

LINDEN



Tilia spp (*Tilia europaea*, *T. cordata* syn *T. parvifolia*)

[TIL-ee-uh kor-DAY-tuh]

[TIL-ee-uh par-vee-FOH-lee-uh]

Family: Tiliaceae

Names: Lime tree, tillet, Monkey-nut tree; Winterlinde (German); tilleul (French); tiglio (Italian), *T. Americana*—American basswood; *T. europa*—European linden; Lindenbaum (German); Lipa (Polish); *T cordata*—small-leaved linden; Lipa drobnolista (Polish)

Description: Deciduous tree growing to 100 ft with smooth gray bark, heart-shaped leaves, and clusters of pale yellow flowers with winglike bracts. The common lime is a beautiful tall tree. The trunk is covered in smooth, dark brown bark. The sharply-toothed leaves are heart-shaped and asymmetrical, one side being larger than the other. They are smooth and dark green above, paler and with some silky hairs beneath. The clusters of creamy yellow flowers hang downwards on slender stalks, they have five petals, five sepals and numerous prominent stamens, each cluster is half-joined to a pale, papery, leaf-like bract. The flowers are so heavily scented that in mid-

summer, when the trees are in bloom, the air around them is filled with a wonderful honeyed fragrance, and is usually humming with bees.

Cultivation: Prefers a good moist loamy alkaline to neutral soil but it also succeeds on slightly acid soils. Grows poorly on any very dry or very wet soil. Tolerates considerable exposure. Succeeds in sun or semi-shade. Plants can be transplanted quite easily, even when large, trees up to 60 years old have been moved successfully. Trees are very amenable to coppicing or pollarding. They produce numerous suckers from the base. Suckers are produced but not freely according to another report. Lime trees tend to hybridize freely if other members of the genus are growing nearby. If growing plants from seed it is important to ensure the seed came from a wild source or from an isolated clump of the single species. Grows best in a woodland situation, young plants tolerate a reasonable level of side shade. Mature trees cast a dense shade. A very valuable bee plant, producing an abundance of nectar. A valuable species for wildlife, there are 31 species of insects associated with this tree. The leaves are very attractive to leaf aphids and these aphids produce an abundance of sweet secretions which drip off the leaves to the ground below and also attract sooty mold fungus. This makes the tree unsuitable for street planting. Plants in this genus are notably resistant to honey fungus.

Obtain fresh seed that is ripe but has not as yet developed a hard seed coat and sow it immediately in a cold frame. It may germinate in the following spring though it could take 18 months. Stored seed can be very slow to germinate. It has a hard seed coat, embryo dormancy and a hard coat on the pericarp. All these factors mean that the seed may take up to

8 years to germinate. One way of shortening this time is to stratify the seed for 5 months at high temperatures (42°F at night, up to 62°F by day) and then 5 months cold stratification. When they are large enough to handle, prick the seedlings out into individual pots and grow them on in the greenhouse for their first winter. Plant them out into their permanent positions in late spring or early summer, after the last expected frosts. Layering in spring just before the leaves unfurl. Takes 1 - 3 year. Suckers, when formed, can be removed with as much root as possible during the dormant season and replanted immediately. Do not prune the tree if it is being grown for its flowers. The flowers should be picked while they are fresh for lime flower tea. The inflorescences together with their bracts were picked on a sunny day around midday. The harvest is spread out in a thin layer in the shade and occasionally turned. The drug has a pleasant aromatic smell, lost when it is dried and an aromatic, slimy taste.

Constituents: essential oil containing arnesol, mucilage (about 3%), flavonoids (including quercetin and kaempferol), caffeic and other acids, tannins, herperidin, coumarin fraxoside, vanillin and traces of benzodiazepine-like compounds. The flavonoids improve circulation.

