

### 31. HEMEROCALLIS Linnaeus, Sp. Pl. 1: 324. 1753.

萱草属 *xuan cao shu*

Chen Xinqi (陈心启 Chen Sing-chi); Junko Noguchi<sup>1</sup>

Herbs perennial, with short rhizomes. Roots fleshy or ropelike, usually with globose, fusiform, or oblong, swollen, tuberous part. Leaves basal, distichous, sessile, basally equitant, linear. Scape erect or ascending, sometimes hollow, glabrous; main axis usually distinct, sometimes few or several branched and indistinct; sterile bracts sometimes present. Inflorescences terminating in single or double helicoidal cymes; cymes 1–6(or more)-flowered, rarely capitate and 1–6-flowered. Pedicel short, bracteate, basal pedicel sometimes concaulescent. Flowers fairly large, hypogynous, of short duration. Perianth funnellform, 3-merous; segments 6, petaloid, basally connate into a cylindric tube, often recurved apically, pale lemon yellow to orange or reddish orange, sometimes with a purple or rose, V-shaped patch, all segments similar or inner ones slightly wider than outer. Stamens 6, inserted in perianth tube; filaments free, slightly upcurved-reflexed, slender, glabrous; anthers dorsifixed, yellow or purplish black. Ovary 3-loculed. Style erect, rather long, slender; stigma capitate, small. Fruit a capsule, obtusely trigonous, transversely rugose, loculicidal. Seeds in 2 rows in each valve, black.

About 15 species: E Asia, with *Hemerocallis lilioasphodelus* extending to C Europe; eleven species (four endemic) in China.

In China many species are cultivated as ornamentals and a few for their edible flowers.

- 1a. Flower opening in afternoon or evening, fragrant, tepals lemon yellow.
  - 2a. Inflorescence simple; roots without swollen, tuberous part; anthers ca. 5 mm ..... 3. *H. minor*
  - 2b. Inflorescence branched; roots with swollen, tuberous part; anthers 8–10 mm.
    - 3a. Scape with distinct main axis; perianth tube 1.5–3 cm; filaments 5–5.5 cm; roots fusiform ..... 2. *H. lilioasphodelus*
    - 3b. Scape without distinct main axis; perianth tube 3–5 cm; filaments 7–8 cm; roots with swollen, tuberous part near tip ..... 1. *H. citrina*
- 1b. Flower opening in morning, slightly fragrant or unscented, tepals golden yellow or orange to reddish orange.
  - 4a. Flower opening in morning and lasting ca. 24 hours, slightly fragrant; bracts overlapping, ovate to ovate-lanceolate or oblong-ovate, mostly 0.8–3 cm wide.
    - 5a. Inflorescence an apparently simple cyme; flower opening in very early morning; scape ascending; leaves 40–45 × 1.5–2 cm ..... 9. *H. dumortieri*
    - 5b. Inflorescence clearly forked or capitate; flower opening in early morning; scape erect; leaves 35–80 × (0.6–)1–1.8 cm.
      - 6a. Inflorescence clearly forked with a pair of racemelike, helicoidal cymes; bracts oblong-lanceolate; roots with swollen, tuberous tip ca. 10 mm thick ..... 10. *H. esculenta*
      - 6b. Inflorescence capitate with rachis and flower bases concealed by bracts; bracts ovate-cordate; roots uniformly wide, to 3 mm thick ..... 11. *H. middendorffii*
  - 4b. Flower opening in morning and lasting ca. 12 hours, unscented; bracts lanceolate to ovate-lanceolate, sometimes scalelike, (0.2–)0.3–0.7(–1) cm wide.
    - 7a. Inflorescence simple, 1- or 2-flowered; plants to 35 cm tall ..... 8. *H. nana*
    - 7b. Inflorescence forked or branched, more than 2-flowered; plants 40–150 cm tall.
      - 8a. Inflorescence forked with a pair of racemelike, helicoidal cymes; perianth segments orange to reddish orange, inner ones usually with purple or reddish orange patches at middle ..... 5. *H. fulva*
      - 8b. Inflorescence usually branched; perianth segments orange to golden yellow, uniformly colored.
        - 9a. Flower slightly fragrant, purplish black apically in bud; inflorescence many branched, with up to 100 flowers; perianth tube 2.5–3 cm ..... 4. *H. multiflora*
        - 9b. Flower unscented, green or reddish brown apically in bud; inflorescence with up to 20 flowers; perianth tube 1–2.5 cm.
          - 10a. Scape with distinct main axis; roots with large, globose, swollen, tuberous part; anthers 6–8 mm; leaves 10–20 mm wide ..... 6. *H. forrestii*
          - 10b. Scape without distinct main axis; roots with large, oblong, swollen, tuberous part; anthers 3–4 mm; leaves 6–8 mm wide ..... 7. *H. plicata*

