



## 65 CUCURBITACEAE <sup>1</sup>

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Herbaceous or occasionally softly woody plants, monoecious or dioecious, trailing or climbing by tendrils, each tendril arising at the side of a leaf axil, spirally coiled, simple or branched. Leaves alternate, petiolate, palmate or rarely pinnately veined and lobed. Inflorescences axillary, few-flowered cluster or racemes or flowers solitary. Flowers actinomorphic, mostly unisexual, 5-merous; hypanthium in male flowers cup-shaped, in female flowers variously extended beyond the ovary. Sepals free or fused. Petals yellow or white, free or fused, usually rotate. Male flowers with (2)3(–5) stamens, inserted in floral tube, alternate to petals; two double with dithecal anthers and one single with a monotheical anther. Female flowers with or without staminodes; carpels (2)3(–5) fused; ovary inferior, placentation parietal; ovules 1-many; style solitary; stigmas as many as the carpels, bilobed. Fruit a berry or pepo, fleshy or dry. Seeds 1-many, often compressed.

A family of about 120 genera and over 800 species, widespread in tropical and subtropical regions of the Old World. In Australia there are 18 genera (3 endemic, 3 naturalized) and 44 species (14 endemic, 7 naturalized). In Tasmania there are 3 genera and 3 species (1 native). Cucurbitaceae are placed in the Cucurbitales and are sister to a clade containing Begoniaceae (largely tropical), Datisceae (India to E Mediterranean, N America), and Tetramelaceae (NE Qld, Indo-Malesia) (Zhang *et al.* 2006).

Several members of the family are of economic importance; among these are *Citrullus lanatus* (Thunb.) Matsum. & Nakai (Water Melon), *Cucumis sativas* L. (Cucumber), *Cucumis melo* L. (Cantaloupe, Rock Melon, Honeydew Melon), *Cucurbita* L. species (eg. Squashes, Pumpkins, Zucchini, ornamental Gourds), *Luffa* Miller (Loofah or Vegetable Sponge) and *Sechium edule* (Jacq.) Sw. (Choko).

Key reference: Telford (1982).

External resources: accepted names with synonymy & distribution in Australia (APC); author & publication abbreviations (IPNI); mapping (AVH, NVA); nomenclature (APNI, IPNI).

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|----|---|--------------------|
| 1. | Plants lacking tendrils; fruit at maturity separating from the plant and ejecting the seeds explosively | <b>2 Ecballium</b> |
| 1: | Plants with tendrils; fruit at maturity not separating from plant or ejecting seeds                     | 2                  |
| 2. | Tendrils branched   | <b>1 Sicyos</b>    |
| 2: | Tendrils simple   | <b>3 Cucumis</b>   |

### 1 SICYOS

*Sicyos* L., *Sp. Pl.* 2: 1013 (1753).

Monoecious herbs with stems prostrate or trailing or climbing by means of branched tendrils, glabrous or with glandular or septate hairs. Leaves simple, shallowly or deeply pinnately lobed. Male flowers in clusters or in simple or branched racemes, 5-merous; stamens 2–5, inserted at the base of the hypanthium; filaments fused to form a column; anthers connate. Female flowers in clusters, 5-merous; staminodes absent; ovary ovoid, ovules solitary. Fruit small, dry, indehiscent, bristly. Seed ovate, compressed.

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A genus of about 50 species of the Americas, Hawaii, New Zealand and the SW Pacific. 1 species native in Australia.

**1 *Sicyos australis*** Endl., *Prodr. Fl. Norfolk*. 67 (1833)

*Star Cucumber*

*Sicyos fretensis* Hook.f., *Hooker's J. Bot. Kew Gard. Misc.* 6: 473 (1847). *Sicyos angulatus sensu* J.D.Hooker, *Bot. Antarct. Voy. III (Fl. Tasman.)*, 1: 143 (1856); G.Bentham, *Fl. Austral.* 3: 322 (1866); L.Rodway, *Fl. Tasman.* 60 (1903); W.M.Curtis, *The Student's Flora of Tasmania* 2: 237 (1963); P.S.Green, *Fl. Australia* 49: 131 (1994), non L. (1753).

