*Tulipa* (tulips) is a genus of spring-blooming [perennial](https://en.wikipedia.org/wiki/Perennial) [herbaceous](https://en.wikipedia.org/wiki/Herbaceous) [bulbiferous](https://en.wikipedia.org/wiki/Bulb) [geophytes](https://en.wikipedia.org/wiki/Geophytes), dying back after flowering to an underground storage bulb. Depending on the species, tulip plants can be between 10 and 70 cm (4 and 28 inches) high.

[Flowers](https://en.wikipedia.org/wiki/Flowers): The tulip's flowers are usually large and are [actinomorphic](https://en.wikipedia.org/wiki/Actinomorphic) (radially symmetric) and [hermaphrodite](https://en.wikipedia.org/wiki/Hermaphrodite) (contain both male ([androecium](https://en.wikipedia.org/wiki/Androecium)) and female ([gynoecium](https://en.wikipedia.org/wiki/Gynoecium)) characteristics), generally erect, or more rarely [pendulous](https://en.wikipedia.org/wiki/Pendulous), and are arranged more usually as a single terminal flower, or when [pluriflor](https://en.wikipedia.org/wiki/Pluriflor) as two to three (e.g. [*Tulipa turkestanica*](https://en.wikipedia.org/wiki/Tulipa_turkestanica)), but up to four, flowers on the end of a [floriferous](https://en.wiktionary.org/wiki/floriferous) [stem](https://en.wikipedia.org/wiki/Plant_stem) ([scape](https://en.wikipedia.org/wiki/Scape_(botany))), which is single arising from amongst the basal leaf rosette. In structure, the flower is generally cup or star shaped. As with other members of [Liliaceae](https://en.wikipedia.org/wiki/Liliaceae) the [perianth](https://en.wikipedia.org/wiki/Perianth) is undifferentiated ([perigonium](https://en.wikipedia.org/wiki/Perigonium)) and biseriate (two [whorled](https://en.wikipedia.org/wiki/Whorl_(botany))), formed from six free (i.e. [apotepalous](https://en.wikipedia.org/wiki/Perianth#Flowering_plants)) [caducous](https://en.wikipedia.org/wiki/Caducous) [tepals](https://en.wikipedia.org/wiki/Tepals) arranged into two separate whorls of three parts ([trimerous](https://en.wikipedia.org/wiki/Merosity)) each. The two whorls represent three [petals](https://en.wikipedia.org/wiki/Petal) and three [sepals](https://en.wikipedia.org/wiki/Sepals), but are termed [tepals](https://en.wikipedia.org/wiki/Tepal) because they are nearly identical. The tepals are usually petaloid (petal like), being brightly coloured, but each whorl may be different, or have different coloured blotches at their bases, forming darker colouration on the interior surface. The inner petals have a small, delicate cleft at the top, while the sturdier outer ones form uninterrupted ovals.[[3]](https://en.wikipedia.org/wiki/Tulip#cite_note-:1-3)

[Androecium](https://en.wikipedia.org/wiki/Androecium): The flowers have six distinct, basifixed [introrse](https://en.wikipedia.org/wiki/Introrse) [stamens](https://en.wikipedia.org/wiki/Stamen) arranged in two whorls of three, which vary in length and may be glabrous or hairy. The filaments are shorter than the tepals and dilated towards their base.[[4]](https://en.wikipedia.org/wiki/Tulip#cite_note-FOOTNOTEGrey-WilsonMatthews1980-4)

[Gynoecium](https://en.wikipedia.org/wiki/Gynoecium): The style is short or absent and each [stigma](https://en.wikipedia.org/wiki/Stigma_(botany)) has three distinct lobes, and the [ovaries](https://en.wikipedia.org/wiki/Ovary_(plants)) are superior, with three chambers.[[4]](https://en.wikipedia.org/wiki/Tulip#cite_note-FOOTNOTEGrey-WilsonMatthews1980-4)