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**1. *Hemerocallis citrina*** Baroni, Nuovo Giorn. Bot. Ital., n.s., 4: 305. 1897.

黄花菜 huang hua cai

*Hemerocallis altissima* Stout; *H. coreana* Nakai.

Plants to 1 m tall, deciduous in winter. Roots rather stout, fleshy, usually with oblong, swollen, tuberous part near tip. Leaves linear, 50–130 × 0.5–2.5 cm; leaf sheath with reddish margin. Scape usually slightly longer than leaves, solid; main axis indistinct. Inflorescence branched; helicoidal cymes 3–5 or more, 2–5-flowered; bracts lanceolate, 3–7 cm × 3–6 mm. Pedicel less than 1 cm. Flowers large, fragrant, opening in afternoon or evening and lasting 12–24 hours, purplish black apically in bud. Perianth lemon-colored; tube long, 3–5 cm; segments (6–) 7–12 cm, inner ones 2–3 cm wide, slightly wider than outer ones. Filaments 7–8 cm; anthers yellow, 8–10 mm. Capsule ellipsoid, 2–2.5 × 1.2–1.5 cm. Fl. May–Aug.  $2n = 22$ .

Forest margins, grassy fields, slopes along valleys; near sea level to 2000 m. Anhui, Hebei, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Nei Mongol, Shaanxi, Shandong, Sichuan, Zhejiang [Japan, Korea].

Widely cultivated for its edible flowers, especially in Hunan.

**2. *Hemerocallis lilioasphodelus*** Linnaeus, Sp. Pl. 1: 324. 1753.

北黄花菜 bei huang hua cai

*Hemerocallis flava* (Linnaeus) Linnaeus; *H. lilioasphodelus* var. *flava* Linnaeus.

Plants 70–80 cm tall, deciduous in winter. Roots slightly fleshy or ropelike, sometimes with a swollen, tuberous part. Leaves linear, 20–70 × 0.3–1.2 cm, apex acuminate. Scape generally slightly shorter than leaves, solid; main axis distinct; sterile bracts present. Inflorescence branched; helicoidal cymes 2–4(or 5), 2–4(or 5)-flowered; bracts lanceolate, 2–6(–8) cm × 5–7 mm. Pedicel 1–2 cm. Flowers fragrant, opening in afternoon and lasting 1–3 days, blackish purple or green apically in bud. Perianth lemon-colored; tube 1.5–2.5 cm; segments spreading, 5–7 × 1.3–1.6 cm, inner ones slightly wider than outer. Filaments 5–5.5 cm; anthers yellow, sometimes purple-black adaxially, ca. 8 mm. Capsule ellipsoid, ca. 2.4 × 1.2 cm. Fl. Jun–Aug.  $2n = 22$ .

Forests, thickets, meadows, grasslands, slopes along valleys; 100–2000 m. Gansu, Hebei, Heilongjiang, Henan, Jiangsu, Jiangxi, Jilin, Liaoning, Shaanxi, Shandong, Shanxi [Japan, Korea, Mongolia, Russia (Siberia); Europe].

The treatment of this species follows Hylander (Uppsala Univ. Arsskr. 7: 112. 1945).

The flowers are steamed and then dried as a traditional food in China.

**3. *Hemerocallis minor*** Miller, Gard. Dict., ed. 8, *Hemerocallis* no. 2. 1768.

小黄花菜 xiao huang hua cai

*Hemerocallis flava* (Linnaeus) Linnaeus var. *minor* (Miller) M. Hotta.

