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Tea classification

Classification du thé

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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This document was prepared by Technical Committee ISO/TC 34, *Food products*, Subcommittee SC 8, *Tea*.

Introduction

Tea (*Camellia sinensis*) is an important agricultural crop that is grown in the tropical and sub-tropical regions of the world. The tender shoots and leaves of the plant are processed and used to prepare an aromatic infusion which is consumed globally as a beverage. Tea is known to be one of the most popular beverages in the world and it is thought to be the most widely consumed non-alcoholic drink after water.

Tea is the most popular and healthy beverage, all derived from the processed young tea shoots of the tea plant *Camellia sinensis*. There are a vast number of different teas including tea, flavoured tea, teabags, decaffeinated tea, and tea or flavoured tea with other food ingredients in worldwide market, but they belong to the derivatives of basic tea types. The most commonly teas found in the market are black tea, green tea, white tea, oolong tea, yellow tea and dark tea. This follows the ISO standards of tea and technical reports. Recently, the market for white tea, dark tea and yellow tea is growing.

Tea is a global expanding market and people in over 195 countries drinking it. It is produced in more than 60 countries; mainly in Asia, Africa and Latin America. China, India, Kenya, Sri Lanka and Indonesia account for 80 % of worldwide production. In 2020, a total of 6,29 million tonnes of tea were produced. It has doubled in the past twenty years. World tea exports increase annually by 0,5 percent over the last decade to reach 1,74 million tonnes in 2020. The massive expansion is also a result of increased consumer health consciousness. World tea consumption increases annually by 3,6 percent to 6,1 million tonnes over the decade to 2020.

Tea standards are based on processing freshly tea leaves and aeration (previously referred to as fermentation) when catechins and other tea polyphenols were oxidized into polymerized polyphenols. The basic range of tea types includes green tea (ISO 11287), black tea (ISO 3720), white tea (ISO/TR 12591), oolong tea (ISO/DIS 20716), yellow tea and dark tea. The six-type teas could be processed to their reprocessed or further-processed products, such as scented tea, compressed tea, instant tea, tea beverage, and so on.

This document gives an outline of the principles for the classification of different types of tea giving a framework for the specific ISO tea standards. This provides the basic classification of teas to improve consumers, world tea traders and governments clear understanding of the different types of pure tea through their processing techniques.

Tea classification

1 Scope

This International standard specifies the terminology, definition, principle of classification and type of tea only made from the plant *Camellia sinensis* (L.) O. Kuntze.

It is applicable to the production, scientific research, teaching, trade and inspection of tea and the rule-making of other related standards.

It is inapplicable to the infusions from herbs or fruits other than *Camellia sinensis* (L.) O. kuntze referred to as “tea”.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
fresh tea leaves
materials plucked from the tender leaves, buds, and shoots of the varieties of *Camellia sinensis* (L.) O. Kuntze by hand or by using machinery

3.2
tea
products processed by characteristic techniques exclusively using fresh tea leaves and known to be suitable for consumption

3.3
shaping
process to press the soft and pliable fresh tea leaves into the particular shape like flat, strip, hemispherical, round, spiral, etc. by hand or mechanical forces during processing

3.4
withering
process where fresh tea leaves lose moisture through evaporation at a certain temperature and humidity

Note 1 to entry: At the end of this stage, the fresh leaves become flaccid, limp and pliable and suitable for the next process.

3.5
enzyme inactivation
key enzymes of polyphenol oxidase (PPO) and peroxidase (POD) in tea leaves inactivated by heating, including steaming, pan frying

Note 1 to entry: Enzyme inactivation is also traditionally known as "fixing."

3.6
tumbling
process by which fresh tea leaves are agitated by hand or mechanical bruising/shaking (turn over) resulting in partial aeration at the edges of the leaves

Note 1 to entry: This process is specific to oolong tea processing.

3.7
rolling
process of macerating withered or enzyme inactivated tea leaves using hand or rolling machines to mix cell juices and allow polyphenols to mix with enzymes enabling their oxidation, or preliminary shaping

3.8
aeration
process that allows polyphenols in fresh leaves after cell disruption to engage in chemical oxidation and enzyme oxidation reactions when exposed to oxygen in the air

Note 1 to entry: Aeration is also traditionally called “oxidation” or “fermentation”.

3.9
drying
process that reduces the moisture content of tea leaves

3.10
yellowing
process of piling or sweltering the enzyme inactivated fresh leaves in a covered container to allow leaves to turn yellow gradually by gentle heating

Note 1 to entry: This process is specific to yellow tea processing.

3.11
piling fermentation
process of piling and damping the enzyme inactivated fresh leaves or green tea to allow microbial activity and promote the polymerization of polyphenols

Note 1 to entry: The process is also traditionally called “post fermentation” and unique to dark tea processing.

3.12
black tea
tea derived solely and exclusively, and produced by acceptable processes, notably withering, rolling or crushed, leaf maceration, aeration and drying, from the tender shoots of varieties of the species *Camellia sinensis* (L.) O. Kuntze, known to be suitable for making tea for consumption as a beverage

[SOURCE: ISO 3720:2011, 3.1]

3.13
green tea
tea derived solely and exclusively, and produced by acceptable processes, notably enzyme inactivation and commonly rolling, shaping or comminution, followed by drying, from the tender leaves, buds and shoots of varieties of the species *Camellia sinensis* (L.) O. Kuntze, known to be suitable for making tea for consumption as a beverage

[SOURCE: ISO 11287:2011, 3.1]

3.14
white tea
tea derived solely and exclusively, and produced by acceptable processes, by harvesting and a single withering/drying stage from the bud or bud and tender shoots (one to three leaves) of varieties of the species *Camellia sinensis* (L.) O. Kuntze, known to be suitable for making tea for consumption as a beverage

[SOURCE: ISO/TR 12591:2013, 2.1]

3.15
oolong tea
tea derived solely and exclusively, and produced by acceptable processes, notably withering, tumbling, light/medium/high aeration, enzyme inactivation, rolling / shaping and drying, the tender shoots of varieties of the species *Camellia sinensis* (L.) O. Kuntze, known to be suitable for making tea for consumption as a beverage

Note 1 to entry: Oolong is also known as blue tea.

