

ICS 65.020.01
CCS B 16

SN

**INDUSTRY STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

SN/T 5213-2020

Agarwood identification method

土沉香鉴定方法

(English Translation)

Issued on: December 30, 2020

Implemented on: July 1, 2021

Issued by: General Administration of Customs

Table of Contents

Foreword	
1 Scope	
2 Normative references	
3 Terms, definitions and abbreviations	
3.1 Terms and definitions	
3.2 Abbreviations	
4 Basic information	
5 Principles of the method	
6 Instruments and reagents	
6.1 Instruments	
6.2 Main reagents	
7 Identification method	
7.1 Morphological methods	
7.2 Molecular biology methods	
8 Result judgment	
9 Sample storage and review	
9.1 Sample storage	
9.2 Results recording and data preservation	
9.3 Review	

Foreword

This document was drafted in accordance with the rules given in GB/T 1.1-2020.

This document was proposed and managed by the General Administration of Customs of the People's Republic of China.

1 Scope

This document specifies the identification method of Agarwood.

This document is applicable to the identification of Agarwood.

2 Normative references

The contents of the following documents constitute the indispensable clauses of this document through normative references in the text. Among them, dated quotations Only the version corresponding to that date is applicable to this document; for undated references, the latest version (including all amendments) is applicable Used in this document.

GB/T 6682 Analytical laboratory water specifications and test methods GB/T 14072
Principles and Methods for Conservation of Forest Tree Germplasm Resources SN/T 1193
Technical requirements for genetic testing laboratories

3.1 Terms and definitions

The following terms and definitions apply to this document.

3.1.1

Inflorescence

The arrangement of flowers on the stalk. The simplest form of the inflorescence is a solitary flower. If there are multiple flowers arranged on the axis of the inflorescence, the inflorescence the type of inflorescence can be divided into infinite inflorescence and limited inflorescence.

3.1.2

Capsule

The fruit developed from the compound pistil of the connate carpel, the ovary has one or more compartments, and each compartment has multiple seeds.

3.2 Abbreviations

The following abbreviations apply to this document.

4 Basic information

The basic information of Agarwood is as follows.

Scientific name. *Aquilaria sinensis* (Loureiro) Sprengel Synonyms. incense wood, white wood incense, tooth incense tree, daughter incense, stack incense, green cinnamon, cliff incense, coriander incense English name. Agarwood Chinese name. ??? Taxonomic status. Angiosperm (Angiospermae), Dicotyledoneae (Dicotyledoneae), Myrtiflorae (Myrtiflorae), Thymelaeaceae, *Aquilaria*.

Geographical distribution. Mainly distributed in Guangdong, Hainan, Guangxi and Fujian. He likes to be born in low-altitude mountains, hills and sparse forests on the roadside sun.

Agarwood is the second-level key protected wild plant in the "List of National Key Protected Wild Plants (First Batch)".

5 Principles of the method

Aquilaria may be imported and exported in the form of seeds, seedlings, plants, wood, etc. This standard takes the form of seeds, leaves and other special characteristics of Agarwood.

Signs and molecular characteristics as the basis for identification. When the morphological characteristics such as seeds and leaves are complete, the morphological characteristics are used as the identification basis, and the seeds or Incomplete morphological characteristics such as leaves and samples that do not possess plant morphological characteristics, such as wood, use molecular characteristics as the main basis for identification.

6.1 Instruments

Stereo microscope, electronic balance, autoclave, pH meter, constant temperature water bath, mortar, pure water meter, vortex oscillator, liquid nitrogen Tank, high-speed refrigerated centrifuge, nucleic acid protein analyzer, fluorescent quantitative PCR amplification instrument, adjustable pipette (1 000 μL , 200 μL , 20 μL , 10 μL , 2.5 μL) and so on.

6.2 Main reagents

CTAB buffer, phenol, chloroform, isoamyl alcohol, isopropanol, ethanol, RNase A, liquid nitrogen, real-time fluorescent PCR master mix, Primers and probes (see Table A.1 in Appendix A), unless otherwise specified, are of analytical or biochemical purity, and water is in accordance with GB/T 6682 Implementation.

7.1.1 Morphological characteristics of the plant of Ruixiangceae

7.1.1.1

Deciduous or evergreen shrubs or small trees, rare herbs; stems usually have bast fibers.

7.1.1.2

Leaves. single leaves alternate or opposite, leathery or papery, sparsely herbaceous, margin entire, base jointed, pinnate veins, with short leaves Stem, without stipules.

7.1.1.3

Flower. The flowers are radiatively symmetrical, bisexual or unisexual, monoecious or different, head-shaped, spike-shaped, raceme, panic or umbel, Sometimes solitary or clustered, terminal or axillary; calyx is usually crowned, white, yellow or light green, sparse

red or purple, often connected Bell-shaped, funnel-shaped, tube-shaped calyx tube, outer hairy or glabrous, lobes 4 to 5, arranged in a tile-like shape in the bud; petals missing, or Scale-like, the same number as the calyx lobes; stamens are usually twice or the same number as the calyx lobes, diminished to 2, mostly opposite to the lobes, or in another round with Lobes alternate, anthers ovate, oblong or linear, 2-chambered, split inward, sparsely laterally split; disks are ring-shaped, cup-shaped or scaly, rare;

Ovary upper, 2~5 carpels connate, sparse 1, 1 compartment, sparse 2 compartments, each room has 1 overhanging ovule, rare 2~3 ovules, close to the apex of the chamber is inverted, the style is long or short, terminal or near terminal, sometimes laterally, and the stigma is usually capitate.

7.1.1.4

Fruits. berries, stone fruits or nuts, dilute to 2-petal cracked capsules, with membranous, leathery, woody or fleshy skin.

7.1.1.5

Seed. The seed is drooping or anaphase; endosperm is abundant or has no endosperm, the embryo is erect, the cotyledon is thick and flat, and slightly raised.

7.1.2 Morphological characteristics of Agarwood plants

7.1.2.1

Trees or small trees.

7.1.2.2

Leaves. The leaves are alternate, with slender closed parallel veins.

7.1.2.3

Flowers. Flowers bisexual, axillary or terminal, usually composed of sessile or pedunculate umbels, without bracts; calyx tube campanulate, persistent, 5 lobes, extended, petals reduced to scales, 10, base united into a ring, inserted in the throat of the calyx, densely tomentose; stamens 2 Double the size of the sepal lobes, interspersed with scaly petals, very short filaments, anthers oblong, backed, and wide; the lower disk does not exist; the ovary is nearly absent Stem, coat, fully or incompletely 2-loculed, stigma capitate, style very short.

7.1.2.4

Fruit. Capsule stalked, flattened on both sides, obovate, and dorsal cracked; the fruit is leathery or woody, and the base is covered by the persistent calyx tube.

7.1.2.5

Seeds. Seeds are oval or elliptical, with tail-like appendages at the base, crisp seed coats, no endosperm, and embryos with thick, flat and concave cotyledons.