

Plant Diversity Website

Cucumis melo Linnaeus

Family: Cucurbitaceae (the Gourd family)

Common Names: Melon, muskmelon, cantaloupe, honeydew, sweet melon, dudaim melon, Queen Anne's melon, Armenian cucumber, snake cucumber, wild melon, orange melon, pickling melon, serpent melon, snap melon, round melon, casaba, winter melon, *melão* (Portuguese), *kharbuz* / *kharbuza* (Pakistan), *tian gua* (pinyin, China) (1,4,5,6).

Etymology: *Cucumis* in Latin means “cucumber”, which is the English common name of another species of the genus; the word was derived from Greek for cucumber, *kykyon*. The species name, *melo*, is short for *melopepo*, which means “melon, apple-shaped melon” (7,12).

Botanical synonyms (4): See complete list at end of species account.

Quick Notable Features (1,11):

- Trailing pubescent vine
- Alternate, simple leaves: rounded and pubescent with cordate bases on long petioles
- 5-merous yellow flowers, unisexual or bisexual with pubescent ovaries
- Typically round berry up to 2.2kg

Plant Height: The stems are usually trailing and up to 3m in length, the climbing height is unknown (3).

Subspecies/varieties recognized (4):
See complete list at end of species account.

Most Likely Confused with: *Cucumis sativus*, *Cucurbita foetidissima*, *Cucurbita maxima*, *Cucurbita pepo*, *Citrullus lanatus*, *Thladiantha dubia*.

Habitat Preference: *C. melo* prefers open habitats with well-drained, deep soils and also can be found growing in disturbed sites, abandoned fields, along rivers, and open woods (3).

Geographic Distribution in Michigan: Melons are found escaped from cultivation in Alpena, Oceana, and Wayne counties (1).

Known Elevational Distribution: *C. melo* grows up to 2200m above sea level in Chiriquí, Panama (4).



Complete Geographic Distribution:

Native to East Africa (3). In North America, *C. melo* is found escaped in the USA in AL, AR, CA, CT, FL, GA, IL, KS, KY, LA, MA, MI, MO, MS, NC, NH, NM, NV, NY, OH, OK, PA, RI, SC, TX, UT, VA, WI, WV; and in Ontario, Canada (5). Historical records show that the species first arrived in Europe on trade routes in the 1200's (8). The melon was introduced to the eastern Mediterranean region and to west Asia before 2000 BC. *C. melo* is now cultivated in tropical and warm temperate regions throughout the world (3).



Vegetative Plant Description:

C. melo is an annual trailing vine with pubescent striated stems, lacking stipules, bearing unbranched tendrils at the base of the 4-12cm long petioles. The leaves are simple and alternate, nearly round, basally cordate, and may have 3-7 shallow palmate lobes. The blades are 6-15cm both broad and long (occasionally up to 20cm), undulate-dentate, with pointed hairs on both sides, and palmate venation (1,3,11,13,15).

Climbing Mechanism: Melons use their tendrils to climb over structures or other vegetation (11).

Flower Description: The flowers of *C. melo* can be gynoecious (only female flowers), monoecious (male and female flowers), or perfect. The axillary flowers are borne on 0.5-4cm long pedicels and produce nectar. The campanulate calyx has 5 linear lobes, 0.3-0.8cm in length, and is covered in pubescence; the lobes are 0.2-0.4cm long. The 5-parted corolla is yellow, each lobe 0.3-2.4cm long x 0.2-2cm wide, and apically obtuse. The hypanthium is broader at the apex and 0.7-0.8cm long. Staminate flowers are solitary or fascicled, bearing 3 free stamens, of which two bear 2-celled



anthers and one a 1-celled anther. Pistillate flowers are solitary, bear staminodes, an inferior ovary topped by a short style (1-2mm long) and 3-lobed stigma (2-2.4mm long). The ellipsoid ovary is densely pubescent with white hairs, and is 0.4-1.1cm long (3,9,11,13).

Flowering Time: In California, the species blooms from March to September. Flowers remain open for just one day (3,17).

Pollinator: The flowers are open-pollinated by insects, mainly bees, and capable of self-pollination (3). The squash bee (*Peponapis pruinosa*) and honey bee (*Apis mellifera*) are considered effective pollinators and collect pollen and nectar from the flowers (14,16).



Fruit Type and Description: The melon fruit is a fleshy berry that is round to ellipsoid, hairy during its early development, and smooth to reticulate at maturity. Melons are highly variable in color, showing shades of yellow, green, orange, white, and often mottled or striped; the flesh is also variable and usually yellow, orange, pink, white, or green. Melons weigh 0.4-2.2kg, bear many seeds and can taste and smell sweet, or not (1,3,11).

