Magnolia is a large genus of about 210 to 340[a] flowering plant species in the subfamily Magnolioideae of the family Magnoliaceae. The natural range of Magnolia species is disjunct, with a main center in east and southeast Asia and a secondary center in eastern North America, Central America, the West Indies, and some species in South America.

Magnolia is an ancient genus that appeared before bees evolved,[when?] they are theorized to have evolved to encourage pollination by beetles instead.[2] Fossilized specimens of M. acuminata have been found dating to 20 million years ago, and fossils of plants identifiably belonging to the Magnoliaceae date to 95 million years ago.[3] Another aspect of Magnolia considered to represent an ancestral state is that the flower bud is enclosed in a bract rather than in sepals; the perianth parts are undifferentiated and called tepals rather than distinct sepals and petals. Magnolia shares the tepal characteristic with several other flowering plants near the base of the flowering plant lineage, such as Amborella and Nymphaea (as well as with many more recently derived plants, such as Lilium).

Magnolias are spreading evergreen or deciduous trees or shrubs characterised by large fragrant flowers, which may be bowl-shaped or star-shaped, in shades of white, pink, purple, green, or yellow. In deciduous species, the blooms often appear before the leaves in spring. Cone-like fruits are often produced in the autumn.[4]

As with all Magnoliaceae, the perianth is undifferentiated, with 9–15 tepals in three or more whorls. The flowers are hermaphroditic, with numerous adnate carpels and stamens arranged in a spiral fashion on the elongated receptacle. The flowers' carpels are extremely tough to avoid damage from pollinating beetles.[5]

The fruit dehisces along the dorsal sutures of the carpels. The pollen is monocolpate, and the embryonic development is of the Polygonum type.

Taxonomists, including James E. Dandy in 1927, have long had an interest in observing the fruits of Magnoliaceae and have often used the differences, or perceived differences, in fruit characters to justify systems for classification.[6]

The name Magnolia first appeared in 1703 in the Genera[7] written by French botanist Charles Plumier (1646–1704), for a flowering tree from the island of Martinique (talauma). It was named after the French botanist Pierre Magnol. The English botanist William Sherard, who studied botany in Paris under Joseph Pitton de Tournefort, a pupil of Magnol, was most probably the first after Plumier to adopt the genus name Magnolia. He was at least responsible for the taxonomic part of Johann Jacob Dillenius's Hortus Elthamensis[8] and of Mark Catesby's Natural History of Carolina, Florida and the Bahama Islands.[9] These were the first works after Plumier's Genera that used the name Magnolia, this time for some species of flowering trees from temperate North America. The species that Plumier originally named Magnolia was later described as Annona dodecapetala by Lamarck,[10] and has since been named Magnolia plumieri and Talauma plumieri (among a number of other names), but is now known as Magnolia dodecapetala.[b]

Carl Linnaeus, who was familiar with Plumier's Genera, adopted the genus name Magnolia in 1735 in his first edition of Systema Naturae, without a description but with a reference to

Plumier's work. In 1753, he took up Plumier's Magnolia in the first edition of Species Plantarum. There he described a monotypic genus, with the sole species being Magnolia virginiana. Since Linnaeus never saw a herbarium specimen (if there ever was one) of Plumier's Magnolia and had only his description and a rather poor picture at hand, he must have taken it for the same plant that was described by Catesby in his 1730 Natural History of Carolina. He placed it in the synonymy of Magnolia virginiana var. fœtida, the taxon now known as Magnolia grandiflora. Under Magnolia virginiana, Linnaeus described five varieties (glauca, fœtida, grisea, tripetala, and acuminata). In the tenth edition of Systema Naturae (1759), he merged grisea with glauca and raised the four remaining varieties to species status.[c]

By the end of the 18th century, botanists and plant hunters exploring Asia had begun to name and describe the Magnolia species from China and Japan. The first Asiatic species to be described by western botanists were Magnolia denudata, Magnolia liliiflora,[d] Magnolia coco, and Magnolia figo.[e] Soon after that, in 1794, Carl Peter Thunberg collected and described Magnolia obovata from Japan, and roughly at the same time, Magnolia kobus was also first collected.[11]

