

Flora of Nepal

नेपालका वनस्पति

Capparaceae

Capparaceae: Webedition 1 (2012)

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2: Format, abbreviations and categories used in Flora of Nepal

See printed volumes of the Flora of Nepal (www.rbge.org.uk/publications/floraofnepal) and the project website (www.floraofnepal.org) for further information on the Flora of Nepal and acknowledgement of the institutes and people involved with this international collaborative project.



Royal
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Capparaceae

Capparaceae

Gordon C. Tucker, Krishna K. Shrestha & Sajan Dahal

Evergreen or deciduous shrubs, trees, or woody vines. Stipules small or spine-like, sometimes absent. Branchlet base sometimes with subulate scales (cataphylls). Leaves alternate, simple or trifoliolate, petiolate. Inflorescences axillary or supra-axillary, racemose, corymbose, subumbellate, or paniculate, 2–10-flowered, or flowers solitary in leaf axil. Flowers bisexual, rarely unisexual, actinomorphic or rarely zygomorphic, often with caducous bracts. Sepals 4–6, in 1 or 2 whorls, free or basally connate. Petals absent or 4(–6), alternating with sepals, free, with or without a claw. Receptacle often extended into an androgynophore, with nectaries. Stamens 8–80; filaments on receptacle or androgynophore, free, inflexed or spiralled in bud; anthers 2-celled, introrse, basifixed or dorsifixed. Pistil 2(–8)-carpellate; gynophore about as long as stamens. Ovary 1-locular, with 2 to several parietal placentae or (3–)4-locular with axile placentation. Ovules few to many. Style obsolete or highly reduced, sometimes elongated and slender. Stigma capitate or not obvious, rarely 3-branched. Fruit a berry or drupe. Seeds 1 to many, reniform to polygonal, smooth or variously sculptured. Worldwide about 28 genera and 650 species, mostly in tropics and subtropics with a few in temperate regions. Three genera and eight species in Nepal.

Key to Genera

- 1a Leaves compound, with 3 leaflets **1. *Crateva***
b Leaves simple **2**
- 2a Petals 4. Anthers basifixed. Placentation parietal. Fruit a berry. Gynophore equalling or exceeding length of mature fruit **2. *Capparis***
b Petals absent. Anthers dorsifixed. Placentation axile. Fruit a drupe. Gynophore less than 1/5 as long as mature fruit **3. *Stixis***

1. *Crateva* L., Sp. Pl. 1: 444 (1753).

Deciduous trees, glabrous throughout. Twigs terete or angular, with lenticels. Stipules triangular, small, caducous. Cataphylls absent. Petioles long, often with glands in upper part. Leaves trifoliolate. Petiolules short, thin when young, becoming thick in maturity. Lateral leaflet blades with asymmetric bases. Inflorescences corymbose racemes at tips of new branches. Bracts at bases of pedicels, caducous. Flowers actinomorphic, unisexual (due to failure of one sex to develop). Pedicels long. Receptacle disk-like, inner surface concave, with nectary. Sepals 4, greenish, equal, smaller than petals, deciduous. Petals 4, white, cream-coloured, or yellow, equal, clawed, blade ovate to rhomboid. Stamens 16–30; filaments basally connate to form an androgynophore. Gynophore 2–8 cm but degenerate in staminate flower. Ovary 1-locular, placentae 2, ovules many. Style short or absent, stigma inconspicuous, knob-shaped. Fruit a berry, globose or ellipsoid, drooping; pericarp drying to grey, red, purple, or brown, leathery, apically smooth or papillate. Seeds ovoid, 25–50 per berry, embedded in creamy foetid or pungent mesocarp.

About ten species worldwide in the tropics and subtropics north to Japan and south to Argentina. Two species in Nepal.

Key to Species

- 1a Leaflets ovate-orbicular, apex acuminate. Fruit 1.8–2.6 cm **1 *C. religiosa***
b Leaflets oblong-lanceolate, apex acute. Fruit 3–4 cm **2 *C. unilocularis***

1. *Crateva religiosa* G.Forst., Diss. Pl. Esc.: 45 (1786).
Crateva membranifolia Miq.; *C. nurvula* Buch.-Ham.; *C. religiosa* var. *nurvula* (Buch.-Ham.) Hook.f. & Thomson.

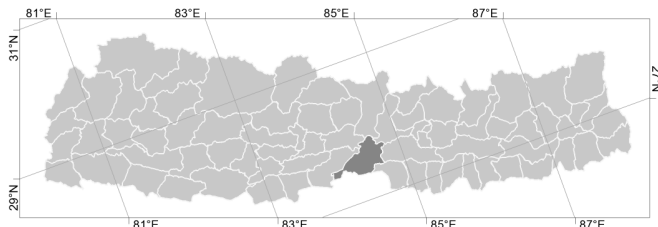
सिप्लीकान Siplikan (Nepali).

Trees 3–15 m. Twigs with grey elongated lenticels. Petioles 5–7(–10) cm, with minute triangular glands above near apex. Petiolules 3–5(–7) mm. Leaflets dull green above with reddish

midvein, grey below, ovate-orbicular, (4–)5.5–7(–10) × (2–)3–4 cm, apex acuminate, nearly coriaceous, secondary veins 5–10 pairs. Inflorescences racemes or corymbs, 10–25-flowered. Bracts 0.8–1.5 cm, leaf-like or slender, caducous. Flowers opening as leaves emerge. Pedicels 2–5(–9) cm. Sepals ovate, 2–4.5 × 1.5–3 mm, apex acuminate. Petals white to yellow, claw 3.5–5 mm, blade 1.5–2.2 cm. Stamens 16–22(–30), filaments 3–6 cm, anthers 2–3 mm. Gynophore 3.5–6.5 cm; ovary ovoid to subcylindric, 3–4 × 1–2 mm. Fruit ovoid to obovoid, 1.8–2.6 cm; pericarp 5–10 mm thick, apically

scabrous and grey to dust-coloured with nearly circular ash yellow flecks; stipe 2.5–3 mm in diameter, thickened, woody. Seeds 25–30 per fruit, dark brown, 12–18 mm, tuberculate. Fig. 1a-b

Distribution: Nepal, E Himalaya, Assam-Burma, S Asia, E Asia, SE Asia and Australasia.



