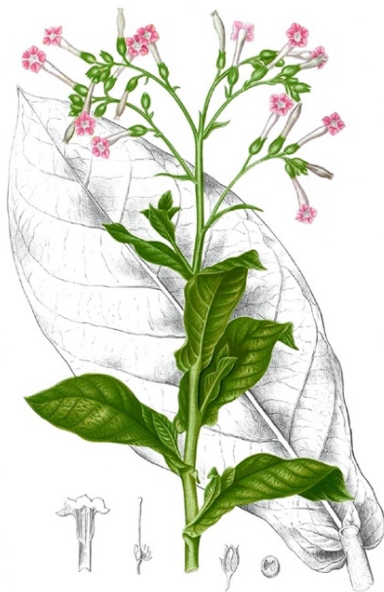


## Tobacco

[Content: Tobacco (Morphology, processing, uses and health hazards)]

### Morphology

Erect, stout annual or short-lived perennial herbs, reaching a height of 1.5-2 m; stems sparsely branched, viscid pubescent with abundant glandular hairs. **Leaves** green, simple, alternate, often large, coarse, elliptic to ovate or obovate, up to 50 cm long, usually decreasing in size up the stem, glandular pubescent, margins entire or undulate, apex acute to acuminate, base decurrent, amplexicaul, lower leaves with winged petioles, upper leaves sessile. While the leaves are the



plant part containing the nicotine, the nicotine is manufactured in the plant roots. Nicotine is transported to the leaves via the xylem. **Flowers** in short, dense panicles, pedicels 5-15 mm long; calyx tubular, 12-20 mm long, the tube 10-15 mm long, the lobes narrowly triangular, acute, sometimes unequal, shorter than calyx tube; corolla salverform, the limb white, pink, or reddish, 5 lobed to pentagonal, 30-50 mm in diameter, the tube proper shorter and narrower than throat cylinder, 4-5 cm long, throat cup

distinct; stamens unequal, the upper four long, the fifth shorter, all inserted near the base of corolla tube and adnate to it for ca. 1 cm; filaments 2.5-4 cm long, pubescent at base. **Capsules** ellipsoid to ovoid, equaling or exceeding calyx, 1.5-2.5 cm long. Seeds numerous, ca. 0.5 mm long, globose to oblong, testa wavy reticulate.



## Harvesting

Harvesting is a critical factor in producing high-quality tobacco. In tropical areas harvesting starts 50-60 days after transplanting. Normally a leaf is considered mature when its tip has just turned yellow. Wrapper type cigar tobacco is harvested earlier to produce light-colored leaves. Cigar filler and cigarette tobaccos are, however, harvested at a later stage to obtain a better flavor.

In South-East Asia all types of tobacco are harvested by individual leaf picking (priming), starting with the lowest leaves, 2-4 at the same time, at 2-5-day intervals. Leaf position on the stem determines the quality of tobacco. From the bottom upwards the leaves are classified into sand leaves or lugs (4-6), foot leaves or cutters (6-8), middle leaves (6-8) and top leaves (4-6 leaves). In cigar tobacco sand and foot leaves are the best to be used as high quality wrappers. In cigarette tobacco middle leaves may have a better taste and aroma than bottom leaves, but for producing low nicotine cigarettes lower leaves are more suitable. Leaves to be flue or fire cured must be fully mature before harvesting, but if they are to be air or sun cured, they are harvested before full maturity.

## Processing: Curing

Curing and subsequent aging allow for the slow oxidation and degradation of carotenoids in tobacco leaf. This produces certain compounds in the tobacco leaves and gives a sweet hay, tea, rose oil, or fruity aromatic flavor that contributes to the "smoothness" of the smoke. Starch is converted to sugar, which glycosylates protein, and is oxidized into advanced glycation end products (AGEs), a caramelization process that also adds flavor. Inhalation of these AGEs in tobacco smoke contributes to atherosclerosis and cancer. Levels of AGEs are dependent on the curing method used.



### **Tobacco can be cured through several methods, including:**

- **Air-cured tobacco** is hung in well-ventilated barns and allowed to dry over a period of four to eight weeks. Air-cured tobacco is low in sugar, which gives the tobacco smoke a light, mild flavor, and high in nicotine. Cigar and burley tobaccos are 'dark' air cured.
- **Fire-cured tobacco** is hung in large barns where fires of hardwoods are kept on continuous or intermittent low smoulder, and takes between three days and ten weeks, depending on the process and the tobacco. Fire curing produces a tobacco low in sugar and high in nicotine. Pipe tobacco, chewing tobacco, and snuff are fire-cured.
- **Sun-cured tobacco** dries uncovered in the sun. This method is used in Turkey, Greece, and other Mediterranean countries to produce oriental tobacco. Sun-cured tobacco is low in sugar and nicotine and is used in cigarettes.
- Some tobaccos go through a second stage of curing, known as fermenting or sweating. Cavendish undergoes fermentation pressed in a casing solution containing sugar and/or flavoring

### **Several types of tobacco are grown, depending on their use:**

- Fire-cured, used for snuff and chewing tobacco
- Dark air-cured, used for chewing tobacco
- Air-cured (Maryland) tobacco, used for cigarettes
- Air-cured cigar tobaccos, used for cigar wrappers and fillers
- Flue-cured, used for cigarette, pipe, and chewing tobacco
- Burley (air-cured), used for cigarette, pipe, and chewing tobacco

### **Uses**



Tobacco is a stimulant and the dried leaves of the tobacco plant can be cured and used to produce tobacco cigarettes, cigars and snuff or for pesticide production.

### Health Hazards

- Smokers and non-smokers alike often do not fully appreciate the health risks of tobacco use, particularly cigarette smoking. The latest epidemiological studies indicate that death rates for smokers are two to three times higher than for non-smokers at all ages. This means that half of all smokers will eventually die as a result of their smoking. If current smoking trends persist, about 500 million people currently alive, nearly 9% of the world's population, will eventually die as a result of tobacco.
- People who die from tobacco use do not die only in old age. About half of all smokers who are killed by tobacco die in middle age. On average, these smokers who die in middle age lose about 20-25 years of life expectancy.

### References

- [www.wikipedia.com](http://www.wikipedia.com)
- Studies in Botany vol 2. Debabrata Mitra, Jibesh Ghua & Salil Chowdhury. Moulik Library

[The information, including the figures, are collected from the above references and will be used solely for academic purpose.]