



E-CONTENT

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Topic: Processing, Cultivation & Uses of TEA

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TEA [Additional Account]

INSTANT TEA:

Instant tea is a powdered mix that typically contains dehydrated flavour, aroma, and colour compounds found in tea. Instant tea when mixed in cold water gets completely dissolved and it is taken instantly. It is not mixed with hot water to get extract of tea decoction.

It is made by extracting the liquid inside tea leaves and then drying them through methods like **freeze-drying**, **vacuum-drying**, or **spray-drying**. The resulting powder can be mixed with water or milk to create a drinkable tea.

Instant tea often includes additives, preservatives, and sometimes additional flavours like sugar or citric acid to enhance taste.

It offers a quick and convenient way to prepare tea compared to traditional brewed tea.

Difference Between Instant Tea and Brewed Tea

S. No.	Instant Tea	Brewed Tea
1.	Made by extracting liquid from tea leaves and drying them into a powder.	Involves steeping tea leaves in hot water for a certain time before consumption.
2.	Quick to prepare by mixing the powder with water or milk.	Can use tea bags or loose-leaf tea.
3.	Quicker to prepare, making it suitable for busy individuals.	Take some time.
4.	Generally produce less waste.	More waste comparatively.
5.	Allows for easy customization of flavour strength.	--

GREEN TEA During plucking operation, the tea pickers often wear shade Hats to prevent premature withering of tea leaves.

In China, Green tea is made by briefly heating the freshly picked leaves in an IRON PAN (Pan Firing) and in Japan, it is made by Steam heating to inactivate the enzymes.

The leaves are then rolled and dried just like black tea.

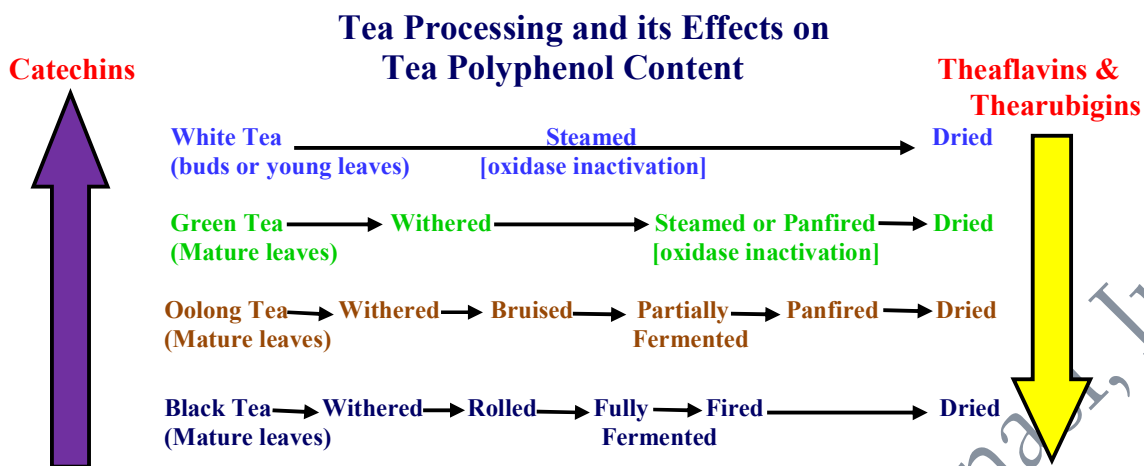
The tannin and Caffein content in green tea is higher than black tea.

Green tea is said to be extremely high in antibacterial agents, especially rich in Vit. C, Chlorophyll and trace elements.

CHEMICAL COMPOSITION OF GREEN TEA

Compounds %	Dry weight
Total Polyphenols	25-30
Flavanols	
(-) Epigallocatechin gallate	8-12
(-) Epicatechin gallate	3-6
(-) Epigallo catechins	3-6
(-) Epicatechin	1-3
(+) Catechin	1-2
(+) Gallocatechin	3-4
Flavonols and flavonol glycosides	3-4
Leuco anthocyanins	2-3
Polyphenolic acids and depsides	3-4
Caffeine	3-4
Theobromine	0.2
Theophylline	0.5
Amino acids	4 - 5
Organic acids	0.5 - 0.6
Monosaccharides	4-5
Polysaccharides	14 - 22
Cellulose and Hemicellulose	4 - 7
Pectins	5 - 6
Lignin	5 - 6
Protein	14 - 17
Lipids	3 - 5
Chlorophylls and other pigments	0.5 - 0.6
Ash (Minerals)	5 - 6
Volatiles	0.01 - 0.02

