

1. **HYDROCOTYLE** Linnaeus, Sp. Pl. 1: 234. 1753.

天胡荽属 *tian hu sui shu*

She Menglan (余孟兰 *Sheh Meng-lan*); Mark F. Watson, John F. M. Cannon

Herbs perennial. Stem slender, creeping or decumbent, rooting at the nodes. Leaves petiolate; petioles not sheathing; stipules present, entire or parted to base, membranous; blade cordate, orbicular, or reniform. Inflorescence a simple umbel; umbels sometimes densely capitate; peduncles axillary, obsolete to much longer than leaves; bracts present or absent; pedicels very short or extended (best seen in fruiting material). Flowers bisexual. Calyx teeth minute or obsolete. Petals white, greenish or yellow, valvate, ovate, spreading. Stylopodium conic to depressed. Fruit globose or ellipsoid, strongly flattened laterally, base cordate, dorsal surface rounded, glabrous (rarely with white hairs); dorsal and lateral ribs usually conspicuous, slender, acute (rarely obsolete); vittae inconspicuous. Seed face plane to concave; endocarp woody. Carpophore usually absent.

About 75(–100) species: tropical and temperate regions worldwide; 14 species (five endemic) in China.

- 1a. Umbels several fascicled in axils and stem tip; peduncles shorter than the petioles, densely pubescent; flowers and fruit sessile 1. *H. nepalensis*
- 1b. Umbels solitary in axils, sometimes several at stem tip; peduncles shorter than or exceeding the petioles, glabrous or pubescent; flowers and fruit sessile or pedicellate.
 - 2a. Leaf blade 0.5–1.5(–2.5) × 0.8–2(–5) cm; umbels sessile or peduncle distinctly shorter than petiole.
 - 3a. Axillary umbels sessile, apical umbels often with peduncles to 1 cm; fruit with white hairs or glabrous 2. *H. pseudoconferta*
 - 3b. All umbels pedunculate, peduncle 0.5–3.5 cm; fruit glabrous.
 - 4a. Petiole glabrous or distally sparsely pubescent.
 - 5a. Umbels solitary in axils, 5–18-flowered 3. *H. sibthorpioides*
 - 5b. Umbels 2 or 3 in axils, 2–5-flowered 4. *H. calcicola*
 - 4b. Petiole densely pubescent or hirsutulous throughout.
 - 6a. Petiole 3–15 cm, pubescent; leaf blade 3(–5)-parted, segments 3-lobed (Taiwan) 5. *H. benguetensis*
 - 6b. Petiole 0.5–3 cm, densely hirsutulous; leaf blade shallowly 5–7-lobed or nearly entire, lobes inconspicuously crenulate (Taiwan) 6. *H. dichondroides*
 - 2b. Leaf blade 1–8 × 2–11 cm; peduncle longer or about equaling the petiole.
 - 7a. Umbels not densely capitate in fruit; pedicels elongate, 2.5–8 mm.
 - 8a. Leaf blade shallowly to moderately (to near middle) 5–7-lobed.
 - 9a. Stems, petioles and peduncles glabrous or moderately hairy with white or brown hairs; leaves angular in outline, with 5 to 7 deep, usually triangular lobes 8. *H. hookeri*
 - 9b. Stems, petioles and peduncles densely dark purple-brown hairy; leaves round in outline, with many very shallow, rounded lobes 12. *H. himalaica*
 - 8b. Leaf blade 5–7-divided, usually parted to middle or near base.
 - 10a. Leaf blade parted to near base; segments cuneate at base 7. *H. dielsiana*
 - 10b. Leaf blade parted to 1/2–3/5; lobe base as broad as the middle 9. *H. wilsonii*
 - 7b. Umbels densely capitate in fruit; pedicels to 2 mm.
 - 11a. Stems, petioles and peduncles moderately to densely hairy with purple-brown hairs; leaves shallowly lobed or cleft to middle, lobes deltoid, apex acute 13. *H. salwinica*
 - 11b. Stems, petioles and peduncles essentially glabrous, occasionally hairy at nodes or near distal ends; leaves very shallowly 5–7-lobed, lobes rounded-obtuse.
 - 12a. Petioles short, 0.8–2.5 cm; leaf blade small, 0.7–1.3 × 0.8–1.6 cm, adaxially setulose, abaxially pubescent or hispid 14. *H. setulosa*
 - 12b. Petioles (1–)15–19 cm; leaf blade larger, 1.5–3.5 × 2–7 cm, glabrous on both surfaces or sparsely hirsute along veins.
 - 13a. Leaf blade glabrous on both surfaces or abaxially sparsely hirsute on veins; peduncles equaling or slightly longer than the petioles 10. *H. wilfordii*
 - 13b. Leaf blade sparsely hirsute on both surfaces; peduncles 1–2 times longer than the petioles 11. *H. ramiflora*

