

2. **OPUNTIA** Miller, Gard. Dict. Abr., ed. 4. 1754.

仙人掌属 xian ren zhang shu

Nopalea Salm-Dyck.

Shrubs or small trees. Stems fleshy, usually many branched, terete, club-shaped, subglobose, laterally compressed; areoles with glochids and usually 1 to many spines. Leaves conic to terete, usually small, caducous. Flowers solitary, lateral or subterminal, rarely terminal, sessile. Receptacle obovoid, truncate and depressed at apex. Perianth rotate, spreading, or erect, inserted at rim of receptacle tube; segments numerous, outer ones sepaloid, inner ones petaloid. Stamens inserted in perianth throat, sensitive (except in *O. cochenillifera*). Ovary (pericarpel) inferior; placentas parietal. Fruit fleshy or dry, globose or ovoid, umbilicate, with areoles, glochids, and sometimes spines. Seeds encased in a white, hard, rarely hairy aril.

About 90 species: Americas; at least 30 species cultivated in China, of which four naturalized in southern and southwestern areas.

- 1a. All perianth segments erect, red; stamens erect, longer than perianth, filaments and anthers red 4. *O. cochenillifera*
- 1b. Inner perianth segments spreading, yellow to orange; stamens spreading, but sensitive, closing around style when touched, shorter than perianth, filaments greenish or yellowish to white, anthers yellow.
 - 2a. Areoles of mature, ultimate joints with (1–)3–10 spines, spines yellow, ± brown banded or mottled, subulate, straight to curved, stout, usually flattened at base; petaloids lemon-yellow; stigmas 5 1. *O. dillenii*
 - 2b. Areoles of mature, ultimate joints with 1–5 spines, spines white to grayish to reddish brown, aciculate, terete, sometimes absent; petaloids yellow to orange; stigmas 6–10.
 - 3a. Joints dull green or grayish green, margins ± entire, spineless or with 1–5 white spines; mature fruit barrel-shaped 2. *O. ficus-indica*
 - 3b. Joints glossy green, margins undulate toward apex, spines gray to reddish brown with darker tips; mature fruit obconic to obovoid 3. *O. monacantha*

1. **Opuntia dillenii** (Ker Gawler) Haworth, Suppl. Pl. Succ. 79. 1819.

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Cactus dillenii Ker Gawler, Bot. Reg. 3: t. 255. 1818; *Opuntia stricta* (Haworth) Haworth var. *dillenii* (Ker Gawler) L. Benson.

Shrubs sprawling or erect, 1–3 m tall. Trunk absent or short. Larger, terminal joints green to gray-green, obovate or elliptic-obovate to suborbicular, 10–35(–40) × 7.5–20(–25) cm. Areoles 2–9 mm in diam. Spines 1–12(–20) per areole on most areoles, spreading, yellow, ± brown banded or mottled, subulate, straight or curved, 1.2–4(–6) cm, basally flattened; glochids yellow. Leaves subulate, 4.5–6 mm, deciduous. Flowers 5–9 cm in diam. Sepaloids greenish with yellow margin, broadly deltoid-obovate to obovate, 10–25 × 6–12 mm, margin entire or slightly crisped, apex mucronate. Petaloids spreading, bright yellow, obovate or cuneate-obovate, 25–30 × 12–20 mm, margin entire or slightly undulate, apex rounded, truncate, or emarginate. Filaments yellow, ca. 12 mm; anthers yellow, ca. 1.5 mm. Style yellow or yellowish, 12–20 mm; stigmas 5, pale green, ca. 4.5 mm. Fruit purple, turbinate to obovoid, 4–6 × 2.5–3(–4) cm, fleshy at maturity, umbilicus deep. Seeds light tan, irregularly orbicular, 4–5 × 4–4.5 mm. Fl. Jun–Oct(–Dec).

Thickets, rocks, sandy soils, also cultivated as a hedge; near sea level. S Guangdong, S Guangxi, Hainan [native to the Caribbean region; widely introduced and naturalized in tropical regions].

This species was first recorded in China in 1702.

2. **Opuntia ficus-indica** (Linnaeus) Miller, Gard. Dict., ed. 8, *Opuntia* No. 2. 1768.

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Cactus ficus-indica Linnaeus, Sp. Pl. 1: 468. 1753; *C.*

chinensis Roxburgh; *Opuntia chinensis* (Roxburgh) K. Koch.

Shrubs erect or small trees, 1.5–5 m tall. Trunk (when present) terete. Joints dull green or grayish green, broadly to narrowly obovate, elliptic, or oblong, (20–)25–60 × 7–20 cm, thick. Areoles usually narrowly elliptic, 2–4.5 mm. Spines usually absent, sometimes 1–6 per areole, spreading or deflexed, bristle-like or acicular, 0.3–3.2 cm, basally flattened; glochids yellow, early deciduous. Leaves conic, 3–4 mm, early deciduous. Flowers 5–8 cm in diam. Sepaloids yellow with reddish or green center, broadly ovate or obovate, to 2 cm, margin entire or denticulate, apex truncate or acute, mucronate. Petaloids spreading, yellow to orange, obovate to oblong-obovate, 2.5–3.5 × 1.5–2 cm, margin entire or erose, apex rounded, truncate, mucronate, or emarginate. Filaments yellowish, ca. 6 mm; anthers yellow, 1.2–1.5 mm. Style greenish, ca. 15 mm; stigmas (6–)7–10, cream, 3–4 mm. Fruit yellow, orange, or purplish, 5–10 × 4–9 cm, umbilicus low and concave. Seeds gray or tan, elliptic-orbicular, 4–5 × 3.5–4 mm. Fl. May–Jun.

