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Compact Tea Knowledge

An excursion in the world of tea

What is tea?

A fragrant hot drink. A luminous-coloured liquid. A pleasing aroma.

But what's really behind this beverage which has managed to retain - and indeed increase - its popularity over millennia?

Information taken from the book: "Thirsty for knowledge: a guide to tea" published by the German tea marketing board. Available from all good tea retailers.

The plant:

The tea plant is a species of tree related to the camelia. Its flowers are yellowly-white and its fruits small and hard-shelled, similar to a hazelnut. The evergreen leaves are leathery, dark and slightly serrated. Given minimum annual temperatures of 18°C, moderate and infrequent frosts, a uniform annual precipitation of 1,600 l and a good balance of sunshine, a tea plant can easily grow to become 100 years old. Wild tea plants are indeed reputed to reach an age of up to 1,700 years.

Two original tea plants are known today:

Thea sinensis (or Chinese tea). A shrub-like plant which reaches a maximum height of 3-4 m and can even survive frosts.

Thea assamica (or Assam tea). A substantial tree reaching a height of 15-20 m which grows exclusively in the tropics.

The constant crossing of these two original plants forms the basis of all the tea cultures in the world today.

Active ingredients:

The cheapest drink in the world after water is also one of the most valuable in terms of its chemical composition: approx. 32 % of its ingredients pass into the infusion.

Tea contains:

Caffeine (teine)

Tannins

Amino acids

Proteins

Trace elements and minerals: fluoride, potassium, calcium, manganese

Vitamins: niacin, vitamin B1 and B2

"Tea both stimulates and calms."

Tea owes its stimulatory effect to its caffeine content; the caffeine in tea does not act on the circulation via the heart, however, but directly on the brain and central nervous system, as it is bonded to the tannins and is not released until it reaches the intestine. This explains the demonstrable capacity of tea to increase concentration and responsiveness.

Cultivation:

Tea is propagated vegetatively, i. e. by taking cuttings from parent plants. The tea plant is kept in the vegetative phase by regular pruning to prevent flowering and fruit formation. This also makes it easier for the tea pickers to gather the 2 uppermost leaves and the newest bud (only these are relevant for the tea harvest). Most picking is still done by hand in order to preserve the quality of the harvest. Some countries have developed mechanical picking methods, however, which greatly simplify production processes.

Tea is cultivated in large plantations such as those of the Indian district of Darjeeling, e. g. on the 2,000m high slopes of the Himalayas. Much lower lying is the Assam region of Northern India, the biggest continuous tea cultivation area of the world, situated on either side of the Brahmaputra.

On the island of Sri Lanka (formerly Ceylon), a bitter, aromatic tea is produced in the three cultivation areas of Dimbula, Nuwara Eliya and Uva which has become famous throughout the world. The Chinese produce a distinctly smoky, mild tea in various provinces such as Yunnan and Zhejiang. The Chinese are known for their tea specialities, such as tea bricks or tea roses.

Japan produces exclusively green tea, most of which is consumed by the Japanese themselves. Other tea-producing countries are Africa, Indonesia, Taiwan and Argentina as well as Thailand, Russia and Turkey, though these are relatively insignificant in terms of production volume. See also statistics.

The production of green tea

Green tea comes from the same plant as black tea, only here the fermentation process is prevented by heat treatment immediately after withering.

Withering:

This process is only carried out where necessary. The necessity and duration of withering varies widely according to the desired type of tea.

Steaming / dry heat treatment:

This destroys the plant's own enzymes so that the leaf will retain its green colour instead of turning "black".

Rolling:

Rolling is performed manually or by machine depending on the type of tea. In many cases the leaf is rolled into an artistic shape following a tradition which dates back thousands of years.

Drying:

For this purpose, the leaves are either stacked in hot-air rack driers or exposed to the natural heat of the sun.

Sorting:

Green tea is available in the same familiar grades - leaf, broken, fannings or dust - as black tea, depending on the production specification.

Green tea is a strongly alkaline drink which protects the body from hyperacidity. It contains numerous tannins, minerals and vitamins.

Oolong production

Oolong is a semi-fermented tea. Its secret lies in the fermentation of the leaf's outer edges, while the heart of the leaf remains unfermented. It is mainly grown in Taiwan and China.

White tea

White teas originate mainly from the mountainous regions of Fujian in Southern China. Thanks to a slow, gentle steaming process in the open air and extremely careful handling, this tea is gaining more and more converts.

Black tea production

There are three different methods of producing black tea:

Orthodox production

CTC production

LTP production

The orthodox production method

The orthodox production method consists of five stages withering, rolling, fermentation, drying and sorting.

1 The freshly picked green leaves are spread out to dry on ventilated trays. During this process, approx. 30% moisture is extracted from the leaves, making them soft and pliable for further processing.

2 The leaves are then rolled by applying mechanical pressure to break up the cells and extract the cell sap. After 30 minutes, the leaves, still damp from the sap, are sieved to separate the finer leaves. These are spread out immediately for fermentation, while the remaining coarse leaves are rolled for a further 30 minutes under higher pressure. If necessary, this process is repeated several times. A short rolling time produces larger leaf grades, while longer rolling breaks the leaves up more resulting in smaller grades. During the rolling process, the cell sap runs out and reacts with oxygen, thus triggering the fermentation process. At the same time, the essential oils responsible for the aroma are released.

3 After rolling, the tea is spread out in layers approx. 10 cm high for one to three hours in a cool, damp atmosphere to finish off the fermentation process. During this process, the substances contained in the cell sap oxidise. In this production phase, the green leaf gradually turns a copper colour. The colour and typical odour tell the person supervising the process how far the fermentation has progressed. Various chemical reactions cause the leaf to heat up during fermentation. It is critical for the quality of the tea that the fermentation process be interrupted at its peak, when the temperature is at its highest.