Plants deciduous in winter. Roots ropelike, 1.5–3(–4) mm thick, sometimes fibrous, without a tuberous part. Leaves linear,

20–60 × 0.3–1.5 cm. Scape slightly shorter than or subequaling leaves, slender, solid; sterile bracts absent. Inflorescence short; axes very short; helicoidal cymes 2(or 3), 1- or 2-flowered; bracts lanceolate or ovate-lanceolate, 0.8–2.5 cm × 3–8 mm. Pedicel 4–18 mm. Flowers fragrant, opening in evening and lasting 1–2 days. Perianth lemon-colored; tube usually greenish, short, 1–2.5(–3) cm; segments spreading, 4–7.5 cm, inner ones 1.5–2.3 cm wide, wider than outer ones. Filaments ca. 4 cm; anthers pale yellow, sometimes purple-black adaxially, ca. 5 mm. Capsule narrowly ellipsoid, 2–3 × 1–2 cm. Fl. May–Jun.  $2n = 22$ .

Forests, thickets, grassy slopes, meadows, waste fields, wet places along valleys; 200–2600 m. Gansu, Hebei, Heilongjiang, Jilin, Liaoning, Nei Mongol, Shaanxi, Shandong, Shanxi [Korea, Mongolia, Russia (Siberia)].

The flowers are steamed and then dried as a traditional food in China.

**4. *Hemerocallis multiflora*** Stout, Addisonia 14: 31. 1929.

多花萱草 duo hua xuan cao

Plants deciduous in winter. Roots slightly fleshy, with a swollen, tuberous part near tip. Leaves only slightly equitant basally, linear, 50–70 × 0.7–1 cm, soft. Scape several branched, 80–90 cm, rather slender, solid, many flowered (sometimes more than 100-flowered); bracts lanceolate, 2.5–2.8 cm × 5–7 mm. Pedicel 5–7 mm. Flowers small, slightly fragrant, opening during day, purplish black apically in bud. Perianth orange or golden yellow; tube usually greenish, 2.5–2.8 cm; segments spreading, 5.5–5.8 × 1–1.4 cm, inner ones slightly wider than outer. Filaments ca. 4 cm; anthers blackish or yellow, ca. 6 mm. Capsule ovoid-ellipsoid, ca. 1.5 × 0.8 cm. Fl. Jul–Oct.  $2n = 22^*$ .

• Hill forests, openings in forests on hilltops; 700–1000 m. Henan.

**5. *Hemerocallis fulva*** (Linnaeus) Linnaeus, Sp. Pl., ed. 2, 1: 462. 1762.

萱草 xuan cao

Plants 40–150 cm tall, usually deciduous in winter. Roots fleshy, with globose-ellipsoid, swollen, tuberous part near tip; stolons sometimes to 30 cm. Leaves linear, 50–90 × 1–2.8 cm, apex acute. Scape erect, hollow; sterile bracts present. Helicoidal cymes double, 2–5(–10)-flowered; bracts scalelike or lanceolate. Pedicel ca. 5 mm. Flowers unscented, strictly day opening, opening in morning and closing in evening of same day. Perianth single, occasionally double (stamens petaloid), orange to reddish orange; tube 2–4 cm; segments spreading, with a purple or reddish orange patch, 5–12 × 1–3 cm, margin sometimes crinkly-undulate, inner segments wider than outer ones. Filaments 4–5 cm; anthers purplish black, 7–8 mm. Capsule ellipsoid, 2–2.5 × 1.2–1.5 cm. Fl. Jun–Nov.  $2n = 22, 33$ .

Forests, thickets, grasslands, streamsides; 300–2500 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hebei, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Shaanxi, Shandong, Shanxi, Sichuan, Taiwan, Xizang, Yunnan, Zhejiang [India, Japan, Korea, Russia].

Four varieties may be recognized in China. The status of *Hemerocallis fulva* var. *oppositibracteata* H. Kong & Ching J. Wang (Guihaia 16: 303. 1996), described from Gansu, is uncertain. It supposedly

differs in having narrower leaves 5–8 mm wide, subopposite sterile bracts, narrower perianth segments (outer ones 0.6–1 cm wide), and obovoid capsules.

