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White tea — Definition

Thé blanc — Définition

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Foreword

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The committee responsible for this document is ISO/TC 34, *Food products*, Subcommittee SC 8, *Tea*.

Introduction

Tea is grown and manufactured in numerous countries of the world and is blended and/or drunk in many more. There is some confusion as to the origins, appearance, and processing parameters for white tea and how this might or does differ from green, black, and other types of tea.

The desired characteristics of white tea and the resulting liquor brewed from this depend upon a number of factors including the parts of the plant used for manufacture and how they are processed.

The objectives of this Technical Report are to specify the plant source and parts from which the white tea is manufactured and to set requirements for production methods and certain physical and chemical characteristics which, if met, are an indication that the tea had been subjected to good production practice. It is a matter for the parties concerned whether to apply the recommendations of this Technical Report as the basis of an International Standard for white tea.

The level of catechins in white and green teas is much higher than in black tea and can be a useful discriminant between these types of tea and black tea. Differentiation between green and white tea might need the use of ratios of the various chemical components, among others.

White tea — Definition

1 Scope

This Technical Report contains information regarding the manufacture and chemical analysis of the tea referred to as white tea in international trade.

It provides an internationally agreed definition of white tea based on the plant source and production methods used. It explains how the application of these criteria has an effect on the physical and sensory attributes of white tea.

It does not apply to flavoured white tea, blended white tea, and decaffeinated or soluble extracts of white tea.

2 Terms and definitions

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

2.1
white tea
tea 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

3 Origins of white tea

3.1 Historical origins of white tea

This type of tea has its historical roots in China, more specifically in the Fujian province of South West China and was originally produced from two subvarieties of *Camellia sinensis sinensis*, which were var. *Zhenghe dai bai* and var. *Fuding dai bai.*

White tea should not be defined by its geography and although white tea has been produced for many decades in this region, it is now produced in other regions of China as well as other international tea-producing countries. The harvesting and processing methods used in all regions are generally based upon those originally developed in the Fujian region.

3.2 Descriptive names: black, green, and white teas

Black and green are colour descriptions of bulk property of the dry tea. The colour of the dry leaf matter is a reflection of the level of 'aeration' (formerly known as 'fermentation') that the material receives during primary processing, with green teas having minimal/no aeration and black teas, medium to extensive aeration. This colour is usually also reflected in the liquor, with green teas producing pale yellow-green to amber colour liquors and black teas producing pale amber to deep brown/black liquors. The tastes of these types of tea are also distinctive enough to be easily differentiated by skilled tea tasters.

White tea is named as such not for the bulk colour of the leaves but after the fine white hairs that cover the surface of leaf buds and the underside of the leaf surface. This lends an appearance of 'whiteness' to the leaf material. This is most apparent in grades where the bud alone is harvested, e.g. longevity eyebrow. Other grades such as Pai Mu Dan do not have such obvious leaf hairs but are still considered white tea due to the processing methods used.

3.3 Plant source and parts used

White tea is produced solely and exclusively, from the leaves, buds and tender shoots of varieties of the species *Camellia sinensis* (L.) O. Kuntze, known to be suitable for making tea for consumption as a beverage.

More specifically, there are two main subtypes of white tea which differ significantly in their appearance based upon the raw material harvesting/selection and, as such, are worth noting here. The two main subtypes are

a) **bud-only type** white tea with designations such as 'longevity eyebrow' and 'silver needle' which are only the unopened buds of the tender shoots of the tea bush, and

b) **bud-plus-leaf type** white teas such as Pai Mu Dan (Bai Mu Dan), also known as White Peony, which are the unopened buds harvested together with the first, second, and even third leaf of the tender shoot.

See Annex A for figures which highlight these differences.

3.4 Processing stages

White tea is the least processed of all tea types. Once the raw material has been harvested, the tea is laid out on some form of assembly, allowing the free passing of air, and the material is slowly dried. No enzyme inactivation (steam or pan firing), rolling, or comminution (cutting) is carried out. The tea leaf is simply withered and dried in a single processing stage either in the sun, under cover, or a combination of both. The application of artificially heated air to accelerate the drying is increasingly common.

3.5 Sensory analysis

The discrimination by sensory analysis between green and white tea is organoleptically possible by skilled tea tasters, who base their judgements on their previous experience of white tea. Account is taken of characteristics including the appearance of the tea before the preparation of liquor (such as shape, colour, cleanliness, and evenness), the appearance of the infused leaf, and the appearance, odour, and taste of the liquor. The challenge for people and authorities in the field of tea analysis and purchase is the lack of an agreed vocabulary on green (and white) tea tasting terms. A key discriminator for white tea is that sensory notes which are indicative of enzyme inactivation through steam (wet heat) or pan-firing (dry heat), associated with green teas, should be entirely absent in white teas. This is a general challenge for green and white tea sensory analysis.

The sensory attributes of any tea are a combination of the inherent flavour attributes of the raw materials from the country of origin as well as the type of processing. White teas from non-Fujian origins can, therefore, have significant additional flavours *versus* traditional Chinese white teas. This should also be taken into consideration during organoleptic analysis.

4 Recommendations

4.1 General recommendations

The tea should be free from taint and should have the characteristics, appearance, colour, and taste of white tea when examined by sensory analysis.

The tea should be free from any additives such as colouring agents and flavourings.

NOTE Methods of sensory analysis are described in a series of International Standards.

The tea should be clean and free from extraneous matter when inspected visually.

4.2 Chemical recommendations

The international investigation into total polyphenols (and catechin contents) in black, green, and white tea gave only limited analytical information available on white tea utilizing the agreed ISO methods, with analysis on only 12 samples being submitted; from these data, only five samples were taken forward when outlier laboratories were removed from the data sets. This work has been published in the scientific literature.[1]

Further work is required on white tea to include more samples, additional origins, and, potentially, other chemical components such as caffeine and theanine. Inclusion of these and investigation on comparing ratios of these components can prove useful in further defining white tea based upon chemical composition.

Annex A
(informative)

Appearances of different subtypes of white tea

Figure A.1 — Bud-only grade of white tea

Figure A.2 — Bud-plus-leaf grade of white tea

Bibliography

[1] Obuchowicz J., Engelhardt U.H., Donnelly K. Flavanol database for green and black teas utilising ISO 14502-1 and ISO 14502-2 as analytical tools. *J. Food Compos. Anal.* 2011, **24** pp. 411–417

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