TROPAEOLUM MAJUS
Tropaeolaceae
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Summary. The garden nasturtium is not known in the wild, but is by far the most commonly grown member of the Tropaeolaceae. After its introduction from Peru into the Netherlands in the late 17th century, it spread rapidly across gardens, and because of its value as a source of vitamin C, it was distributed to harbours and oceanic islands to fight scurvy amongst sailors on long sea voyages. Here we present the history of its introduction, the many uses of the plant (including three recipes), and an illustration from material grown at Kew.

The garden nasturtium or Indian cress, *Tropaeolum majus* L. is a cultigen originating in the South American Andes, where it has been cultivated as a crop plant since early times. It is not known from any wild populations and it appears to have originated from spontaneous hybridisation in the Lima area. Suspected parents are *T. minus* L. and *T. ferreyrae* Sparre (Sparre & Andersson, 1991). That the garden nasturtium is of hybrid origin was already suggested by Sutton (1939), who also stated that it is a tetraploid. After 1854 the originally introduced *T. majus* (which was a single clone) was crossed with *T. peltophorum* Benth. and backcrossed with *T. minus*, resulting in an increased variability of characters but not an alteration in the general appearance of the species.

After *Tropaeolum minus*, this was the second species of *Tropaeolum* to appear in European gardens. It had been brought to Europe in 1684 from Peru by a Dutch monk, Pater Beverning (Sparre & Andersson, 1991), who gave seeds to the Hortus botanicus of the University of Leiden in the Netherlands. Hermann (1687) saw it there and described it as ‘*Viola indica scandens, Nasturtii sapore maxima odorata*’. The Indian connotation of the name must have been a confusion between the East and West Indies, and it even today is called Oost-Indische kers, (East-Indian cress) in Dutch, erroneously suggesting that the plant was introduced into the Netherlands from the East Indies, rather than from South America. This confusion is increased by the name nasturtium, which refers more to its taste than...
to the generic name *Nasturtium*, used for water cress, *Rorippa nasturtium-aquaticum* L., (Brassicaceae), which is in the same order, but not closely related, although they do share some chemistry (Fay & Christenhusz, 2010).

*Tropaeolum majus* was soon distributed across Europe; it was recorded in England for the first time in 1688, Germany in 1690 and the Royal Gardens in Paris in 1700 (Sparre & Andersson, 1991). It was renamed *Cardamindum majus* by de Tournefort (1694), who first illustrated it. Boerhaave recognised variability in the species early on and described the yellow form as ‘flore sulphureo’, differing from the normal orange form.

It was, however, not only for ornamental purposes that this plant was cultivated. Its flowers, leaves and seeds are edible and contain high concentrations of vitamin C (300 mg per 100 g, about the same amount as in parsley), and for that reason it was widely distributed in the 18th century, especially in coastal areas and on oceanic islands, as it was a good antiscorbutic. It readily naturalised from these ‘cultivations’ and it is currently considered an alien invasive in New Zealand, Lord Howe Island and Hawaii (US Forest Service, 2012), and it is also very common on the Canary Islands, Madeira (see Fig. 1), the Azores, the Galapagos and the Juan Fernandez Islands.

Apart from being a good salad green, it has antimicrobial properties, which were studied by Dannenberg *et al.* (1956), and its fruits make a good substitute for capers (Beeton, 2007). All parts of the plant are edible, and below we give three delicious recipes to use the fruits, flowers and leaves.

The experience of eating a flower is novel for many people, although it is slowly gaining more popularity with roses, hibiscus, fuchsias and pansies crowning salads, cakes, desserts and drinks. *Nasturtium* flowers have a distinctive, sweet-lettuce like flavour, with a bite in the tail. The mustard oils are concentrated in the spur of the flowers and it can be a surprising sensation! Therefore these are better in savoury than in sweet dishes. The leaves have a sharp wasabi-like flavour, so should be used in moderation in mixed salads.
Plate 746  *Tropaeolum majus*  

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Fig. 1. *Tropaeolum majus*, naturalised by the shore on the north coast of Madeira. Photograph: Martyn Rix.
Pickled nasturtium capers
Ingredients:
- 2 cups green (nearly ripe) nasturtium fruits
- \( \frac{1}{4} \) cup sugar
- 4 cups water
- 2 bayleaves
- 6 tablespoons salt
- 12 peppercorns
- 3 cups white wine vinegar
- 1 mace

Dissolve the salt in the water and add the nasturtium fruits. Soak for 2 days. Rinse the seeds with cold water. Cover the seeds in fresh water and let them soak for another day. Sterilise the pickling jars and drain the seeds. Mix the vinegar, sugar and spices and bring to the boil. Add the seeds to the jars and cover them with the hot spiced vinegar. Seal the jars and let them rest for at least a month before using.