1. **Hydrocotyle nepalensis** Hooker, Exot. Bot. 1. 1822.

红马蹄草 *hong ma ti cao*

Hydrocotyle polycephala Wight & Arnott.

Stems robust, decumbent 5–45 cm long. Petioles 4–27 cm, distally densely pubescent; leaf blade orbicular or reniform, 2–5

× 3.5–9 cm, shallowly 5–7-lobed, thin-papery, both surfaces strigose, base cordate, palmately 7–9-nerved, lobes triangular to rounded, crenate. Umbels several to numerous, fascicled in axils and ends of stems; each umbel densely capitate, 20–60-flowered; peduncles 0.5–2 cm, shorter than petioles, puberulous; bracts ovate or obovate, minute, membranous. Pedicels very short, 0.5–1.5(–2) mm in fruit. Petals white or with purplish red

stains. Stylopodium depressed; styles incurved when young, spreading in fruit. Fruit pale brown or deep purple with dark stains when mature, broadly obovate-globose, 1–1.2 × 1.5–1.8 mm. Fl. and fr. May–Nov.

Mountain slopes, shady wet grassy places, stream banks; 300–3600 m. Anhui, Guangdong, Guangxi, Guizhou, Hainan, Hubei, Hunan, Jiangxi, Shaanxi, Sichuan, Xizang, Yunnan, Zhejiang [Bhutan, NE India (Assam), Myanmar, E Nepal, Sikkim, Vietnam].

This species has reputed medicinal value. It is part of the highly variable complex of *Hydrocotyle javanica* Thunberg, which extends from Nepal east to Japan and south through Indonesia into Australia. The umbels fascicled at the nodes unite this group and differentiate it from other species of *Hydrocotyle*, but its classification is in need of revision across its whole geographic range.

2. *Hydrocotyle pseudoconferta* Masamune, J. Soc. Trop. Agric. 4: 301. 1932.

密伞天胡荽 mi san tian hu sui

Stem slender and creeping, 6–30 cm long, much-branched. Petioles 2–10(–23) cm; leaf blade round-reniform, 1–2.5 × 1.5–5 cm, shallowly 5–7-lobed, papery, both surfaces puberulous, base cordate, lobes rounded, crenate. Umbels usually solitary at the nodes, sessile; umbels at stem tip often in pairs and pedunculate; each umbel with few to several flowers; pedicels obsolete or almost so. Petals pale green to white, with transparent yellow glands. Styles short, ca. 0.5 mm, erect or spreading. Fruit yellowish green, broadly-globose, 1–1.2 × 1.5–2 mm, usually covered with purplish stains or white hairs. Fl. and fr. Apr–Oct.

Forests, wet valleys, roadsides; 800–1500 m. Taiwan (Jilong), Yunnan (Menghai, Yiwu) [Myanmar].

This species has reputed medicinal value.

3. *Hydrocotyle sibthorpioides* Lamarck, Encycl. 3: 153. 1789.

