

Green tea in China

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ABSTRACT: Green Tea accounts for the largest share of tea production in China. This paper introduces the production and consumption of green tea in China. The paper details the processing methods of different types of green tea in China.

Keywords: Green tea; GT processing methods; GT production; GT consumption

Introduction

Green tea is the largest category of tea consumed in China, which has the longest history, the largest production area, the most abundant cultivars and the highest production. During the history of thousands of years, green tea has witnessed its development from original fresh tea-leaf-chewing and boiling to sun-dried green tea, steam-fixed green tea, pan-fixed green tea, basket-dried green tea, green tea scented by flowers, and to the various famous quality green teas. At present, the plantation area and production volume of green tea in China accounts for about three-quarters of the national total. Green tea has become the important pillar of Chinese tea industry.

Types and Processing Methods of Green Tea

Due to the long history of green tea, its large producing area, diversified tea cultivars and different processing methods, there are thousands of green tea products in China. According to the processing methods, Chinese green tea can be generally divided into four types: Roasted green tea, Basket-dried green tea, Sun-dried green tea and Steamed green tea (see Fig. 1).

Roasted Green Tea

This tea seems to be the most popular which is widely consumed by the Chinese people. According to the maturity of raw material and manufacturing method, it could be divided into two kinds: "Ordinary" Tea and 'Famous' Quality Tea. The preliminary processing of this tea includes four basic stages: *spreading, pan-fixing, rolling and drying*.

Spreading: The objective of spreading is to evaporate some of the water and volatile odor from the fresh leaves and to make the next operation more easy. The duration of this operation varies from 6 to 12 hours according to the climatic conditions and the leaf moisture content.

Pan-fixing: This is the key step in the production of green tea. The main objective is to de-active the enzyme whose action is fundamental in keeping the leaves in green color, evaporating some water from the leaves, softening the leaves and make the rolling operation more easy. This is usually carried out in a drum type continuous de-enzyming machine, and the rolled leaf is roasted at above 200°C for 1 or 3 min.

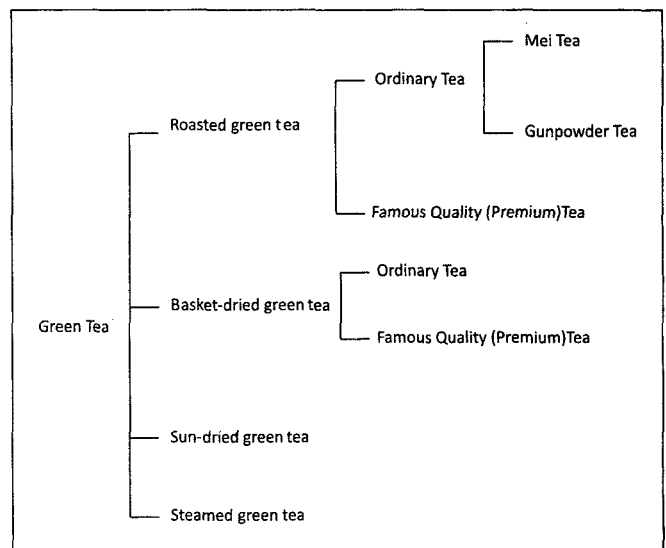


Figure 1. Types of green tea

Rolling: The objective of rolling is to twist the leaf, break the cell tissue, and make the desired shape. The machines used, varies in size and design but their principle is same. The duration of this operation varies from 15 min to 2 hours depending on what kind of green tea is made.

Drying: This stage is usually divided into two steps. The first drying is usually carried out in a dryer at 120°C for 10–15 min, and the second drying is in a drum roasting machine at around 90°C for 0.5 or 1 hour until the water content of leaves is less than 6%.

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The Ordinary tea is usually divided into two types: *Long-shape tea* and *Round-shape tea*, according to the appearance of the made tea.