Stuffed nasturtium flowers
Ingredients:
- 12 nasturtium flowers
- 2 teaspoons finely chopped chives
- 8 ounces cream cheese
- 1 garlic clove, finely diced
- 1 tablespoon finely chopped lemon verbena or lemon balm
- salt and pepper

Pick clean flowers just before they are served. They can be kept in the fridge for a few hours if needed. Mix the cheese with the herbs, and add salt and pepper to taste. Fill the flowers with the cheese and cover the cheese with the petals. Press slightly so it will stick.

Nasturtium pesto
Ingredients:
- 4 cups coarsely chopped nasturtium leaves
- 1 \( \frac{1}{2} \) cups olive oil
- 5 garlic cloves
- 1 cup walnuts
- black pepper

Mix all ingredients in a blender or food processor and mix until smooth. Alternatively the ingredients can be chopped by hand.
Garden nasturtiums are usually grown from seed as half-hardy annuals, although when kept free of frost the plants may survive the winter. Once established and the weather warms up in late spring, *Tropaeolum majus* is a vigorous and easily grown plant that does best in a sunny spot with ample water available, although it tolerates dry conditions once established. It will grow in the shade, but it is then known to produce a leafier plant with fewer flowers. Stems climb vigorously and can grow to 1 m or more. The peltate leaves are nearly circular and are green-glaucous above and paler beneath. Its flowers are on pedicels of about the same length as the petioles, so the leaves and flowers are held at about the same level, and good garden varieties give a splendid show of colour in late summer and early autumn.

This is a useful plant for pest control in the vegetable garden. It is the food plant for aphids and caterpillars of the cabbage white butterfly, which are thus attracted away from the crop plants and can easily be removed from the infested nasturtiums; black aphids on nasturtiums are an indication of lime deficiency in the soil, which should be addressed for improved growing of vegetables. They also repel many cucubid pests like squash bugs and cucumber beetles, and they may attract beneficial predatory insects.

Many colour variations exist, from creamy white, through shades of yellow, orange and red to dark maroon, usually solidly coloured, but striped flowers are also in the trade; flowers usually have a darker blotch at the base of the lower petal, but not always.

The leaves are usually bright green, but variegated and yellow-leaved cultivars are also in the trade. Cultivars with double flowers, which are sterile and need to be propagated from cuttings, are also available. The variability in colour of leaves and flowers make a very colourful salad indeed!


*Cardamindum majus* (L.) Moench, Methodus: 20 (1802).

**Description.** Robust, slightly succulent, scandent or trailing, annual herbs, 15–100 (–250) cm. Stems often to 5 mm thick and fleshy, usually glabrous, rarely somewhat pubescent at leaf bases; stipules minute, caducous. Leaves petiolate, peltate with the petiole attached near the centre of the lamina, the petioles 5–20 (–25) cm, glabrous, the blades (3–) 5–10 (–12) cm long and wide, suborbicular, margin with five to seven weakly defined, rounded lobes, often with three broadly rounded distal lobes and their sinuses only 1–3 mm deep; with 7–11 unbranched veins radiating from petiole insertion, glabrous. Inflorescence of solitary axillary flowers, pedicellate. Pedicels 6–25 cm, equaling or shorter than the petioles, glabrous. Calyx green or yellowish green to light brown, the lobes lanceolate, acute, the lower ones 1.5–1.8 × 0.8–0.9 cm, the upper ones slightly smaller, the spur 2.5–3.5 cm, stout and inflated with a slightly curved tip, darker than base; petals creamy white, yellow, orange, purple, maroon, blackish purple, or variously coloured, often patterned, heteromorphic, the upper 3–4 cm long, cuneate, clawed, its lamina 1.5–2.0 × 1.5–2.0 cm, mostly rounded, apex sometimes acuminate or emarginate, not mucronate, undulate; lower petals 2.5–5.0 × 1.0–1.8 cm, usually entire, clawed; claw 1.2–1.5 cm, claw margin deeply fringed-ciliate. Stamens 0.5–0.6 mm, anthers 0.5 mm. Style 0.5–0.6 cm, stigmas 0.6–0.9 mm. Fruits 1.5–2.0 cm diameter, oblate. Seeds (mericarps) 5–10 mm in diameter, fleshy with rugose ribs, beige.