*Illustrations:* Jobson, *Fl. Victoria* 3: 384, fig. 79h (1996); Harden, *Fl. New South Wales* 1, rev. edn: 228–229 (2000); Harris *et al.*, *One Hundred Islands: the Flora of the Outer Furneaux* 118 (2001); Whiting *et al.*, *Tasmania's Natural Flora* 99 (2004).

Scrambling or climbing annual herbs; stems subglabrous or with white septate, glandular hairs to 2 mm long. Leaves: petiole up to 6 cm long, glandular septate hairy; lamina to 6 cm long, 8 cm wide, palmately 5–7-lobed, lobes triangular, base cordate, the sinus very wide, margins toothed, ciliate, both surfaces septate hairy, the hairs denser along the veins and on the lower surface. Male inflorescences 10–20 flowered; peduncles 3–6(–9?) cm long; pedicels to 2 mm long. Male flower: calyx lobes c. 1 mm long; corolla lobes greenish-white, 3–3.5 mm long, margins minutely ciliate. Female inflorescences frequently arising from the same axil as the males, 6–8-flowered; peduncle 5–15 mm long; flowers sessile in dense heads. Female flowers: calyx and corolla similar to those of the male flowers but smaller; ovary with soft, antrorsely barbed bristles c. 1.5 mm long and sessile glandular hairs; stigma bilobed, the lobes fleshy, recurved. Fruit ovate-acute, 5–7(–12?) mm long, the barbed bristles up to 2.5 mm long at maturity. Seed ovoid, black. Flowering Aug.–Feb.; fruiting Dec.–Feb.

Tas. (FLI); also Qld, NSW, Vic.; also New Zealand, SW Pacific. Known only from Inner and Outer Sister Islands north of Flinders Island in the Furneaux Group. Recorded originally from Norfolk and Lord Howe Islands but possibly now extinct there (Green 1994). The genus requires revision and populations in New Zealand may be distinct from Australian populations (Telford 1982; Green 1994).

## 2 \* ECBALLIUM

*Ecballium* A.Rich., *Dict. Class. Hist. Nat.* 6: 19 (1824).

Monoecious perennial herbs; stems trailing, tendrils absent. Male flowers in axillary racemes. Female flowers solitary, axillary. Hypanthium very short. Petals united towards the base. Stamens free, connectives broad. Ovary tuberculate-hispid. Fruit separating explosively from the pedicel, forcibly expelling the seeds. Seeds numerous, ovate.

A monotypic genus from south-western Asia to the Mediterranean region.

**1 \* *Ecballium elaterium*** (L.). A.Rich., *Dict. Class. Hist. Nat.* 6: 19 (1825)

*Squirting Cucumber*

*Momordia elaterium* L., *Sp. Pl.* 2: 1010 (1753).

*Illustrations:* Cunningham, *Plants of Western New South Wales* 626 (1981); Jobson, *Fl. Victoria* 3: 384, fig. 79a (1996); Harden, *Fl. New South Wales* 1, rev. edn: 443 (2000); Richardson *et al.*, *Weeds of the South-East, an Identification Guide for Australia* 241 (2006).

Rootstock rather woody; stems prostrate, stout, fleshy; all parts of the plant with tuberculate-based septate hairs. Leaves alternate, somewhat leathery; petioles to 10 cm long; lamina to 14 cm long, to 10 cm wide, ovate-triangular, base cordate, apex obtuse, sparsely hairy above, white-tomentose beneath, margins sinuate crispate. Calyx-lobes c. 6 mm long. Corolla lobes pale yellow, 15–20 mm long, oblanceolate-elliptic, apex shortly mucronate, hairy externally, veins prominent. Male inflorescences on peduncles to 6 cm long; pedicels 0.5–2

cm long; male flower with anther connectives connate, anthers sinuate. Female flowers occasionally co-axillary with the male inflorescences, peduncle c. 1.5 cm long at anthesis, elongating to 8 cm long in fruit; ovary c. 1.5 cm long, green, densely tuberculate-hispid; stigmas 3, bilobed, papillose. Fruit dark brown, pendulous, 3–5 cm long, 1.5–2.5 cm diam., the tuberculate bases of the hairs, red-brown, the septate portion deciduous. Seed 4–5 mm long, enveloped in the adhesive pulp of the fruit. Flowering Jan.-May; fruiting Feb.-May.