4 Next, the tea is dried with hot air at a temperature of approx. 85°-88°C in order to interrupt the oxidation process. The residual moisture is thereby extracted from the leaves, the extracted sap dries on the leaf and the copper-coloured leaf turns dark brown to black.

5 Finally, the dried tea is sieved to separate the different leaf grades. The orthodox production method provides teas of all leaf grades: leaf, broken, fannings and dust. Leaf grades only refer to the leaf size, however: they are not an indication of the quality of the tea.

The CTC production method

Both the CTC and LTP methods are mainly used for the finer end of the scale, i.e. fanning and dust grades. These teas are usually destined for teabag production.

CTC stands for crushing, tearing and curling. The withered leaf is often cut to a uniform size by machine. Then the leaves are fed into the CTC machine where they are crushed, torn and curled in a single operation by metal rollers. The extracted cell sap is collected and added to the leaves again. The crushed leaves are then fermented, dried and sorted. The CTC method is mainly used in Indian regions.

The LTP method

The third method of producing black tea is the LTP method, named after the inventor of the relevant machine, the Lawrie Tea Processor. In this method, the withered leaves are often levelled before being processed in the LTP machine. Here they are virtually torn to pieces by blades rotating at high speed. This is followed by the usual fermentation, drying and sorting procedures.

The leaf grades result exclusively from the last stage of production, the sorting stage. There are 4 basic groups in orthodox production: leaf, broken, fannings and dust. These categories have nothing to do with quality, but only indicate the different leaf sizes and associated strengths.

Which leaf grades exist?

FTGFOP1 (Finest Tippy Golden Flowery Orange Pekoe 1)

Mainly from Darjeeling, also some parts of Assam. Finest top-grade production; made with special care; uniform leaf, tippy.

SFTGFOP1 (Special Finest Tippy Golden Flowery Orange Pekoe 1)

TGFOP1/TGFOP (Tippy Golden Flowery Orange Pekoe 1/
Tippy Golden Flowery Orange Pekoe)
Main grade in Darjeeling and Assam.

GFOP1 (Golden Flowery Orange Pekoe 1)

Top grade in Milima - the only plantation in Kenya which produces leaf teas. Now less common in Assam and Darjeeling.

FOP/FOP1 (Flowery Orange Pekoe/Flowery Orange Pekoe 1)

2nd grade in Assam, Dooars and Bangladesh,
top grade in China. Long leaf, few tips.

OP sup (Orange Pekoe Superior)

Only from Indonesia.

OP (Orange Pekoe)

Main grade in Ceylon and Java tea production. Can consist of long wiry leaf without tips.

BOP1 (Broken Orange Pekoe 1)

Semi leaf tea. Speciality of "low districts" of Ceylon. Coarse, black-leaf tea, comprising roughly 40 % OP and 60 % Pekoe/BOP

Offgrades

Some OP2 (Orange Pekoe 2).

Leaf tea with added ingredients, but only in Ceylon and Southern India.

Broken

P/FP (Pekoe/Flowery Pekoe)

Mainly in Ceylon and Southern India, also produced in some parts of Kenya. Usually coarser, fleshier broken leaf.

BOP coarse (Broken Orange Pekoe)
Coarse, Indonesian name for Pekoe

BPS (Broken Pekoe Souchong)
Name for Pekoe in Assam and Darjeeling

TGFBOP1 (Tippy Golden Flowery Broken Orange Pekoe 1)
Finest broken grade in Darjeeling and some parts of Assam. High tip content, uniform leaf.

GFBOP1 (Golden Flowery Broken Orange Pekoe 1)
Mainly produced in Assam as the top broken grade; the only tippy broken from Kenya.

GBOP (Golden Broken Orange Pekoe)
Next, second-grade tea. Inhomogeneous leaf, fewer tips.

FBOP (Flowery Broken Orange Pekoe)
Coarser broken with some tips from Assam, Ceylon, Indonesia, China and Bangladesh. In South America coarser, black broken. In Southern India, Pekoe is often known as FBOP.

BOP (Broken Orange Pekoe)
Main broken grade in Ceylon, Southern India, Java and China.

BP (Broken Pekoe)
From Indonesia. Ceylon, Southern India.

FBOPF (Finest Broken Orange Pekoe Flowery)
Mainly from Ceylon's "low districts". A leafy BOP1 with tips. Speciality: so-called "Spider Leaf".

BT (Broken Tea)
From Sumatra, Ceylon, some parts of Southern India. Usually a black, open, fleshy leaf, very bulky.

Fannings

BOPF (Broken Orange Pekoe Fannings)
Main grade in Ceylon, Indonesia, Southern India, Kenya, Mozambique, Bangladesh and China. Black-leaf tea, few added ingredients, uniform particle size, no tips. In Indonesia BOP fine, small-leaf BOP.

TGFOF (Tippy Golden Flowery Orange Fannings)

GFOF (Golden Flowery Orange Fannings)
Finest grade in Darjeeling for tea bag production.

FOF (Flowery Orange Fannings)
Common in Assam, Dooars and Bangladesh. Some leaf sizes come close to the smaller broken grades.

OF (Orange Fannings)
From Northern India and some parts of Africa and South America.

PF (Pekoe Fannings)

Dust

D1 (Dust 1)

From Ceylon, Indonesia, China, Africa, South America and Southern India.

PD/PD1 (Pekoe Dust/Pekoe Dust 1)

Mainly produced in India.