天胡荽 tian hu sui

Plants strongly aromatic. Stem weak, slender, filiform, creeping, diffusely branched. Petioles 0.7–9 cm, glabrous or distally pubescent; leaf blade reniform-rounded, 0.5–1.5 × 0.8–2.5 cm; membranous, variably hairy, adaxially glabrous and abaxially sparsely strigose along veins, or sometimes both surfaces glabrous or densely puberulous, base cordate, entire or shallowly 5–7-lobed, lobes rounded. Umbel solitary at the nodes, each umbel 5–8-flowered; peduncle filiform, 0.5–3.5 cm, 1–1/3 the length of the petioles; bracts ovate to ovate-lanceolate, 1–1.5 mm, membranous, with bright yellow glands; pedicels obsolete or almost so. Petals greenish white, ca. 1.2 mm, with yellow glands. Styles 0.6–1 mm, spreading. Fruit broadly globose, greenish yellow when young, covered with purplish stains when mature; intermediate ribs very prominent. Fl. and fr. Apr–Sep.

Forests, slopes, wet valleys, grassy places, stream banks; 100–3000 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hainan, Hubei, Hunan, Jiangsu, Jiangxi, Shaanxi, Sichuan, Taiwan, Yunnan, Zhejiang [Bhutan, India, Indonesia, Japan, Korea, Nepal, Philippines, Thailand, Vietnam; tropical Africa].

1a. Leaf blade shallowly 5–7-lobed or nearly entire 3a. var. *sibthorpioides*

1b. Leaf blade deeply 3–5-divided, parted nearly to base, divisions obovate 3b. var. *batrachium*

3a. *Hydrocotyle sibthorpioides* var. *sibthorpioides*

天胡荽(原变种) tian hu sui (yuan bian zhong)

Geophila yunnanensis H. Léveillé; *Hydrocotyle formosana* Masamune; *H. keelungensis* T. S. Liu et al.; *H. rotundifolia* Roxburgh ex de Candolle; *H. tenella* Buchanan-Hamilton ex D. Don.

Leaf blade shallowly 5–7-lobed or nearly entire, crenate.

Forests, wet grassy places, stream banks; 400–3000 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hainan, Hubei, Hunan, Jiangsu, Jiangxi, Shaanxi, Sichuan, Taiwan, Yunnan, Zhejiang [Bhutan, India, Indonesia, Japan, Korea, Nepal, Thailand, Vietnam; tropical Africa].

This variety is the important medicinal herb “tian hu sui” of traditional Chinese medicine.

3b. *Hydrocotyle sibthorpioides* var. *batrachium* (Hance) Handel-Mazzetti ex R. H. Shan, Sinensia 7: 480. 1936.

破铜钱 po tong qian

Hydrocotyle batrachium Hance, Ann. Sci. Nat., Bot., sér. 4, 18: 220. 1862; *H. formosana* Masamune; *H. rotundifolia* var. *batrachium* (Hance) Chermeszon.

Leaf blade deeply 3–5-divided, parted nearly to base, divisions obovate, crenate.

Slopes, wet valleys, grassy places; 100–2500 m. Anhui, Fujian, Guangdong, Guangxi, Hubei, Hunan, Jiangxi, Sichuan, Taiwan [Philippines, Vietnam].

This variety has reputed medicinal value.

4. *Hydrocotyle calcicola* Y. H. Li, Guihaia 9: 25. 1989.

石山天胡荽 shi shan tian hu sui

Stem slender, elongate and creeping. Petioles 0.7–3 cm, glabrous; stipules small, subreniform, membranous, irregularly shallowly lobed; leaf blade rounded to reniform, 0.5–1.5 × 0.7–2.5 cm, base cordate, 5–7-lobed, lobes broadly obovate, margins serrate, adaxially sparsely setulose, abaxially glabrous. Umbels 2–3 in terminal cymose inflorescences and axillary, 2–5-flowered; peduncle slender, short, 1–2 cm; bracts lanceolate, ca. 1 mm; pedicels obsolete. Petals white, ca. 0.5 mm. Styles ca. 0.2 mm. Fruit globose 1–1.3 × 0.8–1.2 mm, surface glabrous, usually covered with purplish stains. Fl. and fr. Jul–Aug.

