

ICS 65.020.99
CCS B 72

LY

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

LY/T 3152-2019

Sapindus mukurossi Saponin
(English Translation)

Issued on: October 23, 2019

Implemented on: April 1, 2020

Issued by: State Forestry and Grassland Administration

Table of Contents

Foreword
1 Scope
2 Normative references
3 Terms and definitions
3.1 Saponin
3.2 Saponin solution
3.2 Saponin powder
4 Product Categories
5 Technical requirements
5.1 Sensory requirements
5.2 Physical and chemical indicators
6 Test method
6.1 Moisture
6.2 Total saponin content
6.3 Critical micelle concentration
6.4 Water insolubles
6.5 PH
6.6 Solid content
7 Inspection rules
7.1 Inspection classification
7.2 Decision rules and review rules
7.3 Sampling
8 Inspection rules labels, signs, packaging, transportation, storage
8.1 Product labels and signs
8.2 Product packaging
8.3 Transport
8.4 Storage

Foreword

This standard is in accordance with GB/T 1.1-2009 "Guidelines for Standardization Work Part 1. Structure and Preparation of Standards" and GB/T.20001.1-2001 Drafting of the

rules given in "Standard Writing Rules Part 1. Terminology".

This standard is proposed and managed by the National Forestry Chemical Product Standardization Technical Committee.

This standard was drafted. Beijing Forestry University, Fujian Sanqing Ecological Agriculture and Forestry Development Co., Ltd., Nanjing Wild Plant Comprehensive Utilization Institute.

1 Scope

This standard specifies the technical requirements, test methods, acceptance rules, and marking, packaging, transportation, and storage of saponin.

This standard applies to saponin from *Sapindus indica* after pulverizing, extracting, filtering, concentrating, and drying.

2 Normative references

The following documents are essential for the application of this document. For dated references, only the dated version applies to this document.

For undated references, the latest version (including all amendments) applies to this document.

GB/T 191 Packaging, storage and transportation icon GB 5009.3 National Food Safety Standard Determination of Moisture in Food GB/T 6368 Determination of pH in aqueous surfactant solutions by potentiometry GB/T 6682 Analytical laboratory water specifications and test methods GB 7718 National Food Safety Standard General Pre-packaged Food Labeling Principles GB/T 11276 Determination of critical micelle concentration of surfactants

3.1 Saponin

Sapindus saponin, *Sapindus mukurossi* Saponin, is a group of pentacyclic triterpenoids and different sugar ligands such as arabinose and rhamnose the resulting mixture has the structural formula shown in the figure.

COOH

(p) Ara1Rham (p) Ara2 a aa Ara-arabinosyl Rham-rhamnosyl

3.2 Saponin solution

The liquid *Sapindus* saponin product obtained by the process of crushing, extracting, filtering, and concentrating the skin of *Sapindus*.

3.2 Saponin powder

Powdered Sapindus saponin product obtained by smashing, extracting, filtering, concentrating, drying and other processes of Sapindus.

4 Product Categories

According to the appearance, saponin is divided into two types. saponin solution and saponin powder.

5.1 Sensory requirements

Saponin solution. viscous brown liquid, spicy, irritating to the nasal mucosa.

Saponin powder. light yellow to brown yellow powder, bitter and spicy, irritating to the nasal mucosa.

5.2 Physical and chemical indicators

The physical and chemical indicators of saponin solution should meet the requirements of Table 1.

Table 1 Physicochemical indicators of saponin solution

Item Saponin Saponin Solution Total saponin content ≥ 160 mg/g Critical micelle concentration/(mg/L) 245-350 Water insoluble matter (dry basis)/(%) ≤ 1.0 pH value (1% aqueous solution) 4.5-7.0 Solid content/(%) ≥ 30 the physical and chemical indexes of saponin powder should meet the requirements of Table 2.

Table 2 Physical and Chemical Indexes of Saponin Saponin Powder

Project Saponin Saponin Powder Moisture/(%) ≤ 8.0 Total saponin content $\geq 38\%$ (dry basis) Critical micelle concentration/(mg/L) 90-150 Water insoluble matter (dry basis)/(%) ≤ 1.0 pH value (1% aqueous solution) 4.5-7.0

6.1 Moisture

According to the method specified in GB 5009.3.

6.2 Total saponin content

Follow the method specified in A.2 of Appendix A.

6.3 Critical micelle concentration

According to the method specified in GB/T 11276.

6.4 Water insolubles

Follow the method specified in A.3 of Appendix A.

6.5 PH

According to the method specified in GB/T 6368.

6.6 Solid content

Weigh about 2 g of the uniform test liquid (accurate to 0.001 g) into a constant weight weighing bottle, and place the weighing bottle containing the test liquid in $(105 \pm 2) ^\circ \text{C}$ oven, dry to constant weight, weigh (accurate to 0.001 g), and calculate.

100 (%)

Solid content

m1--mass of residual solid (g);

m0-mass of test liquid (g).

The second measurement is performed in parallel, and the relative error of the result must not exceed the average value of 2.0%.

7.1.1 Factory inspection

The factory inspection items are appearance, total saponin content and pH value.

7.1.2 Type inspection

Sensory requirements, all items listed in Table 1 or Table 2.

In one of the following cases, type inspection should be carried out.

- a) When the product is normally produced, it should be carried out at least once every six months;
- b) When there are major changes in raw and auxiliary materials and production processes;
- c) When production resumes after a long period of suspension;
- d) When the quality supervision agency requests the type inspection.

7.2 Decision rules and review rules

7.2.1

It shall be inspected by the quality inspection department of the production plant, and each batch of saponin from the plant should meet the standard requirements.