[Fruit](https://en.wikipedia.org/wiki/Fruit): The tulip's fruit is a [globose](https://en.wikipedia.org/wiki/Globose) or [ellipsoid](https://en.wikipedia.org/wiki/Ellipsoid) [capsule](https://en.wikipedia.org/wiki/Capsule_(fruit)) with a leathery covering and an ellipsoid to globe shape. Each capsule contains numerous flat, disc-shaped [seeds](https://en.wikipedia.org/wiki/Seeds) in two rows per chamber.[[5]](https://en.wikipedia.org/wiki/Tulip#cite_note-FOOTNOTEStraleyUtech2003-5) These light to dark brown seeds have very thin seed coats and [endosperm](https://en.wikipedia.org/wiki/Endosperm) that does not normally fill the entire seed.[[6]](https://en.wikipedia.org/wiki/Tulip#cite_note-FOOTNOTEBotschantzeva1982-6)[[4]](https://en.wikipedia.org/wiki/Tulip#cite_note-FOOTNOTEGrey-WilsonMatthews1980-4)

[Leaves](https://en.wikipedia.org/wiki/Leaves): Tulip stems have few leaves. Larger species tend to have multiple leaves. Plants typically have two to six leaves, some species up to 12. The tulip's leaf is [cauline](https://en.wikipedia.org/wiki/Glossary_of_botanical_terms#cauline) (born on a stem), strap-shaped, with a waxy coating, and the leaves are alternate (alternately arranged on the stem), diminishing in size the further up the stem. These fleshy blades are often bluish-green in colour.[[7]](https://en.wikipedia.org/wiki/Tulip#cite_note-FOOTNOTEKing2005164-7)[[8]](https://en.wikipedia.org/wiki/Tulip#cite_note-FOOTNOTETenenbaum2003395-8)[[9]](https://en.wikipedia.org/wiki/Tulip#cite_note-FOOTNOTEChristenhusz_et_al2013-9)The bulbs are truncated basally and elongated towards the apex. They are covered by a protective tunic (tunicate) which can be [glabrous](https://en.wikipedia.org/wiki/Glabrousness_(botany)) or hairy inside.[[4]](https://en.wikipedia.org/wiki/Tulip#cite_note-FOOTNOTEGrey-WilsonMatthews1980-4)[[9]](https://en.wikipedia.org/wiki/Tulip#cite_note-FOOTNOTEChristenhusz_et_al2013-9)

**Colours**[[edit](https://en.wikipedia.org/w/index.php?title=Tulip&action=edit&section=2)]

The "Semper Augustus" was the most expensive tulip during the 17th-century [tulip mania](https://en.wikipedia.org/wiki/Tulip_mania). “The colour is white, with Carmine on a blue base, and with an unbroken flame right to the top” – wrote Nicolas van Wassenaer in 1624 after seeing the tulip in the garden of one Dr Adriaen Pauw, a director of the new [East India Company](https://en.wikipedia.org/wiki/East_India_Company). With limited specimens in existence at the time and most owned by Pauw, his refusal to sell any flowers, despite wildly escalating offers, is believed by some to have sparked the mania.[[3]](https://en.wikipedia.org/wiki/Tulip#cite_note-:1-3)

Tulip flowers come in a wide variety of colours, except pure blue (several tulips with "blue" in the name have a faint violet hue), and have absent [nectaries](https://en.wikipedia.org/wiki/Nectaries).[[7]](https://en.wikipedia.org/wiki/Tulip#cite_note-FOOTNOTEKing2005164-7)[[8]](https://en.wikipedia.org/wiki/Tulip#cite_note-FOOTNOTETenenbaum2003395-8)[[9]](https://en.wikipedia.org/wiki/Tulip#cite_note-FOOTNOTEChristenhusz_et_al2013-9)[[4]](https://en.wikipedia.org/wiki/Tulip#cite_note-FOOTNOTEGrey-WilsonMatthews1980-4) Tulip flowers are generally bereft of scent and are the coolest of floral characters. The Dutch regarded this lack of scent as a virtue, as it demonstrates the flower's chasteness.[[3]](https://en.wikipedia.org/wiki/Tulip#cite_note-:1-3)