- 1a. Perianth double (stamens petaloid) ..... 5d. var. *kwanso*  
1b. Perianth single (stamens normal).  
2a. Plants evergreen ..... 5b. var. *aurantiaca*  
2b. Plants deciduous.  
3a. Perianth tube rather short, 2–3 cm, stout; inner segments 2–3.5 cm wide ..... 5a. var. *fulva*  
3b. Perianth tube longer, to 4 cm, rather slender; inner segments 1–2.5 cm wide ..... 5c. var. *angustifolia*

**5a. *Hemerocallis fulva* var. *fulva***

萱草(原变种) xuan cao (yuan bian zhong)

*Hemerocallis lilioasphodelus* Linnaeus var. *fulva* Linnaeus, Sp. Pl. 1: 324. 1753.

Plants deciduous in winter. Scape 100–140 cm, stout. Flowers large. Perianth single, reddish orange; tube rather short, 2–3 cm, stout; segments with a strong rose patch, broad, margin usually crinkly-undulate, outer segments 1.5–2.5 cm wide, inner ones 2–3.5 cm wide.  $2n = 33$ .

Forests, thickets, grasslands, streamsides; 300–2500 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hebei, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Shaanxi, Shandong, Shanxi, Sichuan, Xizang, Yunnan, Zhejiang [Korea].

**5b. *Hemerocallis fulva* var. *aurantiaca* (Baker) M. Hotta, Acta Phytotax. Geobot. 37: 21. 1986.**

常绿萱草 chang lu xuan cao

*Hemerocallis aurantiaca* Baker, Gard. Chron., ser. 3, 8: 94. 1890.

Plants evergreen. Perianth single, orange to reddish orange.  $2n = 22, 33$ .

Thickets, grasslands, streamsides; 300–1000 m. Guangdong, Guangxi, Taiwan [Japan, Korea].

**5c. *Hemerocallis fulva* var. *angustifolia* Baker, J. Linn. Soc., Bot. 11: 359. 1871.**

长管萱草 chang guan xuan cao

*Hemerocallis disticha* Donn ex Sweet; *H. fulva* var. *longituba* (Miquel) Maximowicz; *H. longituba* Miquel.

Plants deciduous in winter. Perianth single, orange to reddish orange or rose; tube to 4 cm, rather slender; segments 5–11 cm, outer ones 0.5–2.0 cm wide, inner ones slightly longer than outer, 1–2.5 cm wide.  $2n = 22$ .

Long cultivated. Not known in the wild in China [Japan, Korea].

**5d. *Hemerocallis fulva* var. *kwanso* Regel, Gartenflora 15: 66. 1866.**

长瓣萱草 chang ban xuan cao

Plants deciduous in winter. Perianth double (stamens petaloid).  $2n = 33$ .

Long cultivated. Not known in the wild in China but probably

originated there [Japan, Korea].

**6. *Hemerocallis forrestii* Diels, Notes Roy. Bot. Gard. Edinburgh 5: 298. 1912.**

西南萱草 xi nan xuan cao

Plants 40–70 cm tall. Roots slightly fleshy, with large, globose, swollen, tuberous part near tip 1.5–2.5 × 3.5–4.5 cm. Leaves linear, 30–70 × 1–2 cm, rather stout, base surrounded by fibrous remains of older leaves, apex obtuse. Scape slender, nearly as long as leaves, hollow; main axis indistinct; sterile bracts absent. Inflorescence branches 4–6, each with 1 double helicoidal cyme dichotomously or trichotomously branched; cymes 2–4-flowered; bracts lanceolate, 0.5–2.5 cm × 3–10 mm. Pedicel 1.5–3 mm. Flowers rather small, opening during day. Perianth orange or golden yellow; tube short, ca. 1 cm; segments 5–9 cm, outer ones ca. 5 mm wide, inner ones slightly wider than outer, 1.2–1.5 cm wide. Filaments 3–4.5 cm; anthers yellow or slightly blackish, ca. 7 mm. Capsule ellipsoid, ca. 3.8 × 1.5–2 cm. Fl. May–Jun.  $2n = 22^*$ .