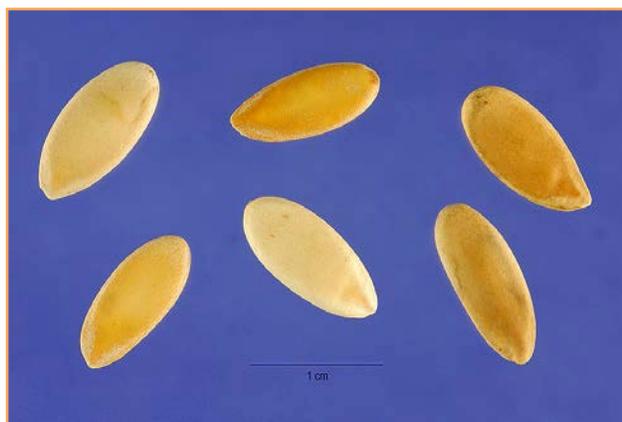
Seed Description: The smooth seeds are elliptic and flattened, 0.5-1.2cm long x 0.2-0.7cm broad; they germinate epigeally. The seeds are rich in lipids, protein, and contain 24 fatty acids (3,18).

Dispersal Syndrome: The fruits are consumed by animals, such as birds, that spread the seeds; the seeds also can be transported by water. Due to the agricultural importance of melons, much of the dispersal is attributed to escapes (19,20).

Distinguished by: *Cucumis sativus* is differentiated by its acute leaf apex, which is round in *C. melo*. Also, the mature ovary and fruit of *C. sativus* are glabrous and warty (pubescent during development), turning into the commonly known cucumber, while *C. melo* has a hairy, smooth ovary in the young fruit. Species of *Cucurbita* also produce yellow flowers, but at least twice the size (>5cm long x 5cm wide) than those of *C. melo*, and *Cucurbita* tendrils are branched. *Cucurbita foetidissima* has triangular leaves that point upwards, and the whole plant smells foul when bruised. *Cucurbita maxima* has similarly shaped leaves, but usually larger (15-25cm long and broad) than *C. melo* (only to 15cm) and are borne on longer petioles (15-20cm long). The stigmas of *Cucurbita maxima* flowers are bifid, versus simple in *C. melo*. *Cucurbita pepo* leaves are usually deeply palmately lobed and apically acute, at most shallowly palmately lobed in *C. melo*. *Citrullus lanatus* (watermelon) has deeply pinnately lobed leaves, branched tendrils, solitary staminate flowers (vs. grouped in *C. melo*), and 3-lobed stigmas. *Thladiantha dubia* has tubers the size of small potatoes, the hairs are hooked (pointed in *C. melo*), the plants are always dioecious, the stigmas are bifid, and the fruit is hairy even at maturity (1,11).

Other members of the family in Michigan (number species): *Citrullus* (1), *Cucumis* (1), *Cucurbita* (3), *Echinocystis* (1), *Sicyos* (1), *Thladiantha* (1) (source 1).

Ethnobotanical Uses: The fruit is widely consumed for its juice and flesh, and can be dried and made into a powder for cooking. Edible oil can be extracted from the seeds. The flowers are expectorant and induce vomiting. The fruits are used medicinally to promote skin hydration, to treat light burns and scrapes, and as a stomach tonic. The seeds are cough suppressant, fever reducer, and a digestive aid. A seed powder is mixed with water and used as a vermifuge. The roots are diuretic and induce vomiting. *C. melo* seedlings are toxic (6). An extract from melon has anti-inflammatory and antioxidant properties (10).



Phylogenetic Information: The genus *Cucumis* is included in the Cucurbitaceae family, which is in the Cucurbitales order, part of the Rosid I clade of Core Eudicots. Six other families are part of the order Cucurbitales: Anisophylleaceae, Corynocarpaceae, Coriariaceae, Tetramelaceae (closest to Cucurbitaceae), Datisceae, and Begoniaceae. Members of the

Cucurbitaceae are found in tropical, subtropical, and warm temperate climates throughout the world and are very important economically. The family also includes pumpkin, squash, watermelon, and cucumber (2). *C. melo* is considered the most diverse species within the genus *Cucumis*, showing wildly diverse fruit morphologies (8).

Interesting Quotation or Other Interesting Factoid not inserted above: *C. melo* var. *dudaim* is considered a noxious weed in Arizona, California, and by the Southern Weed Science Society. Common names for the variety are dudaim melon, Queen Anne's melon, Armenian cucumber, and snake cucumber (5).

Sex expression in *C. melo* plants is influenced by ethylene production: “*C. melo* plants of a gynoecious sex type that normally produce only pistillate (female) flowers, when grown with hypobaric ventilation to facilitate removal of endogenous gases by diffusion, produced perfect (hermaphroditic) flowers” (9).