Altitudinal range: 200–1200 m.

Ecology: Roadsides, fields.

Flowering: March–May. **Fruiting:** July–August(–October).

The flowers are fragrant. Often planted as an ornamental in S China and other S and SE Asian countries.

Dried fruit are used medicinally in China.

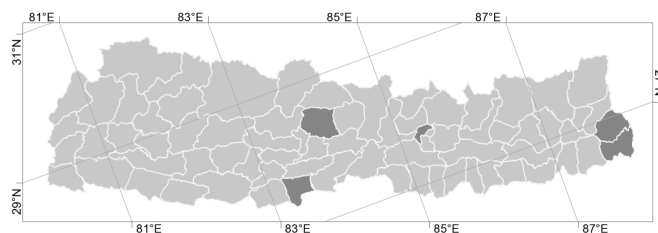
2. *Crateva unilocularis* Buch.-Ham., Trans. Linn. Soc. London 15: 121 (1827).

सिप्लीकान Siplikan (Nepali).

Trees 5–10(–20) m. Twigs with sparse whitish lenticels. Petioles (3–)5.5–9 cm, glands above toward apex. Petiolules (2.5–)4–7 mm. Leaflets oblong-lanceolate glossy, brown below with reddish midvein, elliptic, (6.5–)8–10 × 3–4(–5) cm, apex acuminate to abruptly acuminate, secondary veins 5–8(–10) pairs, subcoriaceous. Inflorescences racemes or corymbs, 13–

25(–35)-flowered. Pedicels 2–4 cm. Sepals linear to narrowly lanceolate, (3–)4–6 × 2–3 mm. Petals white to creamy but drying pinkish, claw 3–7 mm, blade 1.4–2.4 cm. Stamens 16–20; filaments (2–)3–4.5 cm; anthers 2–3 mm. Gynophore 4–6 cm; ovary oblong-ellipsoid, 3–4 × 1–2 mm. Fruit globose, 3–4 cm; pericarp 2–3 mm thick, apically scabrous, with nearly circular small ash yellow flecks; stipe 3–7 mm in diameter, thickened, woody. Seeds 30–50 per fruit, dull brown, lens-shaped, 8–10(–12) mm, smooth.

Distribution: Nepal, E Himalaya, Assam-Burma, S Asia, E Asia and SE Asia.



Altitudinal range: 100–1900 m.

Ecology: Wet areas, commonly cultivated.

Flowering: (December–)March–July. **Fruiting:** July–August.

Nepalese authors (Bull. Dept. Med. Pl. Nepal 7: 44. 1976) have misapplied the name *Crateva religiosa* Forst. to this species.

Trees of *C. unilocularis* are reported to reach 30 m tall in India.

Juice of the bark is taken to promote an appetite and for stomach pain. Juice of young leaves has anthelmintic properties. A paste of the fruit was used to treat smallpox. The plant is also used as fodder.

2. *Capparis* L., Sp. Pl. 1: 503 (1753).

Evergreen shrubs or small trees, erect or climbing, sometimes prostrate or hanging. Twigs with branched or simple trichomes often present (in new twigs), glabrescent or sometimes with persistent trichomes. Cataphylls sometimes present. Stipules absent or spine-like, straight or curved. Leaves simple, papery to leathery, margin entire. Inflorescences supra-axillary, axillary, or terminal, a raceme, corymb, umbel, or panicle, or row of flowers, or flower solitary. Flowers actinomorphic or zygomorphic. Bracts usually present but often caducous. Pedicels long, often twisted, resulting in apparent exchange of position of floral parts. Sepals 4, in 2 whorls. Sepals of outer whorl often thick, dissimilar to almost equal, often inwardly concave or becoming navicular, covering other flower parts, sometimes basal one becoming saccate. Sepals of inner whorl often thin, almost equal. Petals 4, imbricate; lower pair with or without a claw; upper petals with asymmetric base, revolute margin. Stamens 6–80(–200). Gynophore about as long as filaments. Ovary 1-locular, placentas 2–6(–8); ovules few to many. Fruit a berry, spheroid or elongated, often with different colour when mature or dry, usually not dehiscent, 1–many-seeded. Seeds reniform to nearly polygonal.

Worldwide about 250–400 species, mostly in tropical and subtropical regions but some in temperate regions. Five species in Nepal.

The following three species may occur in Nepal and are included in the key: *Capparis assamica* Hook.f. & Thomson, known from Yunnan, Bhutan, NE India, Laos, Myanmar, Thailand and possibly present in E Nepal below 1000 m; *C. sepiaria* L. (syn. *C. flexicaulis* Hance), a widespread species of SE and S Asia, to be expected in Nepal below 250 m; and *C. sikkimensis* Kurz (syn. *C. cathcartii* Hemsl. ex Gamble), an uncommon species of Xizang, Sikkim and W Burma which is possibly present in Nepal, from 1200–1750 m.