Actions: Nervine, anti-spasmodic, diaphoretic, diuretic, mild astringent, tonic

History: Greek myth recounts how Philyra, a nymph, was raped by the god Saturn in the guise of a horse, and eventually gave birth to the centaur, Chiron. Philyra was so devastated that she begged the gods not to leave her among mortals. The gods granted her wish by transforming her into a linden tree. Another story has linden associated with Zeus. In his travels on earth, Zeus was given hospitality by an elderly couple after being turned away by many human travelers. When Zeus turned his anger upon the countryside, causing a great flood, he protected the elderly couple by taking them to a hill, giving them a temple and making them priest and priestess in his honor.

Their final wish was that they would not be separated at the time of their death and Zeus changed them into an oak and a linden. The linden bears the old name used by the Romans which may be derived from the Greek *ptilon*, wing, because of the characteristic winged bract which supports the inflorescence. The keys and sounding boards of musical instruments are often made of lime wood and it was used in building Mosquito fighter planes of World War II.

From ancient times, linden was considered a sacred tree. It protected against lightning and evil spirits. It was a place to leave offerings to the gods and conduct ritual dances. Later, after the advent of Christianity, the tree was dedicated to the Blessed Virgin and many roadside shrines were hung on its trunk. It was used in woodcarvings especially shrines and holy figures and in the making of musical instruments. From its inner bark, rough shoes called *chodaki* were made as well as baskets and hats. In German legend, the Valkyrie may have dipped Siegfried's son in blood to render him invincible, but because of a linden leaf that covered his heart, he died, struck in exactly that spot. St. Hildegard used it in rituals to drive away the plague.

During the German occupation of France, Professor Binet would prepare a nutritious gruel using linden leaves, oatmeal and buckwheat. The French are one of the biggest producers and consumers of linden.

Medicinal Uses: Lime Blossom, or Linden, is well known as a relaxing remedy for use in nervous tension. It has a reputation as a prophylactic against the development of arteriosclerosis and hypertension. It is considered to be a specific in the treatment of raised blood pressure associated with arteriosclerosis and nervous tension. It initially increases peripheral circulation to fingers and toes, helping the evaporation of body heat, and then stabilizes blood vessels and body temperature. Linden is an excellent remedy for stress and panic, and is used specifically to treat nervous palpitations. Its relaxing action combined with a general effect upon the

circulatory system give lime blossom a role in the treatment of some forms of migraine. The diaphoresis combined with the relaxation explains its value in feverish colds and flus. The flowers bring relief to colds, and flu by reducing nasal congestion and soothing fever. Because of their emollient quality, linden flowers are used in France to make a lotion for itchy skin. The tea is given to babies for teething.

The sapwood of a linden growing wild in the south of France (*T. cordata*) is used as a diuretic, choleric, hypotensive and antispasmodic. A light infusion of the flowers is sedative, antispasmodic and diaphoretic. It also thins the blood and enhances circulation. A stronger dose, however, acts as an excitant and can cause insomnia. The sapwood is recognized as one of the best aids in draining the gallbladder.

Combinations:

Raised blood pressure: hawthorn and mistletoe

Nervous tension: hops

Common cold: elder flower

PREPARATIONS: Infusion dose is 1 cup a day; linden can also be taken in tincture form, 30-45 drops 2 times a day. The tincture is inappropriate for long term use, which can damage the heart.

Hyperactivity Tincture: 1 tsp tincture of valerian root, ½ tsp each tinctures of catnip leaves and passionflower leaves, ¼ tsp each tinctures of peppermint leaves and linden flowers. Combine ingredients. For a 50-pound child, give half a dropperful several times a day.

Change of Heart Tea: 2 oz linden flower, 2 oz hawthorn flower/leaf, 2 oz hawthorn berry, ½ oz hibiscus flower, 1 oz peppermint leaf. Put ½ oz of the mixture and 3 ½ cups of boiling water in a teapot or container with a well-fitting lid. Let stand for 15 minutes before straining. Drink 1 cup hot or cold three times a day, either sipping the tea all day or drinking two large glasses twice a day.