3.16
yellow tea
tea derived solely and exclusively, and produced by acceptable processes, notably enzyme inactivation, rolling/shaping, yellowing and drying, from bud or bud and the tender shoots of varieties of the species *Camellia sinensis* (L.) O. Kuntze, known to be suitable for making tea for consumption as a beverage

3.17
dark tea
tea derived solely and exclusively, and produced by acceptable processes, notably enzyme inactivation, rolling, piling fermentation and drying, from the tender shoots or mature new shoots of varieties of the species *Camellia sinensis* (L.) O. Kuntze, known to be suitable for making tea for consumption as a beverage

4 Principle of tea classification

Classify the basic tea types based on the specific processing techniques to control the extent of oxidation and the formed characteristic quality features. The main processing chart of six-type tea, black tea, green tea, white tea, oolong tea, yellow tea and dark tea, is shown in Figure 1.

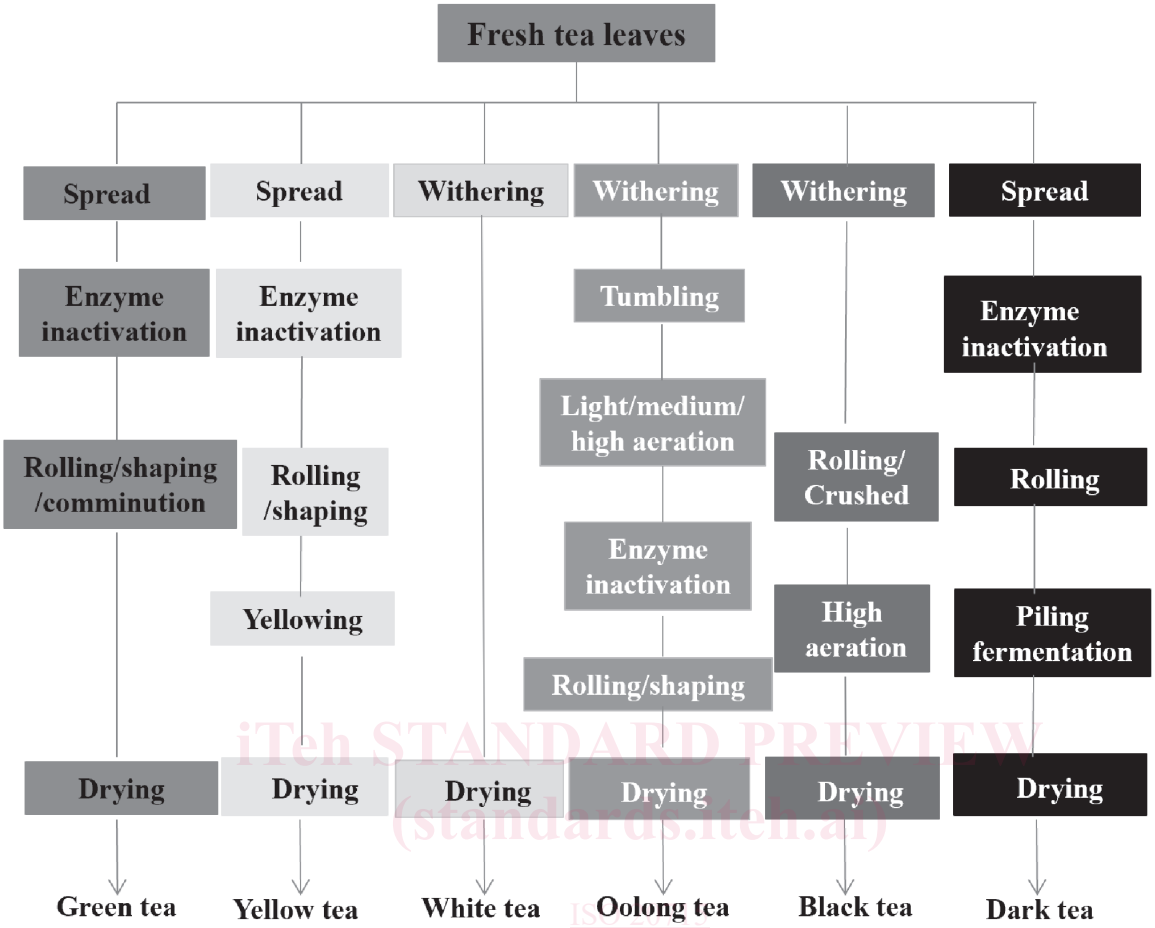

Figure 1 — Processing chart for six-types of tea

5 Tea type

5.1 General

The six tea types can be differentiated as shown in 5.2 to 5.7

5.2 Black tea

5.2.1 Orthodox black tea

Black tea where maceration step involves use of orthodox rolling machines. Primarily, Orthodox black tea has leaf tea with twisted strip/wiry shape of varied lengths; shotty, curly or semi curly Pekoe grades; broken grades with distinct appearance of tips; fannings grades with small slice/flaky shape and dust tea with powdered shape.

5.2.2 Broken black tea

Broken black tea is also called “graded black tea”. There is an international uniform grading system for broken black tea. According to the different shapes, they are classified into four types: whole leaf tea with short strip shape; broken leaf tea with small grain shape; fanning tea with small slice shape; dust