Capparaceae

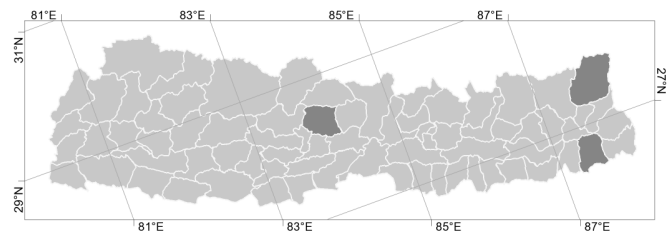
Key to Species

- 1a Flowers in terminal, or axillary subumbellate or racemose clusters2
 b Flowers solitary and axillary, or in supra-axillary rows opening in a basipetal direction4
- 2a Petioles 1–2 cm. Fruit 2.5–4 cm **C. sikkimensis**
 b Petioles 3–8 mm. Fruit 6–10 mm.....3
- 3a Inflorescence terminal or nearly so, racemes, 1- or 2-fascicled, 10–25 cm. Leaves 12–26 cm..... **C. assamica**
 b Inflorescence terminal on lateral shoots, subumbellate or shortly racemose, sessile, (6–)10–22(–25)-flowered. Leaves 2–7 cm **C. sepiaria**
- 4a Flowers solitary and axillary. Seeds numerous5
 b Flowers in supra-axillary rows. Seeds 1–3.....6
- 5a Lower sepal not galeate, 3–4.5 mm deep near apex, shorter than petals. Leaf apex acute, obtuse, or retuse but not acuminate..... **3 C. spinosa**
 b Lower sepal galeate, 9–15 mm deep near apex, longer than petals. Leaf apex acuminate..... **4 C. himalayensis**
- 6a Supra-axillary rows of (4–)7–10 flowers. Stamens 8–12. Leaf base cuneate or abruptly contracted **1 C. multiflora**
 b Supra-axillary rows of (1–)2(–3)-flowers. Stamens 34–38. Leaf base rounded.....7
- 7a Leaf blade ovate. Anthers ca. 2 mm. Seeds 1–3..... **2 C. olacifolia**
 b Leaf blade elliptic-lanceolate to obovate-lanceolate, sometimes linear, or hastate. Anthers 1.2–1.5 mm. Seeds 10–20 **5 C. zeylanica**

1. *Capparis multiflora* Hook.f. & Thomson, Fl. Brit. India 1[1]: 178 (1872).

Shrubs, sometimes twining, or small trees, 3–6 m. Twigs terete, slender, spineless or sometimes with small stipular spines 1–2 mm, glabrous or with scattered, white, branched trichomes, soon glabrescent. Cataphylls subulate, 2–3 mm wide at base. Petioles 8–11 mm. Leaves broadly lanceolate to oblong, widest apically from middle, 5–10 × 2.5–3.5 cm but those subtending inflorescences 15–25 × ca. 6 cm, base cuneate to abruptly contracted, apex acuminate to abruptly acuminate, papery, midvein barely raised above, thickened below and prominent, secondary veins 7–10(–12) pairs, with slender, reticulate veins obvious and forming intra-marginal loops. Inflorescences supra-axillary rows of (4–)7–10 flowers, spaced over 5–10 mm, with several rows on a branch section, 10–20 cm between old and new leaves. Pedicels 0.6–1.5 cm. Sepals 3–4 × ca. 2 mm, slightly unequal; sepals of outer whorl round, slightly larger, navicular, glabrous or margin and outside sometimes distantly pubescent; sepals of inner whorl round, ovate, or obovate, slightly short and narrow, glabrous or with short pubescence, margin membranous. Petals white, equal, oblong, ca. 5 × 1.5–2 mm, glabrous. Stamens (8–)10–12, filaments 6–9 mm, anthers 0.7–0.8 mm. Gynophore 6–12 mm. Ovary ovoid, ca. 1.2 × 1 mm, glabrous or minutely pubescent; placentae 2; ovules several; style glabrous, stigma capitate. Fruit globose, 8–10 mm in diameter; stipe ca. 1 mm thick. Seeds 1 or 2(or 3), ca. 8 × 6 mm.

Distribution: Nepal, E Himalaya, Assam-Burma, S Asia, E Asia and SE Asia.



Altitudinal range: 900–1600 m.

Ecology: Forested ravines.

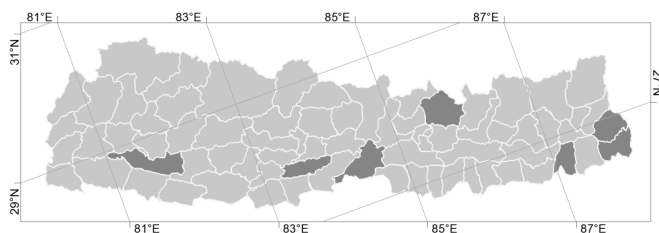
Flowering: June. **Fruiting:** December.

2. *Capparis olacifolia* Hook.f. & Thomson, in Hook.f., Fl. Brit. India 1[1]: 178 (1872).

Shrubs or small trees, 1–5 m, with spreading branches. Twigs densely fulvous or greyish tomentose with small, ca. 5-armed, stellate trichomes. Cataphylls few, 2–3 mm. Stipular spines slender, straight, 3–5(–8) mm, ascending or rarely spreading. Petioles 5–6 mm, with stellate trichomes. Leaves ovate, 7–13 × (3.5–)4–5(–6) cm, base rounded, apex tapering and gradually acuminate, tip blunt to somewhat acute and mucronulate, ± firmly papery, rather glossy above, surfaces soon glabrescent, midvein flat, secondary veins (5 or)6 or 7(or 8) pairs, reticulate veins not distinct. Inflorescences supra-axillary rows, (1 or)2(or 3)-flowered. Pedicels 0.7–1.5 cm, with trichomes. Sepals unequal, 8–10 × (3–)4–5(–6) mm, margin membranous and tomentose; sepals of outer whorl navicular, ovate, surfaces glabrous but margins tomentose, apex acute; sepals of inner whorl elliptic. Petals white, (15–)17–22 × ca. 5 mm; anterior

petals obovate, ca. 2 mm longer than upper petals, outside tomentose toward apex and along margin, apex rounded; upper petals with a pale purple or yellow blotch. Stamens 34–38. Filaments 2.8–3.5 cm. Anthers ca. 2 mm. Gynophore 2.7–3.5 cm, often slightly swollen toward apex, glabrous. Ovary ellipsoid 4–6 × 1–1.5 mm, densely tomentose; placentae 2; ovules several. Style ca. 2 mm, slender, glabrous. Stigma knob-shaped. Fruit globose, 7.5–10 mm wide, apex beaked with persistent ca. 2 mm style; pericarp red, fairly thick. Seeds 1(–3), 7–8 × ca. 6 mm.

Distribution: Nepal, E Himalaya, Tibetan Plateau, Assam-Burma and S Asia.



Altitudinal range: 200–1600 m.

Ecology: Moist forests.

Flowering: April–June. **Fruiting:** June–October.

Wallich (Num. List.: 234 n. 6990B. 1932) misapplied the name *Capparis acuminata* Willd. to this species.

