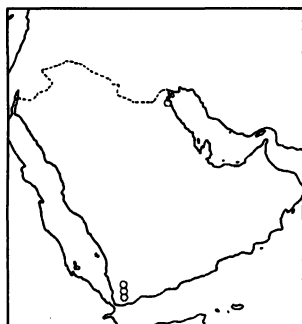
Map 460. *Glaucium corniculatum*



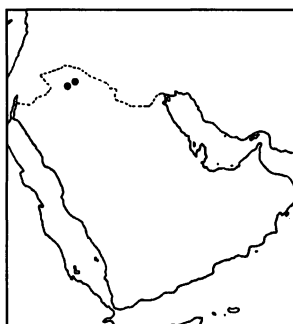
Map 461. *G. arabicum*



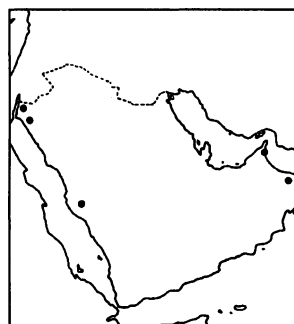
Map 462. *Roemeria hybrida*
subsp. *dodecandra*



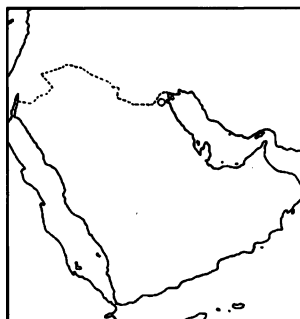
Map 463. *Papaver somniferum*



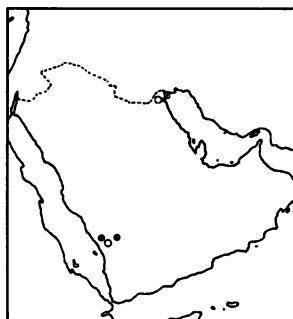
Map 464. *P. glaucum*



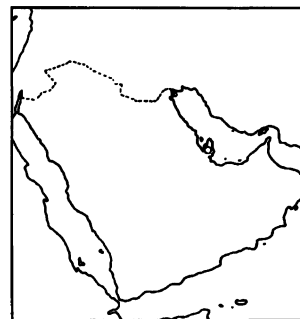
Map 465. *P. decaisnei*



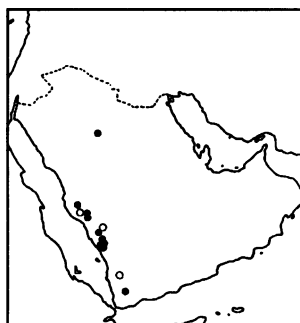
Map 466. *P. macrostomum*



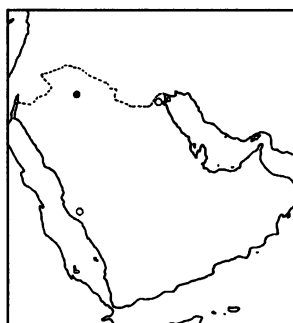
Map 467. *P. rhoeas*



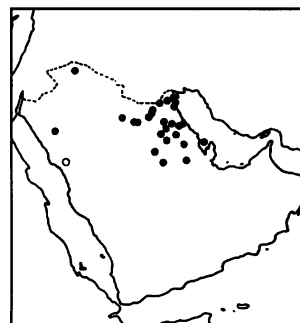
Map 468. *P. umbonatum*



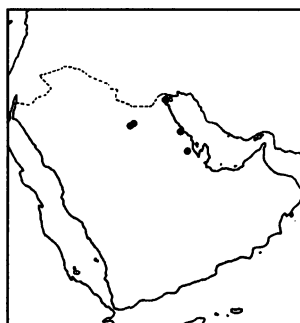
Map 469. *P. dubium* subsp. *laevigatum*



Map 470. *P. hybridum*



Map 471. *Hypecoum pendulum*



Map 472. *H. geslinii*