



Purchase E.N.T.

Otolaryngology - Head & Neck Surgery

COTTONWOOD TREE

Substance Information:

Family: Salicaceae.

Poplar.

Black poplar, classified as *Populus nigra*,
Lombardy poplar as *Populus nigra* cultivar *italica*,
White poplar as *Populus alba*,
Aspen as *Populus tremula*.

Cottonwood is a deciduous tree that grows up to 45m high, and is the fastest-growing native tree in North America. In open areas, it typically has a large trunk that divides into upright branches near its base and ascends to form a wide, open, broad, spreading crown. In plantations it tends to have a tall, straight, and relatively branch-free bole with a small rounded crown. On good sites, 35-year-old trees may average 40 m in height, while trees 55 to 65 years old may 53-58 m in height. The root system is quite expansive and can extend over 200 feet from the trunk.

Because of its extensive root system, it plays a major role in soil erosion control along the rivers, streams, and lakes.

It occurs in woods. Several species are planted for shelter and for use as a timber tree because of their fast growth. It is important for the paper industry and used for production of matches.

Cottonwood is native to eastern North America. It was brought to France about 200 years ago but was not successful. It eventually crossed with *P. nigra* to become a hybrid. The genus *Populus* contains about 30 species in North America, Europe, North Africa and temperate Asia. It does not occur in the southern hemisphere.

Plains Cottonwood is a smaller tree and grows from 20-30 m. It is considered the fastest-growing tree on the Great Plains.

Cottonwood is dioecious (having separate sexes); that is, each tree is either male or female, not both. Cottonwood flowers in early spring, with time of pollen production, depending on region. *Populus* species are entirely wind-pollinated, as distinct from Willows, which are primarily insect-pollinated. The cotton is produced in enormous quantities virtually every year, and can be windblown miles from its origin. The massive quantity of cotton produced in early summer may clog screens, gutters, air conditioners, and swimming pool filters. This cotton is dispersed only by female trees, and for only about two weeks of the year. This is the cottony-coated seed from which the tree gets its name. Though both sexes flower, only the female tree produces fruit.

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Common name for species of trees in a genus of the willow family. Can be divided into 4 distinct groups, namely aspens (including white and grey poplars); black (including cottonwoods); and balsam; the fourth has no common name. The soft wood is used for paper pulp, matches, light construction and crate-making.

The genus *Populus* includes aspens, cottonwoods, and poplars. The botanical family Salicaceae consists of *Populus* and *Salix*, the latter being willows.

Populus species are entirely wind-pollinated, in distinction to willows, which are primarily insect-pollinated. Aspen is dioecious, with separate male and female plants. Pollen anthesis is from February through April, depending on region. Pollen grains are spheroid and inaperturate, 25 to 30 mm in diameter.

Adverse Reactions:

Pollen from the Cottonwood tree results in asthma, hayfever and allergic conjunctivitis. (Storms 1984 ref.3259 9)

Allergy to Cottonwood pollen has been shown to be one of the ten most important aeroallergies resulting in clinical symptoms in an Eastern Province of Saudi Arabia, where 38% of 1,159 patients were skin prick test-positive to Cottonwood pollen; (Suliaman 1997 ref.3258 4) and similarly in 614 respiratory allergic patients in Turkey. (Guneser 1996 ref.3250 6) A Hungarian study found that 6.8% of hay fever patients were sensitized to Cottonwood tree pollen; thus in this group of patients, Cottonwood was not an important cause of hay fever; (Kadocsa 1993 ref.3251 5) and similarly in an early 1975 study in St. Louis, Missouri, USA. (Lewis 1975 ref.4659 6)

Cottonwood pollen has been demonstrated to be a major aeroallergen during the pollen season in Tehran, where the tree pollen season extended from the first week of February through the middle of October; (Shafiee 1976 ref.4572 5) as well as in Fairbanks, Alaska. (Anderson 1984 ref.3253 4) Cottonwood pollen may not be a large component of the total aeroallergen measurement. In Madrid, Spain, the highest airborne presence (from 1979 to 1993) was for *Quercus* spp. (17%); followed by *Platanus* spp. (15%), *Poaceae* spp. (15%), *Cupressaceae* spp. (11%), *Olea* spp. (9%), *Pinus* spp. (7%), *Populus* spp. (4%), and *Plantago* spp. (4%). The most predominant pollens from January to April were tree pollens (*Cupressaceae*, *Alnus*, *Fraxinus*, *Ulmus*, *Populus*, *Platanus*, and *Morus*). (Subiza 1995 ref.4585 4)

Cottonwood tree is not a common cause of hayfever, with only 6.8% of hay fever patients sensitized to this pollen according to a Hungarian study. (Kadocsa 1993 ref.3251 5)

In a RAST study on patients with seasonal rhinitis, it was found that birch, beech, alder, hazel and oak pollens are most important as causes of springtime hay fever, whereas maple, poplar, elm, willow and ash allergens more often gave negative or only weak positive test results. (Jung 1987 ref.3252 5)

Carob, willow, poplar, olive and cypress pollens were among important inhalant allergens causing skin test positivity in this Turkish region. (Guneser 1996 ref.3250 4)

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In a Hungarian study, poplar pollen sensitivity occurred in 6.8% of the total number of hay fever patients. (Kadocsa 1993 ref.3251 5)

Sampling over a three-year period indicated that birch, alder and poplar pollen and fungus spores are the major aeroallergens from early May to September in the Fairbanks area, Alaska. (Anderson 1984 ref.3253 4)

Positive tests in 92 patients, often of high intensity, were most often found with birch, alder, bog-myrtle, beech and hazel allergens, whereas oak, aspen, linden, elm, willow, maple and poplar allergens more often gave negative or only weak positive test results (Eriksson 1978 ref.3255 3)

In 24 patients with hay fever symptoms during June and July, 8 had positive skin tests to cotton, and 18 had positive nasal challenges (Storms 1984 ref.3259 5)

Occupational Exposure:

None