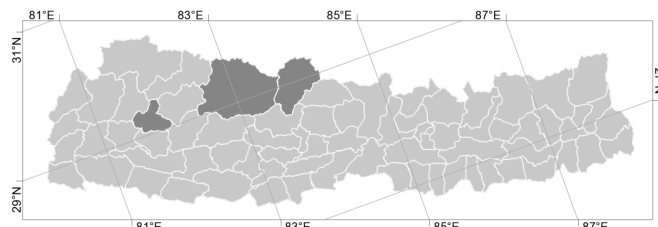
3. *Capparis spinosa* L., Sp. Pl. 1: 503 (1753).
Capparis napaulensis DC.

बाघनङ्गे Bagh nangre (Nepali).

Prostrate or hanging shrubs 50–80(–100) cm tall. Twigs glabrous to densely long or shortly white pubescent with simple trichomes, soon glabrescent. Cataphylls absent. Stipular spines 4–5 mm, ± flat, apex recurved. Petioles 1–4 mm. Leaves ovate, obovate, broadly elliptic, or suborbicular, 1.3–3 × 1.2–2 cm, base rounded, apex acute, obtuse, or retuse but not acuminate, spine-tipped, midvein prominent below but gradually becoming obscure from base to apex, fleshy when fresh but later leathery, secondary veins 4(or 5) pairs. Flowers solitary in upper axils. Pedicels 2–6(–9) cm. Calyx zygomorphic, outside ± with trichomes, inside glabrous; sepals of outer whorl 1.5–2 × 0.6–1.1 cm, navicular-lanceolate, outside with several glands, basally shallowly saccate; sepals of inner whorl 1–2 cm, not saccate, not broadest near base, 3–4.5 mm broad in upper half. Petals dimorphic, about as long or slightly longer than upper sepal; upper petals white, distinct, claw 4–7 mm, blade oblong-obovate, 1–2 cm, outside with trichomes, apex submarginate; upper petals yellowish green to green, enclosed by sepals, thickened, margin connate from base almost to middle. Stamens ca. 80. Filaments 2–4 cm, unequal. Anthers 2–3 mm. Gynophore ca. 1 cm, sometimes basally sparsely villous. Ovary ellipsoid, 3–4 mm, glabrous, apically with vertical thin furrow and ridge; placentae 6–8; ovules numerous. Style and stigma obscure, mound-like. Fruit

dark green when dry, ellipsoid to oblong-obovoid, 1.5–4 × 0.8–1.8 cm, with 6–8 lengthwise thin ridges, dehiscent; fruiting pedicel and gynophore 3–7 cm, 1.5–2 mm in diameter, forming a right angle with each other. Seeds 40–60, 3–4 mm, smooth. Fig. 1c

Distribution: Asia, Europe, Africa and Australasia.



Altitudinal range: 200–2500 m.

Ecology: Plains, desert flats, open and sunny areas.

Flowering: May–August. **Fruiting:** August–October.

Whitmore (Enum. Fl. Pl. Nepal 2: 46. 1979) recorded *Capparis spinosa* from C and E Nepal based on *Wallich s.n.* (BM), (the type of *C. napaulensis*) and *TI 6301945* (TI) respectively, but it has not been possible to obtain more precise locality information for these specimens.

Buds and unripe fruits are cooked as vegetables or pickled. The ripe fruits are eaten fresh. A paste of root is applied for rheumatism, and the juice is given as an anthelmintic.

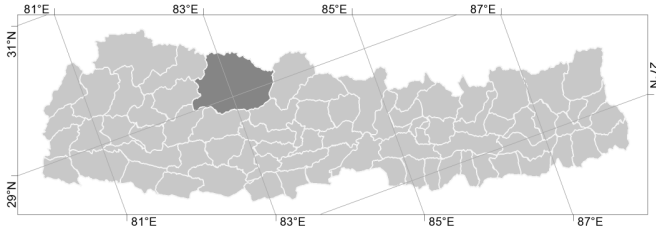
4. *Capparis himalayensis* Jafri, Pakistan J. Forest. 6: 197 (1956).

Capparis spinosa var. *himalayensis* (Jafri) Jacobs.

Prostrate or hanging shrubs 50–80(–100) cm. Twigs white pubescent with dense long to short, simple trichomes, soon glabrescent. Cataphylls absent. Stipular spines pale yellow, 4–5 mm, often flat, apex recurved. Petioles 2–4 mm. Leaves ovate to suborbicular, 1.3–3 × 1.2–2 cm, base rounded, apex shortly mucronate, secondary veins 4(or 5) pairs, reticulate veins invisible on both surfaces. Flowers solitary in upper axils. Pedicels 4–9 cm, ± pubescent. Calyx zygomorphic, with some trichomes outside, glabrous inside: sepals of outer whorl 1.7–3.2 cm, the lower one deeply saccate or galeate, broadest near apex, 0.9–1.5 cm deep in upper half; sepals of inner whorl 1.5–2 × 0.6–1.1 cm. Petals dimorphic, about as long as or slightly longer than upper sepals; upper petals white, distinct, claw 3–5 mm, blade oblong-obovate and outside with trichomes; lower petals yellowish green to green, thickened, margin connate from base almost to middle, enclosed by sepals. Stamens ca. 80; filaments 1.8–2.5 cm, unequal; anthers 2–2.5 mm. Gynophore ca. 1 cm at anthesis, sometimes basally sparsely villous. Ovary ellipsoid, 3–4 mm, glabrous, apically with vertical thin furrow and ridge; placentae 6–8; ovules numerous. Style and stigma obscure, mound-like. Fruit ellipsoid, 2.5–3 × 1.5–1.8 cm, apically with 6–8 dark red vertical thin ridges at carpel sutures, dehiscent; fruiting pedicel and gynophore 3–4 mm, 1.5–2 mm in diameter, forming a right angle with each other. Seeds 40–60, reddish brown, reniform, 3–4 mm wide, smooth.

Capparaceae

Distribution: Nepal, W Himalaya, Tibetan Plateau, E Asia, C Asia and SW Asia.



Altitudinal range: 900–2400 m.

Ecology: Plains, open and sunny areas.

Flowering: April–July. **Fruiting:** August–September.