Tas. (TSE); also naturalized in SA, NSW, Vic.; native to the Mediterranean region, SW Asia; widely naturalized in tropical and temperate regions. Known only from few localities in the Hobart area and probably not truly naturalized.

### 3 \* CUCUMIS

*Cucumis* L., *Sp. Pl.* 2: 1011 (1753).

Annual or perennial herbs, usually monoecious, trailing or climbing by unbranched tendrils. Leaves simple, lamina toothed to palmately lobed. Male flowers solitary or in few-flowered clusters; corolla yellow; two stamens with 2-locular anthers, one with 1-locular anther; thecae flexuous, connective produced apically; nectar disc subglobose. Female flowers solitary or in pairs; corolla yellow; staminodes 3; ovary smooth or minutely tuberculate-hispid; nectar disc annular around the style base. Fruit a pepo, smooth or with bristle-tipped tubercles. Seeds many, compressed, elliptic.

A genus of 28 species, mostly in tropical and southern Africa, also in tropical Asia. 6 species (5 naturalized) in Australia. *Cucumis melo* L. subsp. *agrestis* (Naudin) Grebensch. is considered as possibly indigenous. Many species are cultivated including *C. melo* (Cantaloupe, Rock Melon, Honeydew Melon) and *C. sativas* L. (Cucumber).

1 \* *Cucumis myriocarpus* Naudin, *Ann. Sci. Nat.* (Paris) ser.4, 11: 22 (1859)

*Paddy Melon,*  
*Gooseberry Cucumber*

*Illustrations:* Jobson, *Fl. Victoria* 3: 384, fig. 79b (1996); Harden, *Fl. New South Wales* 1, rev. edn: 446 (2000); Richardson *et al.*, *Weeds of the South-East, an Identification Guide for Australia* 240 (2006).

Monoecious herb, all parts with septate hairs arising from a tuberculate base; stem to 2 m long, in older parts the septate portion of the hairs deciduous, leaving the tuberculate base. Leaves: petiole 1–5 cm long; lamina 2–6 cm long, 2–8 cm wide, 3–5-lobed, the lobes rounded, subglabrous above, densely hairy below, hairs on the nerves and on the petiole coarser. Male flowers in clusters of 2–4; peduncles to 5 mm long; pedicels 2–4 mm; corolla yellow, 4–5 mm long; anther connective branched. Female flowers paired or solitary; pedicels 3–8 mm long; corolla yellow, 2–4 mm long. Fruit globose to subglobose, green, striped yellow, to 2.5 cm diam., with scattered hairs, the tuberculate base lengthening to form soft bristles. Seeds 3–5 mm long, cream-yellow. Flowering Jan.-May (Aug.); fruiting ?-Aug,

Tas. (TNM, TSE); naturalized in all states of Australia; native to southern Africa. Known from the Launceston and Rhyndaston areas; doubtfully naturalized.

#### REFERENCES

APC (Australian Plant Census) <http://www.chah.gov.au/apc/about-APC.html>

APNI (Australian Plant Name Index) <http://www.anbg.gov.au/cgi-bin/apni>

AVH (Australia's Virtual Herbarium) (Council of Heads of Australasian Herbaria) <http://www.anbg.gov.au/avh.html>

IPNI (International Plant Name Index) <http://www.ipni.org/index.html> or <http://www.us.ipni.org/index.html>

NVA (Natural Values Atlas) (Department of Primary Industries and Water: Hobart) <http://www.dpiw.tas.gov.au/inter.nsf/WebPages/LJEM-6TV6TV?open>

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Zhang L-B, Simmons M, Kocyan A, Renner SS (2006) Phylogeny of the Cucurbitales based on DNA sequences of nine loci from three genomes: Implications for morphological and sexual system evolution. *Molecular Phylogenetics and Evolution* **39** 305–322.

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