While tulips can be bred to display a wide variety of colours, black tulips have historically been difficult to achieve. The Queen of the Night tulip is as close to black as a flower gets, though it is, in fact, a dark and glossy maroonish purple - nonetheless, an effect prized by the Dutch.[[3]](https://en.wikipedia.org/wiki/Tulip#cite_note-:1-3) The first truly black tulip was bred in 1986 by a Dutch flower grower in Bovenkarspel, Netherlands. The specimen was created by cross-breeding two deep purple tulips, the Queen of the Night and Wienerwald tulips.[[10]](https://en.wikipedia.org/wiki/Tulip#cite_note-10)

**Phytochemistry**[[edit](https://en.wikipedia.org/w/index.php?title=Tulip&action=edit&section=3)]

[Tulipanin](https://en.wikipedia.org/wiki/Tulipanin) is an [anthocyanin](https://en.wikipedia.org/wiki/Anthocyanin) found in tulips. It is the 3-rutinoside of [delphinidin](https://en.wikipedia.org/wiki/Delphinidin). The chemical compounds named tuliposides and tulipalins can also be found in tulips and are responsible for allergies.[[11]](https://en.wikipedia.org/wiki/Tulip#cite_note-11) Tulipalin A, or α-methylene-γ-butyrolactone, is a common [allergen](https://en.wikipedia.org/wiki/Allergen), generated by hydrolysis of the glucoside tuliposide A. It induces a [dermatitis](https://en.wikipedia.org/wiki/Dermatitis) that is mostly occupational and affects tulip bulb sorters and [florists](https://en.wikipedia.org/wiki/Floristry) who cut the stems and leaves.[[12]](https://en.wikipedia.org/wiki/Tulip#cite_note-12) Tulipanin A and B are toxic to horses, cats and dogs.[[13]](https://en.wikipedia.org/wiki/Tulip#cite_note-aspca-13) The colour of a tulip is formed from two pigments working in concert; a base colour that is always yellow or white, and a second laid-on anthocyanin colour. The mix of these two hues determines the visible unitary colour. The breaking of flowers occurs when a virus suppresses anthocyanin and the base colour is exposed as a streak.[[3]](https://en.wikipedia.org/wiki/Tulip#cite_note-:1-3)

**Fragrance**

The great majority of tulips, both species and cultivars, have no discernable scent, but a few of both are scented to a degree, and [Anna Pavord](https://en.wikipedia.org/wiki/Anna_Pavord) describes *T. Hungarica* as "strongly scented",[[14]](https://en.wikipedia.org/wiki/Tulip#cite_note-14) and among cultivars, some such as "Monte Carlo" and "Brown Sugar" are "scented", and "Creme Upstar" "fragrant".[[15]](https://en.wikipedia.org/wiki/Tulip#cite_note-15)

Taxonomy

*Main article:*[*Taxonomy of Tulipa*](https://en.wikipedia.org/wiki/Taxonomy_of_Tulipa)

*Tulipa* is a [genus](https://en.wikipedia.org/wiki/Genus) of the lily family, [Liliaceae](https://en.wikipedia.org/wiki/Liliaceae), once one of the largest families of [monocots](https://en.wikipedia.org/wiki/Monocots), but which [molecular phylogenetics](https://en.wikipedia.org/wiki/Molecular_phylogenetics) has reduced to a [monophyletic](https://en.wikipedia.org/wiki/Monophyletic) grouping with only 15 genera. Within Liliaceae, *Tulipa* is placed within [Lilioideae](https://en.wikipedia.org/wiki/Lilioideae), one of three subfamilies, with two [tribes](https://en.wikipedia.org/wiki/Tribe_(biology)). Tribe [Lilieae](https://en.wikipedia.org/wiki/Lilieae) includes seven other genera in addition to *Tulipa*.