• Shady wet grassy places in limestone areas; ca. 1500 m. S Yunnan (Xishuangbanna).

This species is recorded only from the type collection and may not be distinct from *Hydrocotyle sibthorpioides*.

5. *Hydrocotyle benguetensis* Elmer, Leafl. Philipp. Bot. 2: 628. 1909.

吕宋天胡荽 lü song tian hu sui

Hydrocotyle ranunculifolia Ohwi.

Stems slender to somewhat fleshy, long, creeping, pilose. Petioles slender, 2–10(–15) cm, pubescent; leaf blade orbicular

to ovate, 1–2.5 × 1–3 cm, 3(–5)-parted; segments 3-lobed, obovate, sparingly pubescent with rough white hairs. Umbels solitary at nodes, 2–13-flowered; peduncles 2–5 cm, densely pubescent; bracts 0.3–0.5 mm; pedicels 0.5–1 mm. Petals white. Styles ca. 0.5 mm. Fruit subglobose, 0.8–1.5 × 1.3–1.7 mm, glabrous. Fl. and fr. Mar–May.

Grasslands, beside slow-moving streams, roadsides; ca. 1800 m. C and N Taiwan [Japan, Korea, Philippines].

This species is recorded only from a few collections. It has reputed medicinal value.

6. *Hydrocotyle dichondroides* Makino, Bot. Mag. (Tokyo) 24: 242. 1910.

毛柄天胡荽 mao bing tian hu sui

Hydrocotyle sibthorpioides Lamarck var. *dichondroides* (Makino) M. Hiroe.

Stems slender, filiform, creeping to suberect, pilose. Petioles filiform, 0.5–3 cm, densely hirsutulous with recurved white hairs; leaf blade orbicular-reniform, 0.5–1.5 mm wide, glabrous or shortly puberulent along veins on adaxial surface, thin membranous, very shallowly crenately 5- or 7-lobed, lobes inconspicuously crenulate. Umbels solitary at nodes, 2–8-flowered; peduncles filiform, 1–3 cm, usually longer than leaves; pedicels very short, flowers almost sessile. Petals white. Fruit subglobose, ca. 1 mm wide, glabrous. Fl. and fr. Jun–Sep.

Wet walls and rocks; near sea level. N Taiwan (Taipei) [Japan].

This incompletely known species is recorded only from a few collections. It has reputed medicinal value.

7. *Hydrocotyle dielsiana* H. Wolff, Repert. Spec. Nov. Regni Veg. 27: 112. 1929.

裂叶天胡荽 lie ye tian hu sui

Stem slender, decumbent, 15–30 cm, sparingly branched, branches less than 6 cm, proximally sparingly pubescent or glabrous, distally densely white pubescent. Petiole 2.5–7 cm; leaf blade cordate-rounded, 2–4 × 4–8 cm, palmately 5–7-divided, usually parted to near base; segments rhombic, ovate or obovate-lanceolate, sparsely appressed-hispid on both surfaces, dark purple, base cuneate, irregularly dentate or 3-lobed towards apex, apex acute or acuminate. Umbels 20–35-flowered; peduncles filiform, longer than petioles, densely white pubescent; bracts 1–1.2 mm, membranous. Petals white. Styles 0.7–1.1 mm, reflexed. Fruit pale purple when young, deep brown when mature, broadly cordate-globose, ca. 1.3 × 2.1 mm, glabrous. Fl. and fr. Jun–Jul.

• Wet places on mountain slopes, roadsides; ca. 1200 m. W Hubei (Badong), Sichuan.

8. *Hydrocotyle hookeri* (C. B. Clarke) Craib, Bull. Misc. Inform. Kew 1911: 59. 1911.