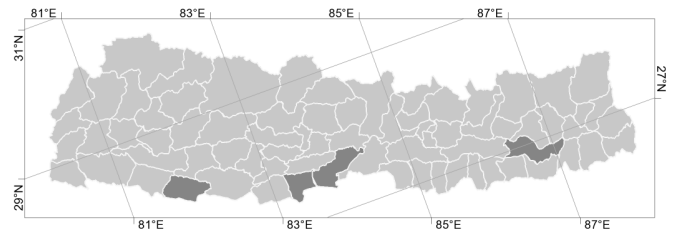
5. *Capparis zeylanica* L., Sp. Pl., ed. 2, 1: 720 (1762).
Capparis hastigera Hance; *C. hastigera* var. *obcordata* Merr. & Metcalf; *C. horrida* L.f.

वन भेंडो Ban bhendo (Nepali).

Scandent or trailing shrubs, 2–5 m. Shoots densely pubescent with red brown to grey stellate trichomes, eventually glabrescent. Cataphylls absent. Stipular spines strong, sharp, recurved, 1–5 mm. Petioles 5–12 mm. Leaves elliptic-lanceolate to obovate-lanceolate, sometimes elliptic, linear, or hastate, 3–8(–13) × 1.5–4(–7.5) cm, base cuneate, rounded, or rarely nearly cordate, apex acute, rounded, or rarely slightly acuminate and often with an outwardly bent or recurved 2–3 mm leathery mucro, midvein flat or impressed above, prominent below, secondary veins 3–7 pairs and slender, reticulate veins obvious on both surfaces, sub-leathery, both surfaces with dense, thin, grey stellate trichomes when young but soon glabrescent. Inflorescences supra-axillary rows, (1 or) 2–3(or 4)-flowered, near apex of young branches, with flowers often opened before leaf emergence and appearing racemose. Pedicels 0.5–1.8 cm, slightly stout, densely shortly

red brown stellate tomentose. Sepals 8–11 × 6–8 mm, slightly unequal, outside ± reddish brown tomentose; sepals of outer whorl nearly orbicular, 1 larger, inside concave, apex acute to obtuse; sepals of inner whorl elliptic. Petals white to rarely yellowish white, oblong, 9–15 × 5–7 mm, glabrous; apical petals with red flecks on central base. Stamens 30–45. Filaments 3.3–4 cm; anthers 1.2–1.5 mm. Gynophore base grey tomentose. Ovary ellipsoid, 1.5–2 mm; placentae 4; ovules many. Stigma obvious. Fruit red to purplish red when mature, globose to ellipsoid, 2.5–4 cm in diameter, verrucose; pericarp firm when dry; fruiting gynophore 3–4.5 cm × 3–6 mm, glabrous; fruiting pedicel 3–5 mm in diameter, thickened, woody. Seeds 10–20, reddish brown, 5–8 × 4–6 mm.

Distribution: Nepal, Assam-Burma, S Asia, E Asia and SE Asia.



Altitudinal range: 100–300 m.

Ecology: Forest margins, thickets, limestone slopes or sandy soil, scattered grasslands.

Flowering: February–April. **Fruiting:** July–September.

Hooker & Thomson (Fl. Brit. Ind. 1: 174. 1872) misapplied *Capparis brevispina* DC. to this species.

Internal application of the root bark is used for colic and in the treatment of cholera. A paste of leaves is applied externally to glandular swellings, piles and boils.

3. *Stixis* Lour., Fl. Cochinch. 1: 290, 295 (1790). *Roydsia* Roxb.

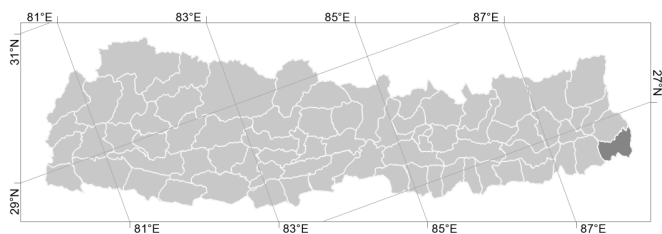
Evergreen, woody vines or climbing shrubs. Stipular spines absent. Petioles sometimes geniculate, apically often thickened. Leaves simple, leathery, glabrous or sometimes with trichomes, midvein with small pustules above, margin entire. Inflorescences axillary racemes or terminal panicles, many-flowered. Bracts subulate, often caducous. Flowers actinomorphic, small. Pedicel short. Sepals (5 or) 6, basally connate into a short tube, lobes erect, spreading, or reflexed. Petals absent. Androgynophore terete, short. Stamens (27–) 40 to ca. 80. Filaments distinct, unequal with outermost shortest; anthers dorsifixed. Gynophore about as long as filaments. Ovary nearly globose or ovoid, glabrous or with trichomes, apically often with vertical grooves, 3(or 4)-loculed, placentation axile; placentae each with 4–10 ovules. Style solitary, linear, entire or divided into 3(or 4) subulate stigmas, sometimes unlobed. Fruit a drupe, ellipsoid, small, surface with lenticels, apex often with persistent style; fruiting pedicel and gynophore about equal, forming a woody stipe much shorter than fruit. Seeds 1(–3) per fruit, ellipsoid, erect.

Worldwide about seven species in E, S, and SE Asia. One species in Nepal.

1. *Stixis suaveolens* (Roxb.) Pierre, Bull. Mens. Soc. Linn. Paris 1: 654 (1887).
Roydsia suaveolens Roxb., Pl. Coromandel 3[12]: 87, pl. 289 (1820).