Migraine Formula: 2 oz linden blossom, 2 oz dandelion root, 1 oz dandelion leaf, 1 oz skullcap herb, 2 oz sweet violet flower and leaf.

Steep 1 oz of the herb mixture in 3 cups of water that has just come to the boil; cover and steep for fifteen minutes. Strain and drink one large mug or glass twice a day. Make enough for three days and store in the refrigerator; drink hot or cold, but avoid extreme temperatures since room-temperature liquid is less irritating to nerves. A little honey or lemon may be added to taste.

For herpes a whole-body bath with a few quarts of a strong infusion of calendula, oatstraw, linden and comfrey added along with a few drops of lemon balm essential oil is very calming and relaxing.

Aromatherapy Uses:

EXTRACTION: a concrete and absolute by solvent extraction from the dried flowers

CHARACTERISTICS: the concrete is a hard, brittle, dark green mass with a herbaceous, dry, haylike odor. The absolute is a yellow semi-solid mass with a green-herbaceous, dry, characteristic odor

BLENDS WITH: benzoin, citronella, ginger, grapefruit, jasmine, lavender, neroli, palmarosa, rose, verbena, violet, ylang ylang

USES: Digestive System: cramps, indigestion, liver pains.

Genito-Urinary System: Its diuretic action beneficial on kidney disorders clearing any mucus. A tonic and detoxifying effect on the liver could help relieve hepatitis.

Muscular/Skeletal: Clears excess urea and may be effective against rheumatism, gout as well as sciatica

Nervous System: headaches, insomnia, migraine, nervous tension and stress-related conditions. A very relaxing oil promoting sound sleep

Skin: Its soothing, softening and toning action is said to keep wrinkles at bay. It also boasts a reputation for dealing with blemishes, freckles and burns as well as having a tonic effect on the scalp encouraging hair growth.

Other: Occasionally used in high-class perfumery

Cosmetic Uses: a distillation of the flowers makes a soothing complexion lotion, removing

soreness from the skin and leaving it soft and smooth. It is more effective if mixed with equal parts of rose water and with alcohol it makes a soothing aftershave.

Lime Complexion Lotion: Infuse a handful of flowers in a half-pint of boiling water, strain and allow to cool. Add equal parts of rose water and use after refrigeration.

Lime Facial Treatment: First cleanse skin thoroughly and pat dry gently. Place 4 Tbsp of lime flowers in a bowl and add 1 $\frac{3}{4}$ pints of boiling water. Lean over the bowl and cover the head with a towel to trap in the steam. Remain in this position for at least 10 minutes to allow the steam to open and cleanse the pores, then wipe the skin with a cool damp cloth or dab with skin freshener. Pat dry with a soft towel.

Skin Conditioning Night Cream: Melt 1 oz beeswax in double boiler and blend with 4 oz cocoa butter. For stronger mixture combine 50 ml cocoa butter and 50 ml macerated sweet almond oil. Add to beeswax, cocoa butter and oil, add 30 drops linden absolute, mix in when cool before setting to avoid evaporation of its volatile constituents. Decant quickly into clean glass jars.

Ritual Uses: Gender: Masculine. Planet: Jupiter. Element: Air. Deities: Venus, Lada. Powers: Protection, Immortality, Luck, Love, Sleep. The lore associating the linden with Sagittarius makes linden an excellent herbe for working with animals, especially horses. The herb can provide protection for one's horse and might even help in winning races. It may also be used to invoke the blessings of Zeus. Powdered linden may be included in incense mixtures. Lithuanian women once made sacrifices to linden trees as part of religious rites. Linden is exclusively used in Europe as a protective tree. The branches are hung over the door for this purpose or the tree itself is grown in the garden. The bark of the linden when carried prevents intoxication, while the leaves and flowers are used in love spells. Since it is a tree of immortality its leaves are used in spells of this nature. Linden and lavender equally

mixed make excellent pillows which hasten sleep in the insomniac, and good luck charms are carved from the wood and carried.