Hot dry valleys, rocks; 600–2900 m. W Guangxi, SW Guizhou, SW Sichuan, SE Xizang, Yunnan [of cultivated origin in Mexico ca. 9000 years ago; widely introduced as a hedge or for its edible young joints and fruit; naturalized in tropical and subtropical regions].

This species was first introduced to China in 1645.

3. **Opuntia monacantha** Haworth, Suppl. Pl. Succ. 81. 1819.

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Cactus monacanthos Willdenow, Enum. Pl. Suppl. 33. 1814; *C. indicus* Roxburgh.

Shrubs or treelike, 1.3–4 m tall. Trunk (when present) terete. Larger, terminal joints glossy green, obovate, narrowly so, obovate-oblong, oblong, or oblanceolate, 10–30 × 7.5–12.5 cm, thin, narrowed basally, margin undulate toward apex. Areoles

3–5 mm in diam. Spines sparse on joint 1 or 2(or 3) per areole, but on main trunk to 12 per areole, erect or spreading, grayish, dark brown tipped, acicular, 1–7.5 cm; glochids brownish, 2–3 mm. Leaves conic, 2–4 mm, deciduous. Flowers 5–7.5 cm in diam. Sepaloids with red midrib and yellow margin, obovate or broadly ovate, 0.8–2.5 × 0.8–1.5 cm, apex rounded or emarginate. Petaloids spreading, yellow to orange, or obovate to oblong-obovate, 2.3–4 × 1.2–3 cm, margin subentire, apex rounded, truncate, or mucronate. Filaments greenish, ca. 12 mm; anthers pale yellow, ca. 1 mm. Style greenish, 1.2–2 cm; stigmas 6–10, cream, 4.5–6 mm. Fruit reddish purple, obovoid, 5–7.5 × 4–5 cm, umbilicus slightly depressed. Seeds light tan, irregularly elliptic, ca. 4 × 3 mm. Fl. Apr–Aug.

Seashores, slopes; sea level to 2000 m. Fujian, Guangdong, Guangxi, Taiwan, Yunnan [native to Argentina, Brazil, Paraguay, and Uruguay; widely introduced and naturalized in tropical and subtropical regions].

This species was first recorded in China in 1625.

When describing *Opuntia monacantha*, Haworth based the name on a plant from Barbados, where only *O. dillenii* is currently recorded as native. Haworth's name has now been neotypified to maintain its use in the sense employed here and is the earliest name consistently applied to this widely introduced plant, which is native to SE South America.

Haworth cited *Cactus monacanthos* Willdenow 1814 in synonymy with a “?” but this indication of doubt rules out Willdenow's untypifiable name as a potential basionym for that of Haworth. An earlier name formerly and widely applied to *O. monacantha* is *O. vulgaris* Miller. This confused name has now been typified to become a synonym of *O. ficus-indica* (Linnaeus) Miller (see Leuenberger, Taxon 42: 419–429).

4. *Opuntia cochenillifera* (Linnaeus) Miller, Gard. Dict., ed. 8, *Opuntia* No. 6. 1768.

胭脂掌 yan zhi zhang

Cactus cochenillifer Linnaeus, Sp. Pl. 1: 468. 1753; *Nopalea cochenillifera* (Linnaeus) Salm-Dyck.

Shrubs or small trees, 2–4 m tall. Trunk (when present) terete. Large joints green, elliptic to narrowly obovate, 8–40(–50) × 5–7.5(–15) cm, thick, margin entire, base and apex rounded. Areoles ca. 2 mm in diam. Spines usually absent, when present: 1–3 per areole, spreading, grayish tan, acicular, 3–9 mm; glochids early deciduous. Leaves conic, 3–4 mm, early deciduous. Flowers 1.2–1.5 cm in diam., erect. Sepaloids with brilliant red or green midrib, largest ones ovate-deltoid, 5–12 × 6–9 mm, margin entire, apex acute. Petaloids bright red, ovate to obovate, 1.3–1.5 × 0.6–1 cm, margin entire or undulate, apex rounded or acute. Filaments pink, 3–4 cm; anthers pink, ca. 1.5 mm. Style pink, 4–4.5 cm; stigmas 6–8, greenish, ca. 3 mm. Fruit red, ellipsoid, 3–5 × 2.5–3 cm, umbilicus developed but not conspicuous. Seeds gray or tannish, thickened discoid, ca. 3 mm in diam. Fl. Jul–Feb.

Slopes; low altitudes. S Guangdong, Guangxi, Hainan [native to Mexico; widely introduced and escaped in tropical regions].

This species was first introduced to China in 1901. Some authorities now recognize this species in the genus *Nopalea*, as distinct from *Opuntia*, based on pollen-morphological differences.

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