Long-shape tea is widely produced in Zhejiang, Anhui, Jiangxi, Hunan, Hubei, Jiangsu, Henan and Guizhou provinces. After it is refined, it is generally called as “Mei Tea” and used for domestic consumption and also for exports. Round-shape tea is mainly produced in Zhejiang province. After refining, it looks like a pearl in appearance, and is called “Gunpowder”, which is a traditional export product of China tea.

The famous quality “Premium” tea, which is made by using a very tender leaf, is developing fast in recent years. According to the shape, it can be divided into *flat-shape*, *needle-shape*, *curl-shape*, *single bud-shape* and so on.

Flat-shape tea: Most of the flat-shape teas are produced through fixing, flattening and drying shoots with one bud and one leaf or one bud and two leaves. This tea has a distinctive flat appearance, clear tea infusion with green leaves, fresh scent or chestnut aroma, such as Longjing Tea in Zhejiang, Dafang Tea and Tai Ping Hou Kui in Anhui etc.

Needle-shape tea: Needle-shape tea: Plucking shoots with one bud and one leaf or one bud and two leaves, this tea is produced through the steps of fixing, shaking, twisting, and drying. Its appearance is straight and tight, as pine needles with green color and white hair. The aroma is almost fresh chestnut aroma; the taste is delicious and smooth. This type of green tea includes Yuhua Tea in Jiangsu, Lushan Yunwu Tea in Jiangxi, Xinyang Maojian Tea in Henan.

Curl-shape tea: Plucking one bud and one or two leaves shoot, this tea is produced through the steps of fixing, roasting, repeatedly rolling, roll-breaking, and drying. The shape is twisted as the snail with white hair and silver green color. The aroma and the taste are fresh and delicious. This type of green tea includes Biluochun Tea in Jiangsu, Panhao Tea in Linhai and Quhao Tea in Fenghua, Zhejiang.

Single bud-shape tea: Plucking a single bud, this tea is produced, through the steps of fixing, light rolling and drying. The shape is like a sword or bird’s tongue. The length of leaves is almost same. Some have white hairs, while in others hairs are absent. The liquor color of tea is limpid. After brewing tea buds get erected in the cup. This type of green tea includes Xueshui Yunlu and Lujian Tea in Zhejiang, and Jinshan Cuiya Tea in Jiangsu.

In addition, there are some round-shape teas, such as Quangang Huibai Tea in Zhejiang, Yongxi Huoqing Tea in Anhui.

Basket-dried Green Tea

The preliminary processing of the Basket-dried green tea is almost the same as that of the Roasted green tea, except the drying process. In the past, it was dried by using a special bamboo basket with a charcoal fire under the basket. At present, a drying machine with hot-air is widely being used. It is also classified in two kinds: “Ordinary” tea and famous quality “Premium” tea according to the raw materials and manufacturing methods.

The ordinary tea is widely produced in Zhejiang, Jiangsu, Fujian, Anhui, Jiangxi, Hunan, Hubei, Sichuan, Guizhou and Guangxi provinces. This kind of tea is rarely used for direct drinking and is mainly used as crude tea for making scented tea like Jasmine Tea.

The famous quality “Premium” tea is made by using very tender shoot, and is mainly divided into two types: *Twisted-shape* and *Orchid-shape*.

Twisted-shape tea: Plucking one bud and two or three leaves shoots, this tea is produced by going through the stages of fixing, roasting and basket-drying. The appearance is bend like and tight with significant white hairs and green color. The infusion color is fresh green and bright, the aroma is high-lasting and strong, the taste is delicious and fresh, and can be brewed several times. This type of green tea is well known as Huangshan Maofeng Tea in Anhui, Jingshan Tea in Zhejiang.

Orchid-shaped green tea: Plucking one bud and two leaves shoot, this is produced by going through the stages of fixing, stirring, and drying. The shape is like loose orchids with green color. The aroma is fresh, taste is delicious and fresh, and buds and leaves are unbroken. This type of green tea includes Shucheng Lanhua Tea in Anhui, Yangtian Xuelu Tea in Henan, Lumudan Tea in Jiangshan of Zhejiang, etc.