**Subdivision**[[edit](https://en.wikipedia.org/w/index.php?title=Tulip&action=edit&section=6)]

The genus, which includes about 75 [species](https://en.wikipedia.org/wiki/Species), is divided into four [subgenera](https://en.wikipedia.org/wiki/Subgenera).[[9]](https://en.wikipedia.org/wiki/Tulip#cite_note-FOOTNOTEChristenhusz_et_al2013-9)

* *Clusianae* (4 species)
* *Orithyia* (4 species)
* *Tulipa* (52 species)
* *Eriostemones* (16 species)

**Etymology**[[edit](https://en.wikipedia.org/w/index.php?title=Tulip&action=edit&section=7)]

The word *tulip*, first mentioned in western Europe in or around 1554 and seemingly derived from the "Turkish Letters" of diplomat [Ogier Ghiselin de Busbecq](https://en.wikipedia.org/wiki/Ogier_Ghiselin_de_Busbecq), first appeared in English as *tulipa* or *tulipant*, entering the language by way of [French](https://en.wikipedia.org/wiki/French_language): *tulipe* and its obsolete form *tulipan* or by way of Modern Latin *tulipa*, from [Ottoman Turkish](https://en.wikipedia.org/wiki/Ottoman_Turkish_language) *tülbend* ("[muslin](https://en.wikipedia.org/wiki/Muslin)" or "[gauze](https://en.wikipedia.org/wiki/Gauze)"), and may be ultimately derived from the [Persian](https://en.wikipedia.org/wiki/Persian_language): دلبند *delband* ("[Turban](https://en.wikipedia.org/wiki/Turban)"), this name being applied because of a perceived resemblance of the shape of a tulip flower to that of a turban.[[16]](https://en.wikipedia.org/wiki/Tulip#cite_note-16) This may have been due to a translation error in early times when it was fashionable in the Ottoman Empire to wear tulips on turbans. The translator possibly confused the flower for the turban.[[9]](https://en.wikipedia.org/wiki/Tulip#cite_note-FOOTNOTEChristenhusz_et_al2013-9)

Ogier Ghiselin de Busbecq stated that the "Turks" used the word "tulipan" to describe the flower. Extensive speculation has tried to understand why he would state this, given that the Turkish word for tulip is "lale". It is from this speculation that "tulipan" being a translation error referring to turbans is derived. This Etymology has been challenged and makes no assumptions about possible errors. At no point does Busbecq state this was the word used in Turkey, he simply states it was used by the "Turks". On his way to Constantinople Busbecq states he travelled through Hungary and used Hungarian guides. Until recent times "Turk" was a common term when referring to Hungarians. The word "tulipan" is in fact the Hungarian word for tulip. As long as one recognizes "Turk" as a reference to Hungarians, no amount of speculation is required to reconcile the word's origin or form. Busbecq was simply repeating the word used by his "Turk/Hungarian" guides.[[17]](https://en.wikipedia.org/wiki/Tulip#cite_note-auto-17)

The Hungarian word "tulipan" may be adopted from an Indo-Aryan reference to the tulip as a symbol of resurrection, "tala" meaning bottom or underworld and "pAna" meaning defence.[[17]](https://en.wikipedia.org/wiki/Tulip#cite_note-auto-17) Prior to arriving in Europe the Hungarians, and other Finno-Ugrians, embraced the Indo-Iranian cult of the dead, Yima/Yama, and would have been familiar with all of its symbols including the tulip.[[18]](https://en.wikipedia.org/wiki/Tulip#cite_note-18)

Distribution and habitat

Eastern end of the tulip range from [Turkmenistan](https://en.wikipedia.org/wiki/Turkmenistan) on the eastern shore of the [Caspian Sea](https://en.wikipedia.org/wiki/Caspian_Sea) to the [Pamir-Alai](https://en.wikipedia.org/wiki/Pamir-Alai) and [Tien-Shan](https://en.wikipedia.org/wiki/Tien-Shan) mountains

