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Tea — Classification of tea types

Thé — Classification des types de 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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

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

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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.

There are many different types of tea. The most common are black tea, green tea, white tea, oolong tea, dark tea and yellow tea.

International Standards for the preparation of tea are based on processing fresh tea leaves and aeration. The basic tea types are black tea (see ISO 3720), green tea (see ISO 11287), white tea (see ISO/TR 12591), oolong tea (see ISO 20716), dark tea and yellow tea. These six tea types can be reprocessed or further-processed to create products such as scented tea, compressed tea and instant tea.

This document outlines principles and a classification of the six tea types. The classification will allow consumers, world tea traders and governments to have a clear understanding of the different types of tea through their processing techniques.

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Tea — Classification of tea types

1 Scope

This document establishes a classification for the types of tea produced from the plant *Camellia sinensis* (L.) O. Kuntze.

It is applicable to the production, scientific research, teaching, trade and inspection of tea.

It does not apply 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 terminology 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 leaf

material 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* (3.1) and known to be suitable for consumption

3.3

shaping

process to press the soft and pliable *fresh tea leaves* (3.1) into a particular shape such as flat, strip, hemispherical, round, spiral, etc. by hand or mechanical forces during processing

3.4

withering

process by which *fresh tea leaves* (3.1) lose moisture through evaporation at a certain temperature and humidity

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

3.5

enzyme inactivation

fixing

process by which the key enzymes polyphenol oxidase (PPO) and peroxidase (POD) in tea leaves are inactivated by heating, including steaming and pan frying

3.6

tumbling

process by which *fresh tea leaves* (3.1) 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 aeration or preliminary shaping

3.8

aeration

oxidation

fermentation

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

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 the leaves to turn yellow gradually by gentle heating

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

3.11

piling fermentation

post-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 unique to dark-tea processing.

3.12

black tea

tea (3.2) derived solely and exclusively, and produced by acceptable processes, notably withering, rolling or 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, modified — “rolling or” added.]

3.13

green tea

tea (3.2) 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, modified — “shaping” added.]

3.14**white tea**

tea (3.2) derived solely and exclusively, and produced by acceptable processes, by harvesting and a single withering/drying stage of 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**

blue tea

tea (3.2) derived solely and exclusively, and produced by acceptable processes, notably withering, tumbling and aeration (partial aeration/oxidization), enzyme inactivation, rolling/shaping and drying, from the moderately matured new 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 20716:2022, 3.1, modified — The definition has been reordered for consistency with the other definitions. Notes 1 and 2 to entry deleted.]

3.16**yellow tea**

tea (3.2) derived solely and exclusively, and produced by acceptable processes, notably enzyme inactivation, rolling/shaping, yellowing and drying, from the 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 (3.2) 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

3.18**matcha tea**

tea (3.2) derived solely and exclusively, and produced by acceptable processes, notably enzyme inactivation using a steaming process followed by drying, without rolling the leaves, and a fine grinding process for the leaf to make tea powder from harvested tender leaves, buds and shoots, which are grown under the shade, of varieties of the species *Camellia sinensis* (L.) O. Kuntze var. *sinensis*, known to be suitable for making tea for consumption as a beverage

4 Principle of tea classification

The basic tea types are classified based on the specific processing techniques used to control the extent of aeration and the characteristic quality features that are formed. The main processing chart for the six types of tea is shown in [Figure 1](#).