Woody vines 1–15 m, up to 10 mm thick. Twigs pale red to pale tan-coloured when dry, stout, terete, shortly pubescent, soon glabrescent; internode length unequal, to 5 cm or longer. Petioles (1–)2–3(–5) cm, stout, with bubble-like raised structures, apically with slightly inflated pulvinus. Leaves elliptic, oblong, or oblong-lanceolate, broadest at middle but sometimes slightly basally or apically, (10–)15–28(–40) × (3.5–)4–10 cm, base cuneate to nearly rounded, apex nearly rounded to acuminate and with a 5–12 mm tip, leathery, both surfaces glabrous, secondary veins 7–9 pairs, reticulate veins obvious. Inflorescences 15–25 cm, at first erect then drooping; axis shortly pubescent to shortly tomentose. Bracts linear to ovate, 3–6 mm, trichomes like those on axis. Pedicels 2–4 mm, stout. Receptacle ca. 3.5 mm in diameter, dish-shaped. Sepals pale yellow, elliptic-oblong, (4–)5–6(–9) × 2–3 mm, erect or spreading, never reflexed, both surfaces densely tomentose, apex acute to obtuse. Androgynophore ca. 2 mm, glabrous. Filaments 4–6(–11) mm, pubescent. Anthers 0.5–0.7 mm. Gynophore 7–10 mm, with dense tan pubescence. Ovary ellipsoid, 1.7–2.5 mm, glabrous or basally sometimes with trichomes. Styles 3(or 4), apex recurved. Stigma indistinct. Fruit orange when mature, ellipsoid, 3–5 × 2.5–4 cm, surface with thin yellow verrucose flecks; fruiting pedicel plus gynophore 0.7–1.3 cm, ca. 5 mm in diameter. Seed ellipsoid, 1.8–2 cm.

Distribution: Nepal, E Himalaya, Assam-Burma, S Asia, E Asia and SE Asia.



Altitudinal range: 100–1500 m.

Ecology: Thickets, open forests.

Flowering: April–May. **Fruiting:** August–October.

Capparaceae

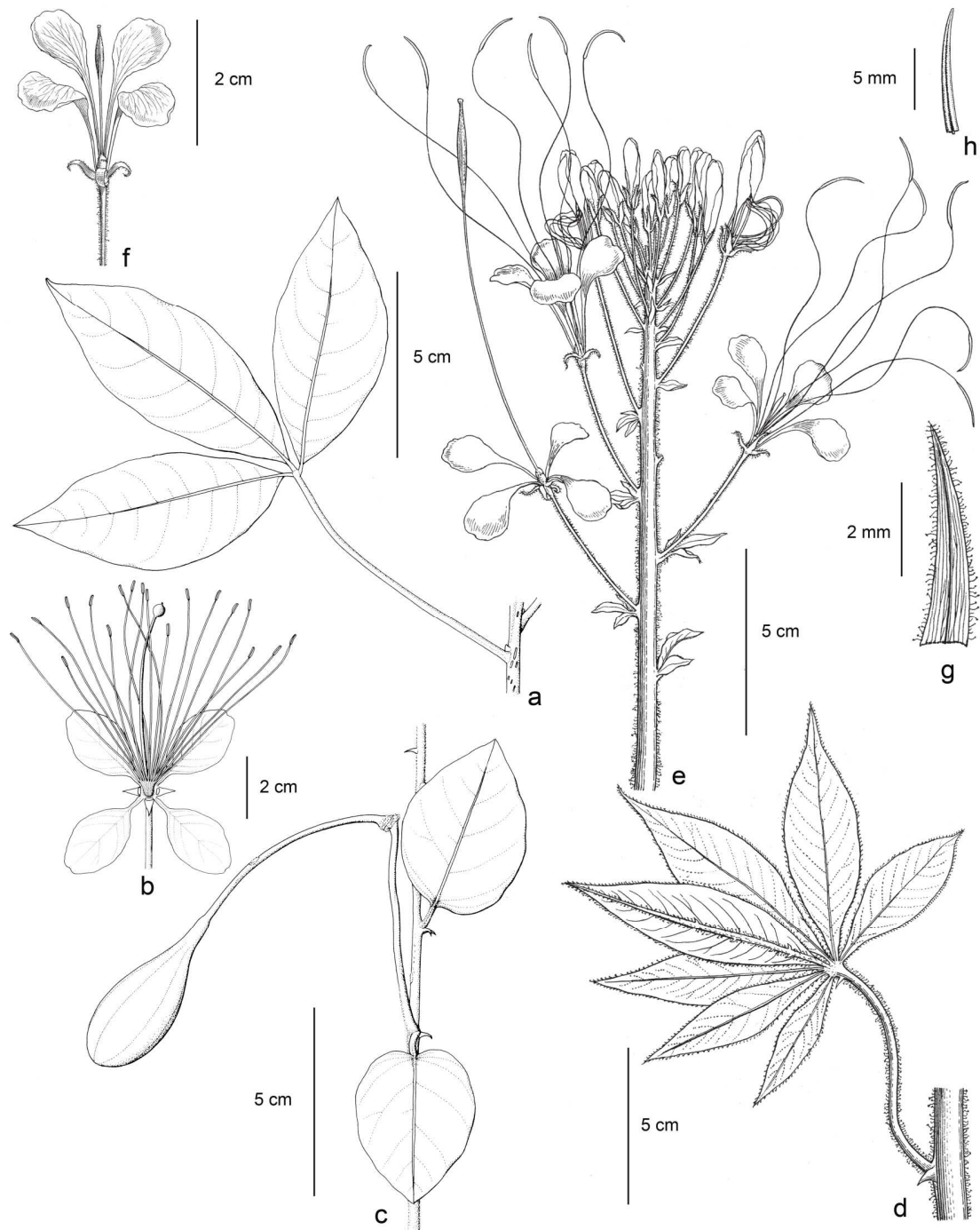


Fig. 1.
CAPPARACEAE. *Crateva religiosa*: a, leaf; b, flower. *Capparis spinosa*: c, twig with fruit.
CLEOMACEAE. *Cleoserrata speciosa*: d, leaf; e, inflorescence; f, flower with stamens removed; g, sepal; h, anther.