Tulips are mainly distributed along a band corresponding to [latitude](https://en.wikipedia.org/wiki/Latitude) 40° north, from southeast of Europe ([Greece](https://en.wikipedia.org/wiki/Greece), [Albania](https://en.wikipedia.org/wiki/Albania), [North Macedonia](https://en.wikipedia.org/wiki/North_Macedonia), [Kosovo](https://en.wikipedia.org/wiki/Kosovo), Southern [Serbia](https://en.wikipedia.org/wiki/Serbia), [Bulgaria](https://en.wikipedia.org/wiki/Bulgaria), most part of [Romania](https://en.wikipedia.org/wiki/Romania), [Ukraine](https://en.wikipedia.org/wiki/Ukraine), [Russia](https://en.wikipedia.org/wiki/Russia)) and [Turkey](https://en.wikipedia.org/wiki/Turkey) in the west, through the [Levant](https://en.wikipedia.org/wiki/Levant) (Syria, Israel, [Palestinian Territories](https://en.wikipedia.org/wiki/Palestinian_Territories), Lebanon and Jordan) and the [Sinai Peninsula](https://en.wikipedia.org/wiki/Sinai_Peninsula). From there it extends eastwards through [Jerevan](https://en.wikipedia.org/wiki/Jerevan), (Armenia) and [Baku](https://en.wikipedia.org/wiki/Baku) ([Azerbaijan](https://en.wikipedia.org/wiki/Azerbaijan)) and on the eastern shore of the [Caspian Sea](https://en.wikipedia.org/wiki/Caspian_Sea) through [Turkmenistan](https://en.wikipedia.org/wiki/Turkmenistan), [Bukhara](https://en.wikipedia.org/wiki/Bukhara), [Samarkand](https://en.wikipedia.org/wiki/Samarkand) and [Tashkent](https://en.wikipedia.org/wiki/Tashkent) (Uzbekistan), to the eastern end of the range in the [Pamir-Alai](https://en.wikipedia.org/wiki/Pamir-Alai) and [Tien-Shan](https://en.wikipedia.org/wiki/Tien-Shan) mountains in [Central Asia](https://en.wikipedia.org/wiki/Central_Asia), which form the [centre of diversity](https://en.wikipedia.org/wiki/Centre_of_diversity).[[19]](https://en.wikipedia.org/wiki/Tulip#cite_note-pavord6-19) Further to the east, *Tulipa* is found in the western [Himalayas](https://en.wikipedia.org/wiki/Himalayas), southern [Siberia](https://en.wikipedia.org/wiki/Siberia), Inner Mongolia, and as far as the northwest of China. While authorities have stated that no tulips west of the Balkans are native,[[20]](https://en.wikipedia.org/wiki/Tulip#cite_note-FOOTNOTEMarais1984-20) subsequent identification of [*Tulipa sylvestris*](https://en.wikipedia.org/wiki/Tulipa_sylvestris) subsp. *australis* as a native of the [Iberian peninsula](https://en.wikipedia.org/wiki/Iberian_peninsula) and adjacent [North Africa](https://en.wikipedia.org/wiki/North_Africa) shows that this may be a simplification. In addition to these regions in the west tulips have been identified in Greece, Cyprus and the [Balkans](https://en.wikipedia.org/wiki/Balkans). In the south, Iran marks its furthest extent, while the northern limit is Ukraine.[[21]](https://en.wikipedia.org/wiki/Tulip#cite_note-FOOTNOTEKing200516-21) Although tulips are also throughout most of the Mediterranean and Europe, these regions do not form part of the natural distribution. Tulips were brought to Europe by travellers and merchants from [Anatolia](https://en.wikipedia.org/wiki/Anatolia) and Central Asia for cultivation, from where they escaped and naturalised (*see map*). For instance, less than half of those species found in Turkey are actually native.[[20]](https://en.wikipedia.org/wiki/Tulip#cite_note-FOOTNOTEMarais1984-20) These have been referred to as neo-tulipae.[[22]](https://en.wikipedia.org/wiki/Tulip#cite_note-FOOTNOTEHall1940-22)[[23]](https://en.wikipedia.org/wiki/Tulip#cite_note-FOOTNOTEEker_et_al2014-23)[[9]](https://en.wikipedia.org/wiki/Tulip#cite_note-FOOTNOTEChristenhusz_et_al2013-9)