Other Uses: A fiber from the inner bark is used to make mats, shoes, baskets, ropes etc. It is also suitable for cloth. It is harvested from trunks that are 15 - 30cm in diameter. The fiber can also be used for making paper. The stems are harvested in spring or summer, the leaves are removed and the stems steamed until the fibers can be stripped. The outer bark is removed from the inner bark by peeling or scraping. The fibers are cooked for 2 hours with lye and then beaten in a ball mill. The paper is beige in color. The wood is soft, white, easily carved. It is very suitable for carving domestic items and small non-durable items. A charcoal made from the wood is used for drawing.

Culinary: The inner bark is edible. The sap of the trunk can be harvested and drunk. As it contains some sugar, it can be boiled down to a syrup. The sap was drunk by Native Americans. The leaves of these trees, picked when very young, still translucent, make excellent salads. A combination of lettuce leaves, chopped celery and chopped fresh lime leaves tossed in an oil and vinegar dressing makes a delicious accompaniment to cold meats and cheese. They are very tender, slightly mucilaginous and pleasant tasting. They can also be cooked to thicken soups and stews. Older tougher leaves can be dried, pulverized and sifted. The green meal obtained is mixed with cereal flour to make bread, cakes or mush. In France, where this nutritious meal was used during World War II as a food supplement, it was estimated that one pound of leaves yields approximately five ounces of a finely sifted product. The leaves have also served as tea but they do not have much flavor. Linden and basswood leaves contain inverted sugars, easily assimilated even by diabetics. The leaves of some Asian lindens are used locally as vegetables or tea. The flowers of the European lindens make a fragrant tea which is still commonly drunk on the Continent as a

nightcap (*tilleul* in France and *Lindenbluente* in Germany). Flowers of the American basswood can also be used as tea, or added to salads for flavor. The fruits contain a small edible kernel, rich in oil. The French chemist Missa discovered in the 18th century that by grinding the fruits with linden flowers, he obtained a product having an aroma very close to that of chocolate. This process was tentatively commercialized in Prussia, but the project had to be abandoned, as this “linden chocolate” did not keep well. It is, however, possible to produce small quantities at home. The torrefied fruits have also been used as a coffee substitute.

Recipes:

Linden Tea

1 cup fresh flowers
1 pint boiling water
juice of ½ lemon

Put the flowers in a jug, pour on the boiling water, cover and leave to infuse for 5 minutes. Drink a cup while hot, and add the lemon juice to the rest and chill in the refrigerator. (All Good Things Around Us)

Lime Flower Wine

Yeast and nutrient
4 pints lime flowers snipped from their stalks
2 lemons
7 pints water
2 lb sugar
½ pint white grape concentrate
1 tsp citric acid
½ tsp wine tannin

Bring the water to the boil and allow to cool to room temperature. Add the limeflowers, citric acid and gape concentrate and leave covered in a warm place for a day. Bring back to the boil, stir in the sugar until it has dissolved and allow to cool again to room temperature. Add the yeast, nutrient and tannin. Cover and leave in a warm place for a week, stirring twice daily. Strain through nylon netting into a fermenting jar and fit an air-lock. Rack when the wine clears and bottle after 6 months. (Nature’s Harvest)

Lime Leaf Sandwiches

Lime leaves
Whole meal bread
Butter
Salt and white pepper

Soak the leaves and wash them thoroughly, discarding any insect-nibbled areas. Pat the leaves dry in a clean cloth and shred finely with a sharp knife. Make the sandwiches of thin slices of buttered whole meal bread, with a scant sprinkling of salt and white pepper, and a thin layer of lime leaves as filling. (All Good Things Around Us)

Other Uses: The white wood is valued for carving and the Native Americans made a strong rope from the tough, fibrous inner bark of the native species.

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