Illustration Accreditation

The editors are pleased to credit the artwork from the following artists and sources used by Bhaskar Adhikari when composing the illustrations used in this volume. 'FOB' refers to *Flora of Bhutan* (Grierson, Long & Noltie, 1983–2002. Royal Botanic Garden Edinburgh); 'FOCI' refers to *Flora of China Illustrations* (Wu, Raven & Hong, 1998–ongoing. Science Press (Beijing) & Missouri Botanical Garden Press); and 'FRPS' refers to *Flora Reipublicae Popularis Sinicae* (1959–2004. Science Press (Beijing)). The copyright holders of these three publications, Science Press (Beijing), Missouri Botanical Garden Press, and Royal Botanic Garden Edinburgh, are thanked for permission to reproduce these illustrations, and for their generosity in making the images available in digital format

Fig. 1

- a-c Claire Banks
- d-h FOCI 7: 485. FRPS 32: 535 pl. 134.
1999.- Zhang Hanwen

Capparaceae

How to use this pdf web edition

This Web-edition pdf document forms part of a set of Flora accounts for families and genera that have been finalized, including those in volumes yet to be printed. These pdf documents are made accessible via the *Flora of Nepal* website (www.floraofnepal.org) and will be periodically updated in numbered versions, permanently available and citable.

Flora of Nepal takes an innovative approach to Flora writing, with an underlying data base system managing the *Flora of Nepal Knowledge Base* from which the printed volumes and the 'online Flora' (www.floraofnepal.org) are generated. The Internet-accessible dataset augments the printed Flora by presenting all herbarium specimen data, detailed taxonomic information (such as full nomenclatural references and typification), distribution maps with point occurrences and images used when preparing the Flora. Much of this information is accumulated as a normal part of taxonomic working practices when undertaking a floristic revision, but it is usually lost to a wider audience as it is rarely included in the traditional printed Flora.

Flora of Nepal includes all native and fully naturalized vascular plants recorded within the political borders of Nepal, including brief references to agricultural and horticultural plants as appropriate. For pragmatic reasons the arrangement of families in the printed *Flora of Nepal* follows a modified Englerian sequence, closely following that of the *Flora of China* and, to a lesser extent, the *Flora of Bhutan*.^{1,2} In recent years the world view on the arrangement of families has radically changed following overwhelming phylogenetic evidence. The emergent family-level classification, now in its third iteration as APG III, is reasonably stable and widely accepted.³ It has not been possible to alter the family sequence in *Flora of Nepal* printed volumes midway through the project, but as the data are stored separately in a database, the families can be reorganized electronically at a later date to reflect alternative classifications. Circumscription of families and genera, however, generally does follow a contemporary understanding of their relationships, except where group experts advise otherwise. Genera and species are treated in taxonomic order, or if there is disagreement then morphologically similar species are usually grouped together or occasionally listed alphabetically. Intraspecific taxa are always presented in alphabetical order. Intermediate ranks, such as subfamily, tribe, subgenus, section and series, are only used when they are useful in the treatment of large families or genera.

Information on nomenclature and classification is given for all accepted scientific names and synonyms pertaining to Nepal and nearby regions. Emphasis is given to those names listed in the primary checklists for Nepal: *Enumeration of the Flowering Plants of Nepal*,⁴ *Annotated Checklist of the Flowering Plants of Nepal*,⁵ and *Flowering Plants of Nepal (Phanerogams)*.⁶ At the generic level, synonyms widely used in the Asian literature are included. Full bibliographic citation with authorship is given for all accepted names and their basionyms at the rank of genus and below. As far as possible, the bibliographic citations of all accepted names and their basionyms have been verified with the original literature. The basionym precedes all other synonyms, which are listed alphabetically. Misapplied names (misidentifications encountered in the literature) are not included in synonymy, but are discussed in the supporting information at the end of a taxon. Authors of plant names follow the standard forms given in *Authors of Plant Names* and its continuously updated online supplement (www.ipni.org).⁷ Bibliographic references are given using the standard abbreviations in BPH-2 for serial publications (journals and periodicals) and in TL-2 (and its supplements) for books.^{8,9} In some cases books were published in several fascicles on different dates, sometimes over different years, but not indicated as such in the printed work. Date of publication is critical for establishing nomenclatural priority, and so it is important to be precise when citing names published in such works. The fascicle composition and publication dates of these often complex cases are clearly explained in TL-2, but the standard abbreviation does not differentiate between them. In these instances the TL-2 abbreviation has been amended with brackets to clearly indicate which fascicle is being referred to, for example Wallich, N., Pl. As. Rar. 2[8]. 1831. Books and periodicals not included in these two standard references have been abbreviated according to the recommendation in Appendix A of BPH-2.

Where a taxon has a widely recognized local name this is given in Devanagari script, followed by its transliteration into the Latin alphabet and the language of the vernacular name in parentheses '()'. One local name is given in the printed Flora, whereas multiple alternative vernacular names in different languages may be included in the *Flora of Nepal Knowledge Base* and made available online. Separate indexes to vernacular names in Devanagari, their Latin transliterations and scientific names are included at the end of each volume.

Descriptions are given for all taxa (family, genus, species, infraspecies and occasionally intermediate ranks) and wherever possible are based on primary observations and measurements made on specimens from Nepal. If no such material was available to authors, descriptions are taken from specimens from adjacent countries or secondary sources, and annotated as such. Most descriptions are about 150 words long, but exceptionally they are shorter or longer depending on the complexity of the taxon being described. For species with more than one infraspecific taxon, a full description is given for the species and short diagnoses for the lower taxa. Descriptions aim to be consistent and parallel between taxa of the same rank within a higher taxon. Authors were asked to standardize descriptive terms using the definitions given in *Plant Identification Terminology*.¹⁰ If a single measurement is given it refers to length, and if width is also given it is in the format length x width. Ranges are separated by an en-dash (–) and discontinuous states by the word 'or'. Exceptional measurements are given in parentheses '()'. Taxon statistics and short statements on worldwide distribution are provided for families and genera, with summary statistics of lower taxa represented in Nepal.

Identification keys are dichotomous and presented in a bracketed format, with all elements strictly parallel between the two leads of each couplet. Keys are artificial and not intended to reflect any taxonomic classification. There is usually a single key to genera within a family, combining flowering, fruiting and vegetative characters, but where this is unwieldy separate keys are given for flowering and fruiting material (e.g. Cruciferae, Rosaceae). Keys are also given for species within a genus and taxa within a species. Figures are provided to aid identification by illustrating the diagnostic characters of each family and genus, and for large genera variation in major morphological features is represented.