Tulips are indigenous to [mountainous](https://en.wikipedia.org/wiki/Mountainous) areas with [temperate climates](https://en.wikipedia.org/wiki/Temperate_climate), where they are a common element of [steppe](https://en.wikipedia.org/wiki/Temperate_grasslands,_savannas,_and_shrublands) and winter-rain [Mediterranean vegetation](https://en.wikipedia.org/wiki/Mediterranean_vegetation). They thrive in climates with long, cool springs and dry summers. Tulips are most commonly found in [meadows](https://en.wikipedia.org/wiki/Meadow), [steppes](https://en.wikipedia.org/wiki/Steppes) and [chaparral](https://en.wikipedia.org/wiki/Chaparral), but also introduced in fields, orchards, roadsides and abandoned gardens.[[22]](https://en.wikipedia.org/wiki/Tulip#cite_note-FOOTNOTEHall1940-22)[[9]](https://en.wikipedia.org/wiki/Tulip#cite_note-FOOTNOTEChristenhusz_et_al2013-9)

Ecologya

Variegation produced by the tulip breaking virus

[*Botrytis tulipae*](https://en.wikipedia.org/wiki/Botryotinia) is a major [fungal disease](https://en.wikipedia.org/wiki/Fungal_disease) affecting tulips, causing cell death and eventually the rotting of the plant.[[24]](https://en.wikipedia.org/wiki/Tulip#cite_note-24) Other pathogens include [anthracnose](https://en.wikipedia.org/wiki/Anthracnose), [bacterial soft rot](https://en.wikipedia.org/wiki/Bacterial_soft_rot), [blight](https://en.wikipedia.org/wiki/Blight) caused by [*Sclerotium rolfsii*](https://en.wikipedia.org/wiki/Sclerotium_rolfsii), bulb [nematodes](https://en.wikipedia.org/wiki/Nematode), other [rots](https://en.wikipedia.org/wiki/Decomposition) including [blue molds](https://en.wikipedia.org/wiki/Blue_mold), [black molds](https://en.wikipedia.org/wiki/Stachybotrys) and mushy rot.[[25]](https://en.wikipedia.org/wiki/Tulip#cite_note-25)

The fungus [*Trichoderma viride*](https://en.wikipedia.org/wiki/Trichoderma_viride) can infect tulips, producing dried leaf tips and reduced growth, although symptoms are usually mild and only present on bulbs growing in [glasshouses](https://en.wikipedia.org/wiki/Greenhouse).[[*citation needed*](https://en.wikipedia.org/wiki/Wikipedia:Citation_needed)]

[Variegated](https://en.wikipedia.org/wiki/Variegation) tulips admired during the Dutch [tulipomania](https://en.wikipedia.org/wiki/Tulip_mania) gained their delicately feathered patterns from an infection with the [tulip breaking virus](https://en.wikipedia.org/wiki/Tulip_breaking_virus), a [mosaic virus](https://en.wikipedia.org/wiki/Mosaic_virus) that was carried by the [green peach aphid](https://en.wikipedia.org/wiki/Green_peach_aphid), *Myzus persicae*. While the virus produces fantastically streaked flowers, it also weakens plants and reduces the number of offsets produced. Dutch growers would go to extraordinary lengths during tulipomania to make tulips break, borrowing alchemists’ techniques and resorting to sprinkling paint powders of the desired hue or pigeon droppings onto flower roots.[[3]](https://en.wikipedia.org/wiki/Tulip#cite_note-:1-3)

Tulips affected by the mosaic virus are called "broken"; while such plants can occasionally revert to a plain or solid colouring, they will remain infected and have to be destroyed. Today the virus is almost eradicated from tulip growers' fields. The multicoloured patterns of modern varieties result from breeding; they normally have solid, un-feathered borders between the colours.

Tulip growth is also dependent on temperature conditions. Slightly germinated plants show greater growth if subjected to a period of cool dormancy, known as [vernalisation](https://en.wikipedia.org/wiki/Vernalization). Furthermore, although flower development is induced at warmer temperatures (20–25 °C or 68–77 °F), elongation of the flower stalk and proper flowering is dependent on an extended period of low temperature (< 10 °C or 50 °F).[[26]](https://en.wikipedia.org/wiki/Tulip#cite_note-26) Tulip bulbs imported to warm-winter areas are often planted in autumn to be treated as annuals.

The colour of tulip flowers also varies with growing conditions.[[27]](https://en.wikipedia.org/wiki/Tulip#cite_note-27)