缅甸天胡荽 mian dian tian hu sui

Stem creeping to 1.5 m, basal parts becoming thickened, distal parts erect or decumbent, laxly branched, glabrous or sparsely pubescent with purple-brown hairs. Petioles stout, 7–19 cm, glabrous or sparsely to moderately pubescent with pur-

ple-brown hairs, especially near leaf blade; leaf blade broadly round-pentagonal, rhombic-pentagonal, round-reniform or cordate-orbicular in outline, 3.4–8 × 4–12 cm, membranous or papery, abaxially glabrous or sparsely hispid on veins, base deeply cordate, margin shallowly to deeply 5–7-lobed, parted to near middle, lobes acuminate to acute, finely serrate or irregularly doubly serrate. Umbels 30–55-flowered; peduncles slender, elongate, 6–16 cm, sparsely to moderately pubescent with purple-brown hairs, especially near umbel; bracts numerous, small; pedicels (3–)6–8 mm in fruit, glabrous. Petals white. Fruit brown-spotted, subglobose, 1–1.3 × 1.6–2 mm, base shallowly cordate or truncate. Fl. and fr. Jul–Aug.

Forest margins, woods, mountain slopes, valleys, grassy places, stream banks, wet places, roadsides; 900–2900 m. Guangdong, Hunan, SW Sichuan, SE Xizang, S and W Yunnan [Myanmar].

The name *Hydrocotyle burmanica* Kurz has been widely misapplied (e.g., in FRPS 55(1): 20. 1979) to Chinese plants that are in fact attributable to *H. hookeri*. True *H. burmanica* is a narrow endemic of S Myanmar.

- 1a. Leaf blade broadly round-pentagonal or rhombic-pentagonal in outline, 5-lobed 8a. subsp. *hookeri*
- 1b. Leaf blade rounded in outline, 5–7-lobed.
 - 2a. Leaf blade round-reniform, shallowly 5–7-lobed, lobes apex obtuse 8b. subsp. *chinensis*
 - 2b. Leaf blade cordate-orbicular, deeply 5–7-lobed, lobes long-ovate or ovate-lanceolate 8c. subsp. *handellii*

8a. *Hydrocotyle hookeri* subsp. *hookeri*

缅甸天胡荽(原亚种) mian dian tian hu sui (yuan ya zhong)

Hydrocotyle javanica Thunberg var. *hookeri* C. B. Clarke in J. D. Hooker, Fl. Brit. India 2: 668. 1879; *H. forrestii* H. Wolff.

Leaf blade broadly round-pentagonal or rhombic-pentagonal in outline, 5-lobed.

Woods, valleys, stream banks, wet places; 900–2400 m. Guangdong (Luofu Shan), SE Xizang, W Yunnan [Myanmar].

8b. *Hydrocotyle hookeri* subsp. *chinensis* (Dunn ex R. H. Shan & S. L. Liou) M. F. Watson & M. L. Sheh, Acta Phytotax. Sin. 42: 562. 2004.

中华天胡荽 zhong hua tian hu sui

Hydrocotyle javanica var. *chinensis* Dunn ex R. H. Shan & S. L. Liou, Acta Phytotax. Sin. 9: 129. 1964; *H. burmanica* Kurz subsp. *craibii* (H. Eichler) C. Y. Wu & F. T. Pu; *H. craibii* H. Eichler; *H. shanii* Boufford, nom. illeg. superfl.

Leaf blade round-reniform, shallowly 5–7-lobed, lobes apex obtuse; petiole and blade densely or sparsely white or purple pubescent.

• Grassy places, stream banks, shady wet roadsides; 1000–2900 m. Hunan, SW Sichuan, NW and S Yunnan [Vietnam].

This variety has reputed medicinal value. Records from Vietnam need confirmation.

8c. *Hydrocotyle hookeri* subsp. *handelii* (H. Wolff) M. F. Watson & M. L. Sheh, Acta Phytotax. Sin. 42: 563. 2004.

普渡天胡荽 pu du tian hu sui

Hydrocotyle handelii H. Wolff in Handel-Mazzetti, Symb. Sin. 7: 707. 1933; *H. burmanica* Kurz subsp. *handelii* (H. Wolff) C. Y. Wu & F. T. Pu.