Sun-dried Green Tea

Through the steps of leaf spreading, pan-fixing and rolling, the tea is dried under the sun. This tea is mainly produced in Yunnan, Sichuan, Guizhou, Guangxi, Hubei and Shanxi provinces. It is a raw material for processing Pu-er tea and also for different kinds of compressed teas.

Steamed Green Tea

This tea was first invented and popularized during the Tang Dynasty, which later on, was introduced into Japan

Table 1. Standard making process of Sencha tea

Machine	r.p.m.	Temp.	Time required	Water content
Steaming machine	35–50	Steam	30–60 sec	75%
Primary drying tea roller	36–38	90–100°C	30–45 min	50%
Tea roller	22–28	non	15 min	50%
Secondary drying tea roller	26–28	50–60°C	30–40 min	30%
Final drying tea roller	50–60	80–90°C	30–40 min	13%
Tea dryer	—	70–90°C	25–30 min	6%

Note: The data from “a cup of Japanese green tea”, World O-CHA (tea) Festival Executive Committee, Shizuoka, Japan.

and several developed countries. According to the raw material used and manufacturing method, it is classified into different kinds in Japan, such as Gyokuro, Sencha, Bancha and Tencha etc. In China, Steamed green tea is mainly produced in Zhejiang, Anhui and Sichuan provinces. They use the same kind of machines and the same process method, introduced from Japan. The steamed green tea so produced is also exported to Japan. Modern making process of this tea is divided into six steps: Steaming, primary drying and rolling, rolling, secondary drying and rolling, final drying and rolling, and drying. During these processes, six different machines are used. The standard making process of Sencha tea is shown in Table 1.

Production of Green Tea

Green tea is mainly produced in all the twenty tea-producing provinces (autonomous regions) of China. The top six producing provinces are Zhejiang, Yunnan, Hubei, Sichuan, Fujian and Anhui accounting for 72.3% of the total green tea production in China (Table 2).

During the past sixteen years, famous quality “premium” green tea has developed fast in all the tea-

producing provinces. Up to 2010, the total production of famous quality “premium” green tea reached 599,077 tons, which was about 22 times more than 27,000 tons in 1991. The production value increased from 111.4 million US dollars in 1991 to 6462.8 million US dollars in 2010, increased by more than 58 times. The share of famous quality “premium” tea production to the total tea production increased from 5% to 40.6%, and the share of its production value increased from 21% to 78% (Fig. 2).

Consumption of Green Tea

China is not only the main green tea producing country but also its main consuming country. In 2010, the consumption of green tea was 620,000 tons, accounting for 56% of the total consumption volume in China. The mainstream of domestic-oriented green tea is the famous quality “premium” green tea. Its market is both in major cities as well as in rural areas, especially in Shanghai, Beijing, Jiangsu and Shandong, etc. The share of green tea consumption increased from 48% in 2005 to 56% in 2010, while the share of scented tea and compressed tea were reduced respectively (Fig. 3).

Table 2. Green tea production in China in 2010

Provinces	Production (t)	% of the total
Zhejiang	157,060	15.0
Yunnan	148,632	14.2
Hubei	137,120	13.1
Sichuan	134,621	12.9
Fujian	102,438	9.8
Anhui	76,984	7.3
Others	179,372	27.7
Total	1,046,382	100

Note: Data from National Bureau of Statistics of China.

Export of Green Tea

Green tea is also the main exporting tea of China. In 2010 the export volume of green tea was 234,187 tons, which accounted for 77% of the total tea export, while the export earning was about 567 million US Dollars in 2010, accounting for 72% of the total.