**Distribution.** A species of hybrid origin and not known in the wild. This cultigen originated in Peru, was widely cultivated from Colombia to Bolivia in pre-Colombian times and is now grown as an ornamental worldwide. Naturalised in Europe, Asia, Africa, North America, Australasia and the Pacific.

**Habitat.** It is frequently cultivated and easily escapes from gardens. It can be found on disturbed roadsides, waste places, coastal bluffs and beaches.

**Flowering time.** May to October in the Northern Hemisphere, November to May in southern latitudes.

**Fruiting.** July to October in northern latitudes, December to May in Australia.

**Vernacular names.** Garden nasturtium, common nasturtium, Indian cress, monks cress (English), capuchina, espuela de galán, flor de la sangre, llagas de Cristo, marañuela, mastuerzo de Indias, pelón, taco de reina (Spanish), بويتك (Arabic), bőyük arikgülü (Azeri), caputxina (Catalan), 半金蓮 (Chinese), dragoljub (Croatian), lichořeřínsice větší (Czech), tallerkensmækker (Danish), Oost-Indische kers (Dutch), suur mungalill (Estonian), isoköynnöskrassi (Finnish), Grande capucine (French), Indianerkresse, Große Kapuzinerkresse, Kresse (German), המריר (Hebrew), kerti sarkantyúka (Hungarian), nasturzio (Italian), キンレンカ (Japanese), didžioji nasturtė (Lithuanian), nasturcia większa (Polish), cinco-chagas, capuchinha (Portuguese), kapička, condurul, condurul doamnei (Romanian), Настурция большая, Капучин большой (Russian), kapucinka váčsia (Slovakian), velika kapucinka (Slovenian), indiankressa (Swedish).
Cultivars

Few cultivars were described before the 1850s. When *Tropaeolum peltophorum* became better established around that time in European gardens, hybrids were made and this increased the variability of the species, and allowed for a greater number of cultivars to be selected, some of which are mentioned below:

‘Alaska’, mixed red and orange flowers and variegated leaves.
‘Atropurpureum’ (1832), uniformly dark purple.
‘Atrosanguineum’ (1834), dark scarlet with yellow throat and sepals.
‘Burpee’ (1949), a double flowered form.
‘Coccineum’, bright red flowers with darker spots.
‘Crimson Emperor’, solid crimson red.
‘Empress of India’, vigorously trailing or climbing plants with dark maroon flowers.
‘Jewel Mix’, mixed colours with semi-double ruffled flowers
‘Jewel of Africa’, mixed red orange and yellow with variegated leaves.
‘Just Peachy’, similar to Peach Melba, pale yellow, but with larger orange spots that are stripy.
‘Milk Maid’, solid pale yellow
‘Nanum’ (1873), a name used for all generally low-growing prostrate forms.
‘Peach Melba’, pale yellow with small orange spots.
‘Princess of India’, dwarf form of Empress of India, small plants with red flowers.
‘Saucy Rascal’, salmon-orange with variegated leaves.
‘Schillingii’ (1834), yellow with dark scarlet petal bases
‘Strawberries and Cream’, pale yellow with small red spots.
‘Venustum’ (1836), lemon-yellow petals and a prominent dark blood red spot on each petal nearly of equal size radiating outward.
‘Vesuvius’, solid tangerine to deep salmon orange.
‘Whirlybird’, mixed yellow red and orange flowers on long pedicels, held above the foliage.

REFERENCES