The geographic distribution within Nepal is indicated for each species and infraspecific taxon at the political district level by a shaded distribution map. The distribution maps are evidence-based, produced from the *Flora of Nepal Knowledge Base* using locality information taken from authenticated herbarium specimens and records of plants *in situ* made by credible observers. Ideally all specimens identified by authors should be geo-referenced and databased when they are preparing *Flora of Nepal* accounts, but where this is not possible a minimum of one specimen per district is required. Sometimes the distribution of a species is greater than the sum of the distribution maps of its infraspecific taxa. This is a result of some herbarium specimens only being identifiable to species level. Occasionally species are known only from poorly localised collections, especially those from the early 19th century. For example, Wallich often only gave 'Nepalia' as the locality for many of his 1820–1821 collections. These specimens are most likely to have come from the Kathmandu Valley, known as the 'Nepal Valley' or just 'Nepal' at that time, but they might also have been collected during his inward and outward journeys from India via Hetauda, or by pilgrims going north to 'Gossainthan' (Gossainkund). It is therefore impossible to be sure of the correct district and in such cases this is noted in the supporting information and the map omitted. The *Flora of Nepal* website gives access to the underlying distribution and specimen information through an interactive dot map plotting all geo-referenced occurrence records and a listing of all material recorded.

Distribution for species and infraspecific taxa occurring outside Nepal is indicated by a list of geographical regions, with the resolution becoming coarser with increasing distance from Nepal. In order to utilise information contained within other published Floras these areas are defined according to political borders, with countries or provinces grouped to form regions that have some underlying biogeographic basis. For example, although the Tibetan Plateau extends into parts of Sichuan and Yunnan, we limit it to Xizang and Qinghai. *Flora of Nepal* takes no stance on any politically disputed border areas and is following the current

Capparaceae

international mapping convention of using the 'lines of control' to delineate its regions. The names used for the regions are intended to be descriptive and non-political. The regions are:

<i>W Himalaya</i>	India (Jammu & Kashmir, Himachal Pradesh, Uttarakhand), northern Pakistan (Khyber Pakhtunkhwa, previously known as North West Frontier Province).
<i>E Himalaya</i>	Sikkim, Darjeeling, Bhutan, NE India (Arunachal Pradesh).
<i>Tibetan Plateau</i>	China (Xizang, Qinghai).
<i>Assam-Burma</i>	Assam, Nagaland, Manipur, Myanmar.
<i>S Asia</i>	Eastern Pakistan (Punjab, Sind, Islamabad), Peninsular India, Sri Lanka, Bangladesh, Maldives.
<i>E Asia</i>	China (excluding Xizang, Xinjiang, Qinghai), Korea, Japan, Taiwan.
<i>SE Asia</i>	Thailand, Laos, Cambodia, Vietnam, Malaysia, Indonesia, Philippines, New Guinea.
<i>N Asia</i>	China (Xinjiang), Russia, Mongolia.
<i>C Asia</i>	Kazakhstan, Uzbekistan, Turkmenistan, Tajikistan, Kyrgyzstan.
<i>SW Asia</i>	Afghanistan, western Pakistan (Baluchistan, Federally Administered Tribal Areas), Iran, Middle East, Arabian Peninsula, Turkey, Azerbaijan, Armenia, Georgia.
<i>Asia</i>	collective term for all above areas of Asia.
<i>Europe</i>	includes Ukraine, Belarus, Baltic republics.
<i>Africa</i>	includes Madagascar.
<i>N America</i>	includes C America south to Panama.
<i>S America</i>	south of Panama.
<i>Australasia</i>	Australia, New Zealand, Pacific Islands.
<i>Cosmopolitan</i>	collective term for a generally worldwide distribution.

Altitudes (elevation above sea level) are based on herbarium specimen data or records from credible observers. They are given to the nearest 100 m rounded up or down, with exceptional altitudes given in parentheses '()'. Likewise, flowering and fruiting times are based on specimens collected from Nepal, or on material from adjacent regions if these data are lacking and a note is provided to explain this. The short statement on the ecological preference of each species and infraspecific taxon is mostly taken from herbarium specimen data. Currently these often lack detail, a reflection of the shortcomings of poor-quality data recorded by the past collectors of herbarium material, but these will improve with more field studies.

Supplementary information is given at the end of a taxon account discussing taxonomic issues, highlighting spot characters useful for identification, noting similar species that could cause confusion, and detailing the misapplication of names. Summary information is provided for ethnobotanical and other uses, but this is not intended to be exhaustive and is derived from secondary sources, such as *Plants and People of Nepal* and *A Compendium of Medicinal Plants of Nepal*.^{11, 12}

Abbreviations

Standard abbreviations for the International System of Units (SI) are used for measurements. Herbaria are cited using the standard abbreviation in *Index Herbariorum*.¹³ Other abbreviations used in the text include:

C	central.
ca.	<i>circa</i> – about, approximately.
comb. nov.	<i>combinatio nova</i> – new combination of name and epithet.
dbh	diameter at breast height – measured on tree trunks at 1.3 m above the ground.
E	east, eastern.
et al.	<i>et alia</i> – and others.
fig.	figure.
N	north, northern.

nom. cons.	<i>nomen conservandum</i> – name officially conserved in ICBN. ¹⁴
nom. illegit.	<i>nomen illegitimum</i> – illegitimate name, according to ICBN. ¹⁴
nom. inval.	<i>nomen invalidum</i> – invalid name, according to ICBN. ¹⁴
nom. nud.	<i>nomen nudum</i> – name lacking a description, or reference to an effectively published description, and so invalid according to ICBN. ¹⁴
nom. rej.	<i>nomen rejiciendum</i> – name officially rejected in ICBN. ¹⁴
nom. superfl.	<i>nomen superfluum</i> – name superfluous when published, and so illegitimate according to ICBN. ¹⁴
pl.	plate.
q.v.	<i>quod vide</i> – which see.
S	south, southern.
s.l.	<i>sensu lato</i> – for a taxon treated in a broad sense.
s.s.	<i>sensu stricto</i> – for a taxon treated in a narrow sense.
sect.	section.
subfam.	subfamily.
subgen.	subgenus.
subsp.	subspecies.
subvar.	subvariety.
syn.	synonym
var.	variety.
W	west, western.
>	greater than
<	less than

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