The common name cantaloupe was given after the city Cantalupi, near Rome, in the 1400's. Snake melon is one of the non-sweet varieties of *C. melo*, and it is consumed raw, cooked, or pickled. In 2002, China was the largest producer of *C. melo*, and total world production was 22 million tons. While a single plant can bear 30-100 flowers, it will only produce 3-6 melons (3).

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3. Image of male and female flowers courtesy of Howard Garrett, Dirt Doctor http://www.dirtdoctor.com/Cantaloupe_vq2821.htm
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5. Image of melon varieties courtesy of Bountiful Gardens and Harvest Sensations Blog (Weiser family farms melons)-harvestsensations.blogspot.com
6. Image of seeds courtesy of Steve Hurst @ USDA-NRCS PLANTS Database http://plants.usda.gov/java/largeImage?imageID=cume_002_ahp.tif

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Botanical Synonyms:

<i>Bryonia callosa</i> Rottler	<i>C. chito</i> Morren
<i>B. callosa</i> Wall.	<i>C. cicatrisatus</i> Stocks
<i>Cucumis acidus</i> Jacq.	<i>C. cognatus</i> Fenzl ex Hook. f.
<i>C. agrestis</i> Grebensc.	<i>C. collosus</i> Cogn.
<i>C. alba</i> Nakai	<i>C. conomon</i> Thunb.
<i>C. ambigua</i> Fenzl ex Hook. f.	<i>C. cubensis</i> Schrad.
<i>C. arenarius</i> Schumach. & Thonn.	<i>C. deliciosus</i> Salisb.
<i>C. aromaticus</i> Royle	<i>C. dudaim</i> L.
<i>C. aspera</i> Sol. ex G. Forst.	<i>C. eriocarpus</i> Boiss. & Noë
<i>C. bardana</i> Fenzl ex Naudin	<i>C. erivanicus</i> Hort. ex Steud.
<i>C. bisexualis</i> A.M. Lu & G.C. Wang	<i>C. eumelo</i> Pangalo
<i>C. bucharicus</i> Hort. ex Steud.	<i>C. flexuosus</i> L.
<i>C. campechianus</i> Kunth	<i>C. jamaicensis</i> Bertero ex Spreng.
<i>C. cantalou</i> Hort. ex Steud.	<i>C. jucunda</i> F. Muell.
<i>C. cantalupensis</i> Haberle ex M. Roem.	<i>C. laevigatus</i> Chiov.
<i>C. cantalupo</i> (Ser.) Haberle ex Rchb.	<i>C. luzonicus</i> Blanco
<i>C. chate</i> Hasselq.	<i>C. maculatus</i> Willd.
<i>C. chinensis</i> Pangalo	<i>C. maltensis</i> Ser. ex Steud.

C. microcarpus (Alef.) Pangalo
C. microsperma Nakai
C. momordica Roxb.
C. moschatus Gray
C. odoratissimus Moench
C. officinarum-melo Crantz
C. pancheranus Naudin
C. pedatifidus Schrad.
C. persicus (Sageret) M. Roem.
C. picrocarpus F. Muell.
C. pictus Jacq.
C. princeps Wender.
C. pubescens Willd.
C. pyriformis Roxb. ex Wight & Arn.
C. reflexus Zeih ex Seringe in de Candolle
C. reginae Schrad
C. reticulatus Hort. ex Steud.
C. saccharinus Hort. ex Steud.
C. schraderianus M. Roem.
C. serotinus Haberle ex Seiz.
C. trigonus Roxb.
C. turbinatus Roxb.
C. umbilicatus Salisb.
C. utilissimus Roxb.
C. verrucosus Hort. ex Steud.

C. villosus Boiss. & Noë
C. viridis Hort. ex Steud.
Melo adana Pangalo
M. adzhur Pangalo
M. agrestis (Naudin) Pangalo
M. ameri Pangalo
M. cantalupensis (Naudin) Pangalo
M. cassaba Pangalo
M. chandalak Pangalo
M. chate Sageret
M. chinensis Pangalo
M. conomon Pangalo
M. dudaim (L.) Sageret
M. figari Pangalo
M. flexuosus (L.) Pangalo
M. flexuosus Sageret
M. flexuosus Sageret ex M. Roem.
M. microcarpus (Alef.) Pangalo
M. monoclinus Pangalo
M. orientalis (Kudr.) Nabiev
M. persicus Sageret
M. sativus Sageret
M. vulgaris Moench ex Cogn.
M. zard Panga

Subspecies/varieties recognized (4):