Leaf blade cordate-orbicular, deeply 5–7-lobed to below the middle, lobes long-ovate or ovate-lanceolate, adaxially densely appressed-hispid, abaxially glabrous.

• Forest margins, mountain slopes, grassy places, roadsides; 2300–2500 m. SW Sichuan (Miyi), S Yunnan (Pudu He).

This variety has reputed medicinal value.

9. *Hydrocotyle wilsonii* Diels ex R. H. Shan & S. L. Liou, Acta Phytotax. Sin. 9: 128. 1964.

鄂西天胡荽 e xi tian hu sui

Stem erect or decumbent, thin, yellowish at base, unbranched, densely puberulous, sometimes proximally glabrous. Petiole 4–12 cm, pubescent; leaf blade round-reniform or cordate-reniform, 2–4 × 3.5–7 cm, somewhat leathery, both surfaces appressed-strigose, base deeply cordate, deeply 5–7-divided to middle or below the middle; central segment broadly ovate or obovate, shallowly 3-lobed, irregularly serrate. Umbels many-flowered; peduncles thin, longer than petioles; bracts small, membranous; pedicels 2–4.5 mm, glabrous, spreading. Petals covered with purplish red stains. Styles reflexed when mature. Fruit purplish red when young, becoming dark purple, subglobose, ca. 1.2 × 1.8 mm. Fl. and fr. Jul–Aug.

• Bamboo forests, moist grassy places; 1200–1800 m. W Hubei (Badong, Jianshi), Chongqing (Fengjie).

10. *Hydrocotyle wilfordii* Maximowicz, Bull. Acad. Imp. Sci. Saint-Petersbourg 31: 45. 1886.

肾叶天胡荽 shen ye tian hu sui

Stem to 45 cm, creeping, branched, proximal parts rhizomatous, distal parts erect or decumbent. Petiole 3–10 cm, essentially glabrous but pubescent near leaf blade; leaf blade orbicular or reniform-rounded, 1.5–3.5 × 2–7 cm, both surfaces glabrous or abaxially sparsely hirsute on veins, base deep-cordate, margin very shallowly 7-lobed (some leaves parted to almost middle), lobes 3-crenate. Umbel many-flowered, solitary at nodes, sometimes 2–3 fascicled at tips of branches; peduncle longer than or equaling petiole; bracts small, membranous, with purplish stains. Petals white to pale yellow. Fruit light brown with purplish stains, subglobose, 1.2–1.8 × 1.5–2.1 mm. Fl. and fr. May–Sep.

Shady wet valleys, fields; 300–1400 m. Fujian, Guangdong, Guangxi, Jiangxi, Sichuan, Taiwan, Yunnan, Zhejiang [Japan, Korea, Vietnam].

11. *Hydrocotyle ramiflora* Maximowicz, Bull. Acad. Imp. Sci. Saint-Petersbourg 31: 46. 1886.

长梗天胡荽 chang geng tian hu sui

Hydrocotyle maritima Honda; *Hydrocotyle ramiflora* var. *maritima* (Honda) M. Hiroe.

Stem 10–26 cm, creeping, thin and slender, distal parts decumbent. Petiole 1–15 cm; leaf blade orbicular or round-reniform, shallowly 5–7-lobed, lobes obtuse-orbicular or slightly deltoid, 0.8–2.3 × 1.6–4.5 cm, both surfaces sparsely hirsute or glabrous, base narrowly cordate with basal lobes overlapping. Umbels many-flowered, solitary at nodes; peduncle 1–2-times longer than petiole. Pedicels ca. 2 mm. Petals white with bright yellow glands. Styles incurved when young, strongly spreading when mature. Fruit purplish red when young becoming brown to dark purple, cordate-globose, 1–1.9 × 1.9–2.1 mm. Fl. and fr. Jun–Aug.

Woods, wet grassy places; 500–800 m. Taiwan (Taibei), Zhejiang (Tianmu Shan) [Japan; introduced in NE India, S Russia, and SW Turkey].