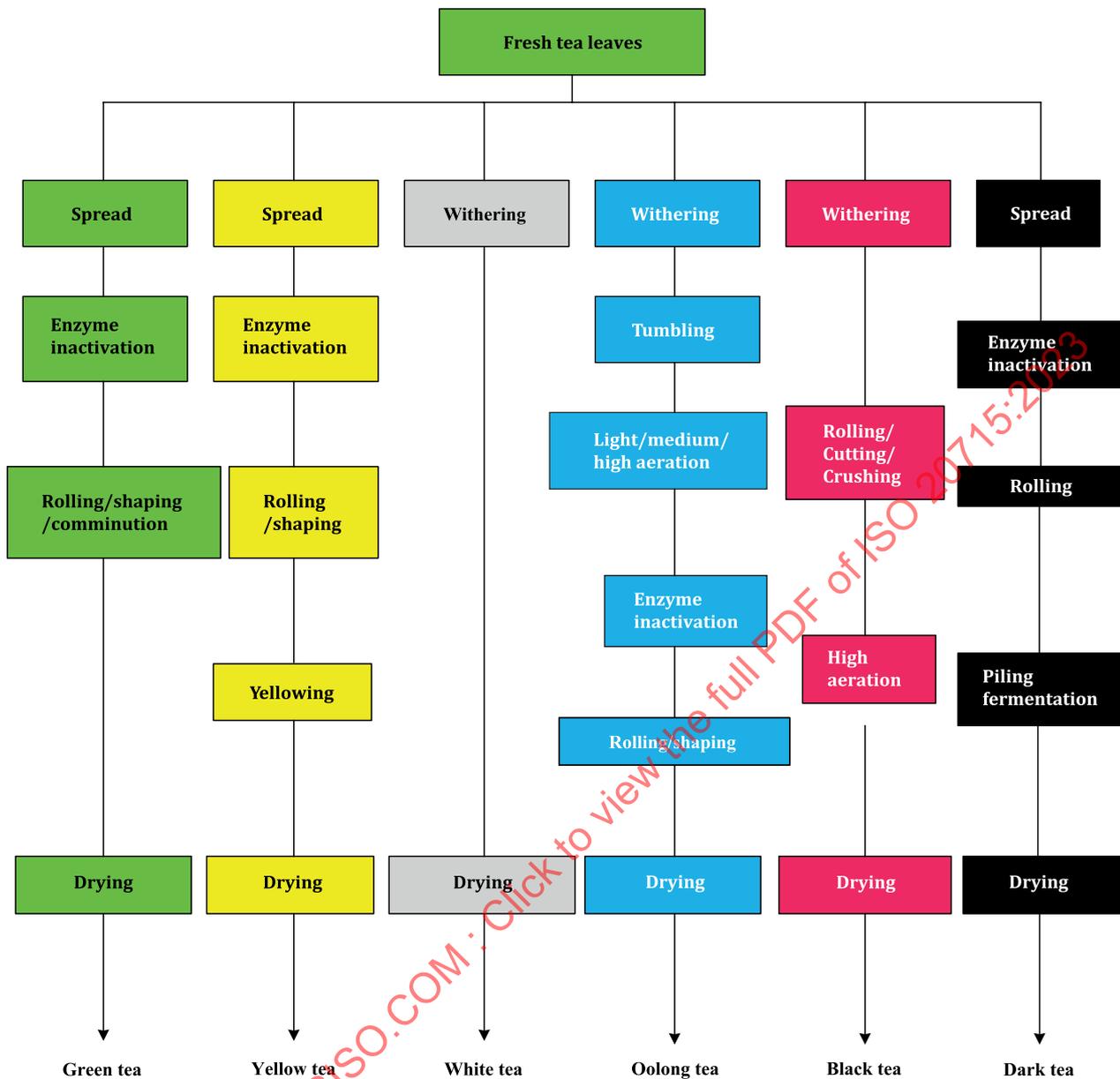


Figure 1 — Processing chart for the six tea types

5 Tea types

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 the maceration step involves the use of orthodox rolling machines. It comprises:

- a leaf with a twisted strip/wiry shape of various lengths;
- shotty, curly or semi curly Pekoe grades;

- broken grades with distinct appearance of bud tips;
- fannings grades with a small slice/flaky shape;
- dust tea with a powdered shape.

5.2.2 Broken black tea

5.2.2.1 General

Also called “graded black tea”. It has an international uniform grading system. According to the different shapes, it is 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 tea with powdered shape.

According to different processing technology, broken black teas are divided into different types (see [5.2.2.2](#) to [5.2.2.4](#)).

5.2.2.2 Rotorvane black tea

Black tea where the maceration step involves the use of Rotorvane machines. It comprises:

- broken grades with a twisted granular shape;
- fannings grades with a small slice shape;
- dust tea with powdered shape;

It may also have a leaf with a short strip shape.

5.2.2.3 CTC black tea

Black tea where the maceration step involves the use of crushing, tearing and curling (CTC) machines. It comprises grades with a granular shape. It may also have fannings grades with a small slice shape and dust tea with a powdered shape.

5.2.2.4 LTP black tea

Black tea where the maceration step involves the use of Laurie tea processor (LTP) machines. It comprises grades with a granular shape. It may also have fannings grades with a small slice shape and dust tea with a powdered shape.

5.2.3 Congou black tea

Black tea with a full leaf strip appearance, which is processed by a rolling machine.

5.2.4 Souchong black tea

Black tea processed from rolling and smoking with a flame of pine needles or branches. It has a strip shape, and a dark and oily appearance.

5.3 Green tea

5.3.1 Pan-fired green tea

Green tea that is dried by a pan or cylinder.

5.3.2 Roasted green tea

Green tea that is dried by roasting.

5.3.3 Sun-dried green tea

Green tea that is dried by sunlight.

5.3.4 Steamed green tea

Green tea that is processed by enzyme inactivation using steaming.

5.3.5 Broken green tea

Green tea that is crushed during processing. Also called “graded green tea”.

5.3.6 Matcha tea

Matcha tea that is steamed and finely grinded. The tea fresh leaves are grown under the shade.

5.4 White tea

5.4.1 Bud white tea

White tea that is processed from fresh apical buds or shoots with apical bud and one unfurled leaf.

5.4.2 Bud-leaf white tea

White tea that is processed from fresh leaves with one bud and one leaf, or one bud with two leaves where the second leaf is not fully opened, or one bud with two to five leaves.

5.5 Oolong tea

Oolong tea is processed with light, medium or high aeration which gives lower aeration than black tea.

5.6 Dark tea

5.6.1 Ripen pu-erh tea

Dark tea that is processed from sun-drying strips green tea, which is processed from fresh one bud and two to four leaves of the tea plant *Camellia sinensis* var. *assamica* (Mast.) Kitamura with enzymes inactivation, rolling and sun-drying by piling fermentation to form Ripen strips tea or steaming and compressing to form Ripen compressed tea.

5.6.2 Other dark teas

Dark teas that are processed from fresh one bud and two to four leaves of the tea plant *Camellia sinensis* (L.) O. Kuntze with enzymes inactivation, rolling, piling fermentation and compression, and that have a strip shape or compressed appearance. Other dark teas include Liubao dark tea, Qingzhuan tea,