With the number of species increasing, the genus was divided into two subgenera, Magnolia and Yulania. Magnolia contains the American evergreen species M. grandiflora, which is of horticultural importance, especially in the southeastern United States, and M. virginiana, the type species. Yulania contains several deciduous Asiatic species, such as M. denudata and M. kobus, which have become horticulturally important in their own right and as parents in hybrids. Classified in Yulania is also the American deciduous M. acuminata (cucumber tree), which has recently attained greater status as the parent responsible for the yellow flower color in many new hybrids.

Relations in the family Magnoliaceae have puzzled taxonomists for a long time. Because the family is quite old and has survived many geological events (such as ice ages, mountain formation, and continental drift), its distribution has become scattered. Some species or groups of species have been isolated for a long time, while others could stay in close contact. To create divisions in the family (or even within the genus Magnolia) solely based upon morphological characters has proven to be a nearly impossible task.[f]

By the end of the 20th century, DNA sequencing had become available as a method of large-scale research on phylogenetic relationships. Several studies, including studies on many species in the family Magnoliaceae, were carried out to investigate relationships.[12][13][14] What these studies all revealed was that the genus Michelia and Magnolia subgenus Yulania were far more closely allied to each other than either one of them was to Magnolia subgenus Magnolia. These phylogenetic studies were supported by morphological data.[15]

As nomenclature is supposed to reflect relationships, the situation with the species names in Michelia and Magnolia subgenus Yulania was undesirable. Taxonomically, three choices are available:

Magnolia subgenus Magnolia cannot be renamed because it contains M. virginiana, the type species of the genus and of the family.

Not many Michelia species have so far become horticulturally or economically important, apart from their wood. Both subgenus Magnolia and subgenus Yulania include species of

major horticultural importance, and a change of name would be very undesirable for many people, especially in the horticultural branch. In Europe, Magnolia is even more or less a synonym for Yulania, since most of the cultivated species on this continent have Magnolia (Yulania) denudata as one of their parents. Most taxonomists who acknowledge close relations between Yulania and Michelia therefore support the third option and join Michelia with Magnolia.

The same goes, mutatis mutandis, for the (former) genera Talauma and Dugandiodendron, which are then placed in subgenus Magnolia, and genus Manglietia, which could be joined with subgenus Magnolia or may even earn the status of an extra subgenus. Elmerrillia seems to be closely related to Michelia and Yulania, in which case it will most likely be treated in the same way as Michelia is now. The precise nomenclatural status of small or monospecific genera like Kmeria, Parakmeria, Pachylarnax, Manglietiastrum, Aromadendron, Woonyoungia, Alcimandra, Paramichelia, and Tsoongiodendron remains uncertain. Taxonomists who merge Michelia into Magnolia tend to merge these small genera into Magnolia s.l. as well. Botanists do not yet agree on whether to recognize a big Magnolia or the different small genera. For example, Flora of China offers two choices: a large genus Magnolia, which includes about 300 species and everything in the Magnoliaceae except Liriodendron (tulip tree), or 16 different genera, some of them recently split out or re-recognized, each of which contains up to 50 species.[16] The western co-author favors the big genus Magnolia, whereas the Chinese recognize the different small genera.

Fossils assignable to Magnolia extend into the Paleogene, such as Magnolia nanningensis, named for mummified wood from the Oligocene of Guangxi, China, which has a close affinity to members of the modern secton Michelia.[17]

In 2012, the Magnolia Society published on its website a classification of the genus produced by Richard B. Figlar, based on a 2004 classification by Figlar and Hans Peter Nooteboom. Species of Magnolia were listed under three subgenera, 12 sections, and 13 subsections.[18][19] Subsequent molecular phylogenetic studies have led to some revisions of this system; for example, the subgenus Magnolia was found not to be monophyletic. A revised classification in 2020, based on a phylogenetic analysis of complete chloroplast genomes, abandoned subgenera and subsections, dividing Magnolia into 15 sections. The relationships among these sections are shown in the following cladogram, as is the paraphyletic status of subgenus Magnolia.[20]

