

## TEA

The botanical name of tea is *Camellia sinensis*, belongs to the Theaceae family. Commonly it is known as tea plant or tea shrub.

### MORPHOLOGICAL FEATURES:

- Tea is an evergreen shrub or small tree.
- It is usually trimmed to below 2 m during the cultivation of its leaves.
- It consists of strong taproot.
- The young, light green leaves have short and white hairs on the underside.
- Older leaves are deep green in color.
- Flowers are aromatic. The color of flowers are yellow – white.
- The size of flower is 2.5-4 cm in diameter. Its flowers consist of 7 or 8 petals.

### PROCESSING:

- **Plucking:** Tender and uniform terminal bud and two shooting leaves or only shoots with three leaves are picked from the tea plant twice a year. Manual picking is done for high quality tea and it highly depends on the skill of the picker but this is a costly method. Mechanical picking of tea flushes and leaves are also practiced but it results in large quantities of broken leaves and partial flushes.
- **Withering:** The plucked tea leaves are subjected to withering for initial removal of moisture content. The freshly picked tea leaves are spread out in very thin layers on wire meshed racks that are arranged one above the other and further subjected to drying in natural air for a minimum period of 20 to 24 hours.
- **CTC Method (Crushing, Tearing and Curling):** CTC machine comprises of two metal rollers that are separated but placed with minimum distance between each other that revolves at unequal speeds. This movement cuts, tears and twists the withered and broken up tea leaves.
- **Drying or Firing:** The drying process carried on a 4 plates system drier. Hot air upto 90 °C, is blown against the leaves, which should have reached 80 °C

### USES:

1. Drinking black or green tea have beneficial effects on body.
2. It is non-alcoholic beverages.
3. It has strong antioxidant property due to presence of caffeine in addition with polyphenols.
4. It also have free radical scavenging properties.
5. It helps in the inhibition of angiogenesis i.e. the process involving the growth of blood vessel essential for tumour growth and metastasis.
6. It is used to treat genetic haemochromatosis via inhibition of absorption of iron by tannates and other ligands.
7. It helps to treat blindness caused due to diabetes which is an angiogenic condition.
8. It helps to lower the risk of ischemic heart disease in older man.
9. The major application of tea is to maintain cardiovascular health.
10. It helps in the prevention of cancer.
11. Green and black tea helps to protect against obesity.

12. It also helps to treat Alzheimer's disease.

### Adulterants:

The common adulterants of soapstone, gypsum, graphite, indigo dye and Prussian blue dye substances.



## COFFEE

The botanical name of coffee is *Coffea Arabica* Linn, belongs to the rubiaceae family. It is deprived of most of the seed coat. It is also known as coffee bean and coffee seed.

### MORPHOLOGICAL FEATURES:

- Plant of coffee is an evergreen shrub.
- It is upto 5 m tall when unpruned.
- Leaves are opposite, dark green in colour.
- The flowers of plant are white in color and in axillary clusters. Flowers are fragrant.
- Fruits on ripening yellow in color and then become crimson and black upon drying.
- It contains drupe type fruit and the shape of fruit is ellipsoidal or spheroidal.
- Seeds are green in colour while separating from the plant. Seeds are 8.5-12.5 cm long.

### PROCESSING:

**Harvesting:** It takes three to four years passes for the newly planted coffee to bear fruit. When they are ripe and ready to be harvested, the coffee cherries become a bright, deep red color.

**Fermenting:** Coffee beans covered in mucilage are either sent to air dry naturally as pulped natural coffees or are sent to coffee fermentation tanks

**Drying:** The pulped and fermented beans are dried to approximately 11-12% moisture content to properly prepare them for storage. They are rotated regularly or machine-dried in large tumblers. Based on a study in Kenya, it was reported that there are six stages to drying coffee.

- 1) Skin drying. Moisture 55-45%.
- 2) White Stage drying. Moisture 44- 33%.
- 3) Soft Black stage. Moisture 32-22%.
- 4) Medium Black Stage. Moisture 21- 16%

**Roasting:** In the roasting step, green coffee is processed into scented brown beans which is typically what consumers think of coffee as. Roasting machines have a temperature of about 550 degrees Fahrenheit

**Grinding:** The grinding step provides the sole purpose of obtaining the most flavor for the cup of coffee. The ideal grade of grind is determined by the length of time the grounds are in contact with water.

### USES:

1. It is used to stimulate diuretic action due to presence of caffeine.
2. It also has toxic effect due to CNS depressant drugs.
3. It is used as flavoring agent as in ice cream, pastries, and candies.
4. It has action on kidneys, heart and muscles.
5. On snake-bite, it is used to prevent from terrible coma.
6. It has soothing action on the vascular action which prevents a too rapid wasting of the tissues of the body.
7. It is a brewed drink.
8. Coffee shows analgesic, anaphrodisiac, anorexic and antidotal properties.
9. It has cardiotonic action.
10. It works as counterirritant, hypnotic and lactagogue.
11. Coffee is used in the folk remedy for fever, gout, diarrhea, cough and headache.
12. It is also a folk remedy for asthma, atropine-poisoning, jaundice, malaria, migraine, necrosis, opium-poisoning, sores and vertigo.

**Adulterants:** Most common coffee husks and sticks during processing by-products. Other adulterants are barley, maize, soybean, chicory, rye and tritcale.

