

Tea

Camellia sinensis (L.) Kuntze (n = 15)

Syn. *Thea sinensis* L.

Family: Theaceae (Ternstroemiaceae)

The legendary Chinese emperor Shen Nung is said to have discovered the stimulatory properties of tea leaf extract around 2700 BC, and that at first it was used mainly as a medicine. The exact geographical centre of the origin of tea has not been settled. It is believed to have originated either in India or China or even both.

MORPHOLOGY

The tea of commerce consists of the processed tender leaves and the leaf buds of *Camellia sinensis*. It was once designated as a species of the genus *Thea* (*T. sinensis* L.) but was later shifted to *Camellia thea* Link (now known as *C. sinensis*).

Under natural conditions, the tea plant is an evergreen or semi-evergreen woody shrub, attaining a height of 9.1-15.2 m, but under cultivation, it is never allowed to grow beyond the plucking height. The bushes are often pruned back to encourage maximum leaf production. The leaves are alternate, generally elliptic to lanceolate with toothed margins. The older leaves are leathery, bright green in colour and 5-30 cm long. The under surface of young tender leaves is densely covered with soft hairs that vanish as they age. The characteristic fragrance and aroma of the leaves is due to the presence of numerous oil glands. Yellow-centred white or pinkish fragrant flowers are borne in leaf axils either singly or in groups of two to four. At maturity, they produce three-celled woody capsules, each compartment of which contains a brown seed, about 1.25 cm in diameter.



Source: Internet Archives.

CLIMATE

Tea can be successfully grown in nearly all subtropical areas and the mountainous regions of the tropics. The plant is grown in open fields or terraced hillside where rainfall is at least 150 cm per annum, well-distributed throughout the year. An average monthly temperature of 21-32 °C is essential for vigorous growth. The bushes thrive best in deep, well-drained, acidic soils (pH between 4.0 and 6.0) that are rich in humus, and cannot be grown in alkaline soils. It is a shade loving plant and shows more vigorous growth under the partial shade provided by leguminous trees, such as *Albizia procera* Benth. etc. The tea plants are most commonly raised from seeds, sown first in a nursery. Seedlings are transplanted into the field when they are about 30 cm in height.

PROCESSING OF TEA

Overview of Tea Processing Steps

- Picking/Plucking – all tea starts with picking the leaf
- Withering – initial drying of bruised or torn leaf to break down leaf to liberate juices

- Fixation – heating to prevent or halt oxidation
- Rolling – leaves formed to shape of desired tea
- Oxidation – also called fermentation, leaf enzymatically broken down
- Drying – done by many ways (sun, pan-fired, baked, air drying) to finish the leaves
- Curing – secondary oxidation /fermentation
- Grading- – improve appearance, consistency of leaf size and taste



Black Tea

The basic objective of black tea making is to condition green leaf for fermentation, and when that has been achieved, arrest the fermenting process through application of heat. Thus heat is to be applied at a much later stage than that of green tea manufacture. The basic operations involved in black tea manufacturing are: Withering, Rolling (plus crushing, tearing and curling in case of C.T.C.), Fermenting, Firing, Sorting and Grading, Storage and Packing. Due to heavy demand of black tea, most of the tea estates are concentrating their production on black tea only. Black tea can be further subdivided into:

1. Orthodox Tea
2. **CTC** (crushing, tearing and curling) Tea

All the big tea estates of Assam have facilities for production of both the Orthodox and CTC tea. But now a day, as the demand for Orthodox tea is poor whereas its production cost comparatively higher, hence tea estates focus on CTC tea manufacturing.



Black Tea Processing Steps

1. Picking
2. Withering
3. Rolling
4. Oxidation
5. Drying
6. Grading

Sourcing Origins: India, China and Sri Lanka

Green Tea Processing Steps

1. Picking
2. De-enzyming
3. Rolling

4. Drying
5. Grading

Sourcing Origins: China and Japan

White Tea Processing Steps

1. Picking
2. Withering
3. Drying
4. Grading

Sourcing Origin: China

Oolong Tea Processing Steps

1. Picking
2. Withered
3. Rolling
4. Oxidation
5. Drying
6. Grading

Sourcing Origins: China and Taiwan

Uses

A freshly plucked tender tea shoot, consisting of the terminal bud and the two leaves just below it, contains about 77 per cent moisture and 23 per cent solid matter. Nearly 50 per cent of the solid matter is insoluble in water and is composed of crude fibres, cellulose, starches, proteins, etc. The remaining soluble half includes over 20 amino acids, about 30 polyphenolic compounds, 12 sugars and 6 organic acids. The Assam variety is richer in caffeine and polyphenolic compounds than the China variety. In the fresh leaf, the stimulating theine (an alkaloid identical to caffeine) occurs in combination with tannins and is only released by fermentation. A very small amount of the allied alkaloid theophylline is also present.

The stimulating properties of black tea are mainly due to an alkaloid—theine, which together with another alkaloid theophylline helps to speed up the heart rate and make a person feel mentally alert.

Black tea is rich in antioxidants, such as polyphenols and catechins (their concentration is more in green tea). These antioxidants are also known to prevent artery-blocking blood clots, control blood pressure by promoting blood flow, reduce the risk of arteriosclerosis (clogged arteries), thereby lowering the risk of cardiovascular diseases and Type 2 diabetes.

Catechins and polyphenols, present in green and black teas, promote oral health.

Regular consumption of tea, especially green tea lowers harmful or bad cholesterol, increases good cholesterol in the blood stream and further improves the ratio of good cholesterol to bad cholesterol.

Intake of green tea increases mental alertness and improves memory.