M. sect. Splendentes

M. sect. Talauma

M. sect. Gwillimia

M. sect. Tuliparia

M. sect. Macrophylla

M. sect. Magnolia

M. sect. Oyama

M. sect. Rytidospermum

M. sect. Manglietia

M. sect. Kmeria

M. sect. Gynopodium

M. sect. Tulipastrum

M. sect. Yuliana

M. sect. Maingola

M. sect. Michelia

The table below compares the 2012 and 2020 classifications. (The exact circumscriptions of the corresponding taxa may not be the same.)

The species lists below are divided according to the Magnolia Society's 2012 classification.[18]

Anthers open by splitting at the front facing the centre of the flower, deciduous or evergreen, flowers produced after the leaves.

Anthers open by splitting at the sides, deciduous, flowers mostly produced before leaves (except M. acuminata)

In general, the genus Magnolia has attracted horticultural interest. Some, such as the shrub M. stellata (star magnolia) and the tree M. × soulangeana (saucer magnolia) flower quite early in the spring, before the leaves open. Others flower in late spring or early summer, including M. virginiana (sweetbay magnolia) and M. grandiflora (southern magnolia). The shape of these flowers lend themselves to the common name tulip tree that is sometimes applied to some Magnolia species.[i]

Hybridisation has been immensely successful in combining the best aspects of different species to give plants which flower at an earlier age than the parent species, as well as having more impressive flowers. One of the most popular garden magnolias, M. × soulangeana, is a hybrid of M. liliiflora and M. denudata.

In the eastern United States, five native species are frequently in cultivation: M. acuminata (as a shade tree), M. grandiflora, M. virginiana, M. tripetala, and M. macrophylla. The last two species must be planted where high winds are not a frequent problem because of the large size of their leaves.

The flowers of many species are considered edible. In parts of England, the petals of M. grandiflora are pickled and used as a spicy condiment. In some Asian cuisines, the buds are pickled and used to flavor rice and scent tea. In Japan, the young leaves and flower buds of Magnolia hypoleuca are broiled and eaten as a vegetable. Older leaves are made into a powder and used as seasoning; dried, whole leaves are placed on a charcoal brazier and filled with miso, leeks, daikon, and shiitake, and broiled. There is a type of miso which is seasoned with magnolia, hoba miso.[35][36]

The bark and flower buds of M. officinalis have long been used in traditional Chinese medicine, where they are known as hou po (■■). In Japan, k■boku, M. obovata, has been used in a similar manner.[37][38]

The cucumbertree, M. acuminata, grows to large size and is harvested as a timber tree in northeastern US forests. Its wood is sold as "yellow poplar" along with that of the tuliptree, Liriodendron tulipifera. The Fraser magnolia, M. fraseri, also attains enough size sometimes to be harvested, as well.

Magnolias are used as food plants by the larvae of some Lepidoptera species, including the giant leopard moth.

The aromatic bark contains magnolol, honokiol, 4-O-methylhonokiol, and obovatol.[39][40][41][42][43][44] Magnolol[45] and honokiol[46] activate the nuclear receptor peroxisome proliferator-activated receptor gamma.

Despite Meeropol's frequent mention of the South and magnolia trees, the horrific image which inspired his poem, Lawrence Beitler's 1930 photograph capturing the lynching of Thomas Shipp and Abram Smith following the robbery and murder of Claude Deteer, actually occurred in Marion, Indiana, where magnolia trees are less common.

The Canadian artist, Sarah Maloney,[49] has created a series of sculptures of magnolia flowers in bronze and steel, entitled First Flowers,[50] in which she draws our attention to the dual symbols of beginnings in the flower, as both an evolutionary archetype and also one of the first trees to flower in spring (see illustration).