12. *Hydrocotyle himalaica* P. K. Mukherjee, Indian Forester 95: 470. 1969.

喜马拉雅天胡荽 xi ma la ya tian hu sui

Hydrocotyle javanica Thunberg var. *podantha* C. B. Clarke in J. D. Hooker Fl. Brit. India 2: 668. 1879, not *H. podantha* Molkenboer (1851).

Plants decumbent, stems, petioles and peduncles moderately to densely pubescent with dark purple-brown hairs. Stem to 50 cm. Petiole 3–18 cm; leaf blades orbicular or reniform, (0.8–)1.5–3.5(–6) × (1.2–)3–6(–8) cm, shallowly 5–7-lobed, lobes deltoid or rounded, both surfaces sparsely hirsute or covered with purplish verruciform hairs, obtusely repand-crenate, apex obtuse-rounded, principal nerves 9. Umbels many-flowered, densely capitate in flower; peduncle 3–8 cm, usually as long as or longer than petioles; pedicels 1–2 mm in flower, 4–7 mm in fruit. Petals white with yellow or purplish red glands. Styles 0.8–1 mm, spreading. Fruit brown to purplish red, cordate-globose, 1.0–1.2 × 1.5–2 mm. Fl. and fr. Jun–Jul.

Mountain valleys, shady moist grassy places; 100–2200 m. Guizhou, Hainan, W Sichuan, E Xizang, S and W Yunnan [Bhutan, N India, Myanmar, Nepal].

The Chinese record in FRPS (55(1): 28. 1979) of *Hydrocotyle podantha* Molkenboer is referable to this species.

13. *Hydrocotyle salwinica* R. H. Shan & S. L. Liou, Acta Phytotax. Sin. 9: 131. 1964.

怒江天胡荽 nu jiang tian hu sui

Hydrocotyle salwinica var. *obtusiloba* S. L. Liou.

Stem 50–70 cm, erect or decumbent, densely hirsute. Petioles 1–7.5 cm, stout, densely covered with dark purple-brown hairs; leaf blade reniform-orbicular, base deeply cordate, 1.5–3.5 × 2.5–6 cm, shallowly 7–9-lobed, lobes deltoid or obtuse-deltoid, both surfaces densely dark brown hirsute, finely serrate or doubly serrate; the principal nerves 7–9. Umbels many-flowered, densely capitate in flower; peduncle 1.5–8 cm, usually longer than petioles, densely hirsute; pedicels ca. 0.5 mm in flower, 1–2 mm in fruit, forming dense capitate fruiting umbels. Petals ovate, white or pale green, usually with purple spots. Fruit ovoid to globose, ca. 1.5 × 2 mm, deep yellow to dark purple. Fl. and fr. Jun–Aug.

• *Pinus* woods, mountain slopes, valleys, moist grassy places; 1600–3100 m. E Xizang, NW Yunnan.

The Chinese record in FRPS (55(1): 26. 1979) of *Hydrocotyle hookeri* is referable to this species.

14. *Hydrocotyle setulosa* Hayata, J. Coll. Sci. Imp. Univ. Tokyo 25: 102. 1908.

刺毛天胡荽 ci mao tian hu sui

Hydrocotyle laxiflora Masamune (1932), not de Candolle (1830); *H. masamunei* M. Hiroe.

Stem creeping, younger branches erect, stems, petioles and peduncles retrorse villous with white or purplish hairs. Petioles 0.8–2.5 cm; leaf blade reniform to cordate, 7–13 × 8–16 mm, shallowly 7-lobed, lobes rounded, adaxially densely to moderately setulose, abaxially pubescent or hispid. Umbels many-flowered, densely capitate, solitary at nodes; peduncles 1.8–4 cm, 1.5–2 times petioles. Pedicels very short, ca. 1 mm. Fruit cordate or globose, 1–1.5 × 1.5–1.8 mm, smooth. Fl. and fr. Apr–Nov.

• Forests, mountain slopes, grassy places, damp mossy rocks; 1500–3000 m. Taiwan.