C. melo subsp. *adana* Pangalo
C. melo var. *adana* Pangalo
C. melo var. *adress* Pangalo
C. melo var. *aegyptiacus* (Sickenb.) Hassib
C. melo var. *aestivales* (Alef.) Filov
C. melo var. *aethiopicus* Naudin
C. melo subsp. *agrestis* (Naudin) Pangalo
C. melo var. *agrestis* Naudin
C. melo var. *albida* Makino
C. melo var. *albidus* (Alef.) Makino
C. melo var. *alboviridis* Pangalo
C. melo var. *ameri* Gabaev
C. melo var. *anatolicus* Naudin
C. melo var. *aurantiacus* (Harz) Pangalo
C. melo var. *baqubensis* Chakrav.
C. melo var. *bitariana* (Sickenb.) Hassib
C. melo var. *bos-valdy* Sad. Suzuki
C. melo var. *callosus*
C. melo var. *cantalupa* Pangalo ex Gabaiev
C. melo var. *cantalupensis* Naudin
C. melo var. *cantalupo* Ser.
C. melo var. *cantonianus* Naudin
C. melo var. *casaba* Pangalo
C. melo var. *chandaliak* Gabaiev
C. melo subsp. *chate* (Hasselq.) Hassib
C. melo var. *chate* (Hasselq.) Sageret
C. melo var. *chito* (Morren) Naudin
C. melo var. *conomon* (Thunb.) Makino
C. melo var. *cossonianus* Naudin

C. melo var. *cucurbitaceus* Chakrav.
C. melo subsp. *cultus* (Kurz) Pangalo
C. melo var. *cultus* Kurz
C. melo var. *dudaim* (L.) Naudin
C. melo var. *elongata* (Sickenb.) Hassib
C. melo var. *erythraeus* Naudin
C. melo var. *flava* Makino
C. melo subsp. *flexuosus* (L.) Pangalo
C. melo var. *flexuosus* (L.) Naudin
C. melo var. *fraiduni* Chakrav.
C. melo var. *gracilior* Pangalo
C. melo var. *hafednafse* Chakrav.
C. melo var. *hasanbey* Pangalo
C. melo var. *hime* Makino
C. melo var. *inodorus* H. Jacq.
C. melo var. *kirukensis* Chakrav.
C. melo var. *longus* Chakrav.
C. melo var. *macro-castanus* Pangalo
C. melo var. *macro-leucus* Pangalo
C. melo var. *macro-pyrochrus* Pangalo
C. melo var. *maculatus* Naudin
C. melo var. *major* Chakrav.
C. melo var. *makuwa* Makino
C. melo var. *maltensis* Ser.
C. melo subsp. *melo*
C. melo var. *melo*
C. melo subsp. *microcarpus* (Alef.) Pangalo
C. melo var. *microcarpus* (Alef.) Pangalo
C. melo var. *micro-castanus* Pangalo

C. melo var. *micro-leucus* Pangalo
C. melo var. *micro-pyrochrus* Pangalo
C. melo var. *microspermus* Nakai ex Kitam.
C. melo var. *minimus* Chakrav.
C. melo var. *minutissimus* Naudin
C. melo var. *momordica* (Roxb.) Duthie & Fuller
C. melo var. *monoclinus* (Pangalo) Filov
C. melo var. *oblongus* Chakrav.
C. melo var. *ovatus* Chakrav.
C. melo var. *persicodorus* Seiz.
C. melo var. *praecantalupa* Pangalo
C. melo var. *praecox* Filov
C. melo subsp. *pubescens* (Willd.) Hassib
C. melo var. *pubescens* (Willd.) Kurz
C. melo var. *reticulatus* Ser.
C. melo subsp. *rigidus* (Pangalo) Filov
C. melo var. *rigidus* Pangalo
C. melo var. *rotundus* Chakrav.
C. melo var. *rugosus* Chakrav.
C. melo var. *saccharinus* H. Jacq.
C. melo var. *saharunporensis* Naudin

C. melo var. *samarrensis* Chakrav.
C. melo var. *shauki* Chakrav.
C. melo var. *shimmam* Chakrav.
C. melo var. *striata* (Sickenb.) Hassib
C. melo var. *suavis* Chakrav.
C. melo var. *tamago* Makino
C. melo var. *texanus* Naudin
C. melo var. *tuzensis* Chakrav.
C. melo var. *utilissimus* (Roxb.) Duthie & Fuller
C. melo var. *vard* Gabaiev
C. melo var. *variegatus* Pangalo
C. melo var. *virigatus* Chakrav.
C. melo var. *virgatus* Chakrav.
C. melo var. *viridis* Pangalo
C. melo subsp. *vulgaris* (H. Jacq.) Pangalo
C. melo var. *vulgaris* H. Jacq.
C. melo var. *zard* Gabaiev
C. melo var. *zebrino-aurantiacus* Pangalo
C. melo var. *zebrino-luteus* Pangalo
C. melo var. *zhukovskyi* Pangalo