The main kinds of green tea exported are Gunpowder tea, Mei tea and steamed green tea, which account for about three-quarters of the total tea export volume. At present, Chinese green tea has been exported to 102

countries and regions of six continents. The main export markets are in Africa, Asia and Europe. Asia and Africa accounted for 80% of the total. In 2010, the top 10 countries and regions which imported green tea from China were Morocco, Uzbekistan, Russia, The United States, Algeria, Mauritania, Togo, Mali, Germany, and Benin. Among them, Morocco is a major importer. It is a traditional market of Chinese green tea, importing 60,695 tons of Chinese green tea with total of 155 million US Dollars in 2010 (Table 3).

Table 3. Export of Chinese green tea in 2010

Countries of destination	Export volume (t)	Export value (thousand US \$)
Morocco	60,695	155,457
Uzbekistan	18,569	23,478
Russia	14,286	30,737
USA	12,273	24,627
Algeria	11,788	30,563
Mauritania	11,750	39,795
Togo	8,761	24,671
Mali	7,021	23,460
Germany	6,870	17,693
Benin	6,315	15,370
Others	75,859	385,851
Total	234,187	566,836

Note: Data from the Statistics of China Customs in 2010.

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Plate 1: Green Tea Production and Consumption

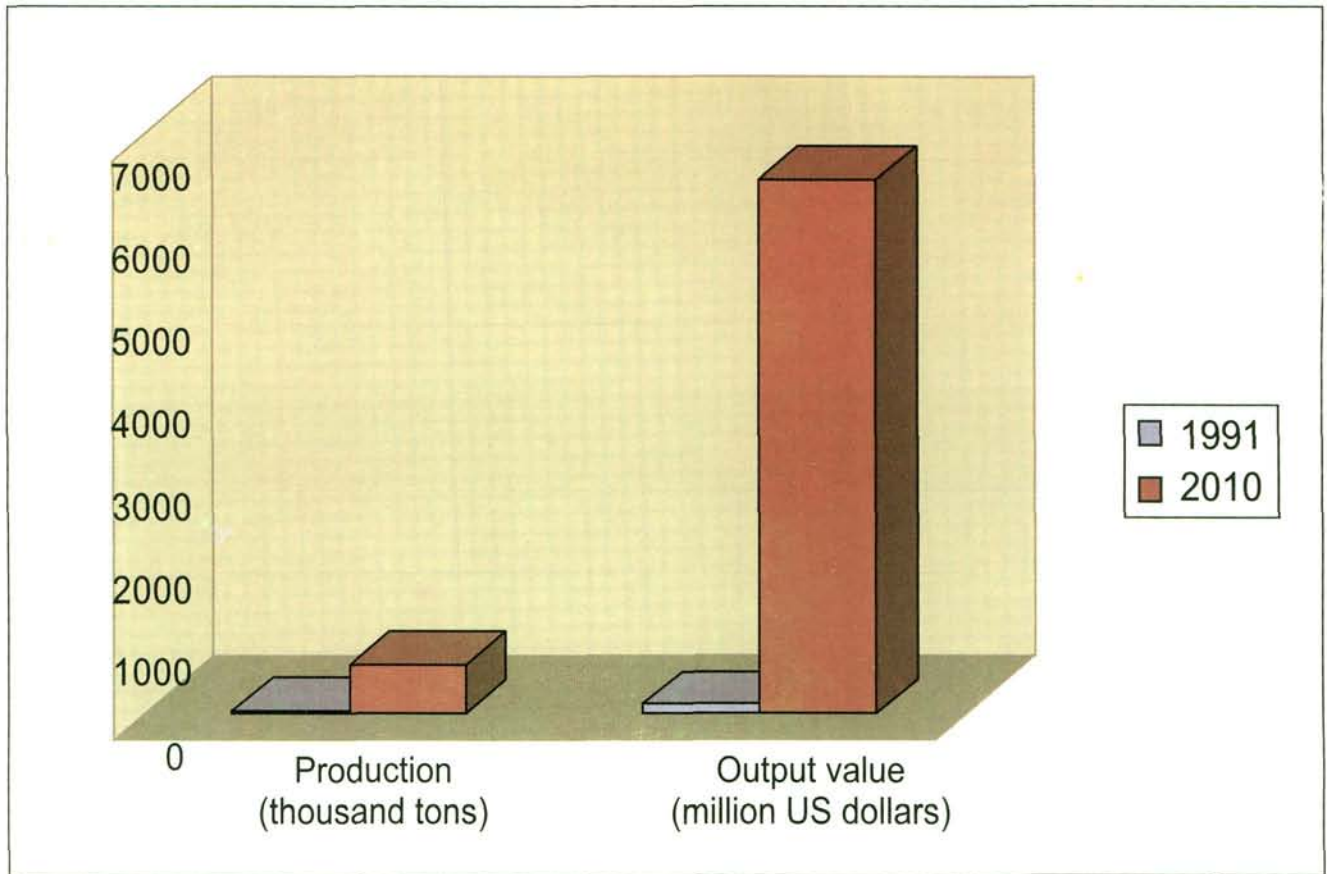


Figure 2. The production and output value of famous quality “premium” tea in China

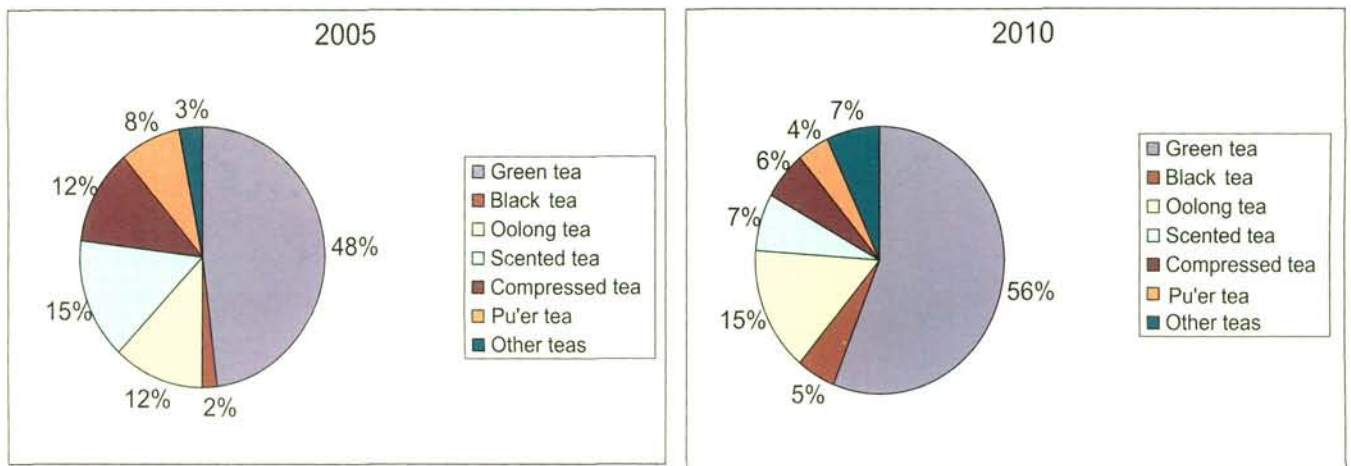


Figure 3. The share of different kinds of China tea consumption in 2005 and in 2010

Plate 2: Types of Green Tea and Processing Machinery



1. Roasted green tea (Mei tea)



2. Basket-dried green tea



3. Sun-dried green tea



4. Steamed green tea (Sencha)



5. Flat-shape tea (Longjing tea)



6. Steamed green tea (Sencha)



7. Single bud-shape tea



8. Twisted-shape tea (Huangshan Maofeng)



9. Drum-type continuous de-enzyming machine



10. Roller



11. Dryer



12. Drum type dryer



13. A continuous producing line of famous quality (premium) green tea