• Forests, grassy slopes, limestone cliffs; 2300–3200 m. SW Sichuan, NW Yunnan.

**7. *Hemerocallis plicata* Stapf, Bot. Mag. 148: t. 8968. 1923.**

折叶萱草 zhe ye xuan cao

Plants 40–80 cm tall. Roots slightly fleshy, with large, oblong, swollen, tuberous part near tip 0.8–1.5 × 2.5–5 cm. Leaves linear, 45–50 cm × 6–8 mm, usually folded, base surrounded by fibrous remains of older leaves. Scape nearly as long as leaves, hollow or solid; main axis distinct; sterile bracts linear, long. Inflorescence branches 3–7; helicoidal cymes 2- or 3-flowered, with 1 cyme usually oppositely branched, 2–20-flowered; bracts lanceolate, 0.5–2.5 cm × 5–7 mm. Pedicel 2–6 cm. Flowers small, opening during day. Perianth orange; tube 1.5–2.5 cm; segments 4–5.5 × 1–1.4 cm. Filaments 3–3.5 cm; anthers 3–4 mm. Capsule unknown. Fl. Jul–Sep.

• *Pinus* forests, forest margins, thinly forested hilltops, grassy slopes; 1500–3200 m. Sichuan, Yunnan.

**8. *Hemerocallis nana* Forrest & W. W. Smith, Notes Roy. Bot. Gard. Edinburgh 10: 39. 1917.**

矮萱草 ai xuan cao

Plants dwarf, 5–35 cm tall. Roots slightly fleshy, with small, globose, swollen, tuberous part 1.5–2 × 1–1.5 cm. Leaves linear, 6–28(–34) cm × 4–8 mm, base surrounded by fibrous remains of older leaves. Scape slender, hollow; sterile bracts absent. Inflorescence very short, a 1- or rarely 2-flowered helicoidal cyme; bracts lanceolate, 5–14(–25) × 3–4 mm. Pedicel 1–3 cm. Flowers opening during day. Perianth reddish orange or golden yellow, usually slightly purplish abaxially; tube short, 9–12(–13) mm; segments spreading, 5–7 cm, outer ones 0.5–0.6 cm wide, inner ones slightly wider than outer, 1.2–1.5 cm wide. Filaments 2.5–4 cm; anthers yellow, purple-black abaxially, ca. 9 mm. Capsule oblong, ca. 3 × 1.4 cm. Fl. Jun.  $2n = 22^*$ .

• Stony grassy openings in alpine *Pinus* forests, forest margins, moist pastures, stony places; 2100–3400 m. NW Yunnan.

**9. *Hemerocallis dumortieri* C. Morren, Hort. Belge 2: 195.**

1834.

小萱草 xiao xuan cao

Plants small, 25–50 cm tall, deciduous in winter. Roots slightly fleshy, with oblong, swollen, tuberous part near tip. Leaves linear, narrow, nearly as long as scape, 40–45 × 1.5–2 cm. Scape ascending. Inflorescence short, a 2–4-flowered helicoidal cyme; basal pedicel usually concaulescent; bracts oblong-ovate, apex subacute. Flowers rather small, slightly fragrant, opening in very early morning and closing in very early morning of following day, reddish brown apically in bud. Perianth orange-yellow; tube rather short, ca. 1 cm; segments narrow, 5–7 cm, outer ones 0.7–1 cm wide, inner ones slightly wider than outer, 1–1.5 cm wide. Anthers black. Capsule sub-ovoid. Fl. May–Jun.  $2n = 22$ .

?S Jilin [Japan, Korea, Russia (E Siberia)].

This species was reported from S Jilin by Kitagawa (Lin. Fl. Manshur. 136. 1939) and Noda (Fl. N-E. Prov. (Manchuria) China 280. 1971). However, the present authors have not seen any specimens in Chinese herbaria. *Hemerocallis dumortieri* is closely related to *H. esculenta* and *H. middendorffii*, both of which have been treated by some authors as varieties of *H. dumortieri*.