Composition	Orthodox	CTC teas
Water soluble solids %	39.52	41.12
Theaflavins %	0.59	13
Thearubigin %	6.5	18
Total Lipid	3.11	3.68
Carotenoids (mg/g)	215	176
Flavour volatilised	18.40	8.20
Total fibre %	19.35	18.93
Crude fibre %	11.70	11.12
Chlorophyll a (mg/g)	1.38	0.48
Chlorophyll b (mg/g)	0.77	0.58



Processing of Tea

OO LONG TEA / SEMIFERMENTED TEA, prepared in Taiwan from a special type of Chinese tea, 'CHESIMA', mainly consumed in America.

WHITE TEA least processed form of Chinese tea. It has highest Antioxidant levels.

Qualities of Tea:

The distinctive characters of tea due to three principal constituents.

1. Essential Oils,
2. Alkaloidal fraction,
3. Polyphenols

In fresh tea leaves, the stimulating THEIN occurs in combination with tannins and released after fermentation.

The aroma and flavour of tea is due to the presence of an Ethereal oil **THEOL**.

The stimulatory and refreshing properties due to **CAFFEINE** alkaloid-**THEINE**.

The bitterness and astringency due to Polyphenol [**TANNIN**].

Chemically tea consists of 2.5% Thein, 13-18% Polyphenols and Essential oils.

Tea leaves also contain many B-complex vitamins and Nervine.

In India tea is mainly cultivated in **Brahmaputra Valley of Assam, Darjeeling** and **Jalpaiguri districts** of W. Bengal, **Cachar district** of Assam and **Tripura, Kangra** and **Mandi districts** of Himachal Pradesh, **Nilgiri, Annamalai** and **mountainous regions of Kerala**.

A comparative study which shows that the presence of one of the main constituent **L-Theanine** in Green and Black tea respectively 475 ± 25 mg/100gm and 650 ± 50 mg/100gm. A possible reason for higher amount of L-theanine content in black tea is that, during fermentation theanine synthase may be activated and thereof more L-theanine is formed having numerous health benefit effects.

DIFFERENCE BETWEEN GREEN AND BLACK TEA

	GREEN TEA	BLACK TEA
COLOUR	Green	Dark Brown /Black
TASTE	Grassy astringent taste	—————
POLYPHENOLS AND FLAVONOIDS	-Epigallocatechin, -Epigallocatechin gallate, -Gallocatechin	-Theaflavins, -Thearubigins

ANTIOXIDANT POTENTIAL

According to Leung *et al.* (2001), drinking black tea is equally beneficial to drinking green tea in terms of their antioxidant capacities because theaflavins present in black tea possess at least the same antioxidant potency as catechins present in green tea. But according to Lee *et. al* (2002) black tea and green teas contained total phenols equal to 124 and 165 mg gallic acid and the antioxidant capacity per serving of green tea and black tea is equals to 436 mg vitamin C equivalents and 239 mg vitamin C equivalents respectively. So they concluded antioxidant potential of green tea is higher than black tea. However, Leung *et. al* (2001) had shown that Theaflavins in black tea and catechins in green tea are equally effective antioxidants.

The apex court of India defined the tea as,

“Tea means the plant *Camellia sinensis* (L.) O. Kuntze., as well as all varieties of the product known commercially as tea made from leaves of this plant including Green Tea.”

Research Stations:

1. Toclai Experimental Station-Assam,
2. Tea Research Institute, Dooars, W. Bengal,
3. Government Tea Experimental Farm, Palampur

TEA BOARD: Setup under the tea Act, 1953, promotes development of the tea industry. Its head office situated at Kolkata. The board comprises of a Chairman and 30 other members representing owners of tea estates, persons employed in tea estates, manufacturers, and dealers of tea companies, consumers, M.P.s and governments of principle tea growing states.



Rolling machine



Black and White Tea





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