**10. *Hemerocallis esculenta*** Koidzumi, Bot. Mag. (Tokyo) 39: 28. 1925.

北萱草 bei xuan cao

*Hemerocallis dumortieri* C. Morren var. *esculenta* (Koidzumi) Kitagawa; *H. middendorffii* Trautvetter & C. A. Meyer var. *esculenta* (Koidzumi) Ohwi.

Roots slightly fleshy, usually with a fusiform, swollen, tuberous part near tip 2–4 × ca. 1 cm. Leaves linear, 40–80 × (0.6–)1–1.8 cm, soft. Scape erect, generally slightly shorter than leaves, hollow; sterile bract absent. Inflorescences short, 0.2–6 cm, usually with 1 double helicoidal cyme; cyme somewhat densely 1–3(or 4)-flowered, basal pedicel sometimes concaulescent; bracts ovate-lanceolate, 1–2(–4) × 0.8–1.5 cm. Pedicel 3–6 mm. Flowers slightly fragrant. Perianth golden yellow; tube 1.5–2.5 cm; segments spreading, 5–6.5 cm, inner ones slightly wider than outer, 1–2 cm wide. Filaments ca. 5 cm; anthers purplish black, ca. 6 mm. Capsule subellipsoid, 2–2.5 × 1.2–1.4 cm. Fl. May–Jun.  $2n = 22^*$ .

Forests, forest margins, grassy slopes, stony places, roadsides; 500–2500 m. Gansu, Hebei, Henan, Hubei, Liaoning, Ningxia, Shaanxi, Shandong, Shanxi [Japan, Russia (Sakhalin)].

**11. *Hemerocallis middendorffii*** Trautvetter & C. A. Meyer in Middendorf, Reise Sibir. 1(2), Fl. Ochot. Phaenog.: 94. 1856.

大苞萱草 da bao xuan cao

Plants 40–80 cm tall. Roots ropelike, 1.5–3 mm thick, slightly fleshy, sometimes fibrous, without a tuberous part. Leaves linear, 35–80 × 0.8–1.6 cm, base surrounded by fibrous remains of older leaves. Scape stout, hollow. Inflorescence subcapitate, 0.1–0.5 cm, densely 2- or 3(–6)-flowered; bracts green or slightly pink, ovate to ovate-lanceolate, large, 2–6 × 1–3 cm, apex catkinlike. Pedicel 1–3 mm. Flowers slightly fragrant. Perianth golden yellow or orange; tube 0.9–1.7 cm,

enclosed by bracts for at least 1/3 its length; segments 6–7.5 cm, inner ones wider than outer, 1–2 cm wide. Filaments ca. 4.5 cm; anthers purplish black, yellow abaxially, ca. 5 mm. Capsule broadly ellipsoid, 1.5–2.3 × 1–1.4 cm. Fl. May–Jun.

Forests, forest margins, meadows, wet grasslands; near sea level to 2000 m. Heilongjiang, Jilin, Liaoning [Japan, Korea, Russia].

1a. Scape 50–60 cm; bracts ovate, 2–2.5 cm

..... 11a. var. *middendorffii*

1b. Scape 20–35 cm; bracts ovate-lanceolate,

3–6 cm ..... 11b. var. *longibracteata*

**11a. *Hemerocallis middendorffii* var. *middendorffii***

大苞萱草(原变种) da bao xuan cao (yuan bian zhong)

*Hemerocallis dumortieri* C. Morren var. *middendorffii* (Trautvetter & C. A. Meyer) Kitamura.

Scape 50–60 cm. Bracts ovate, 2–2.5 × 2–2.4 cm. Fl. May–Jun.  $2n = 22^*$ .

Forests, forest margins, meadows, wet grasslands; near sea level to 2000 m. Heilongjiang, Jilin, Liaoning [Japan, Korea, Russia].

**11b. *Hemerocallis middendorffii* var. *longibracteata*** Z. T. Xiong, Bull. Bot. Res., Harbin 13: 122. 1993.

长苞萱草 chang bao xuan cao

Scape 20–35 cm. Bracts ovate-lanceolate, 3–6 × 1–1.8 cm.  $2n = 22^*$ .

• Forests; ca. 800 m. E Jilin.

