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Technical Standard of International Seabuckthorn Association

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沙棘黄酮质量
(Seabuckthorn Flavonoids)

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前　　言

根据水利部技术标准制订的计划，按照GB/T1.1——2009《标准化工作导则　第一部分：

标准结构和编写》的规定，特制订本标准。

本标准的主要内容包括：范围；规范性引用文件；术语和定义；要求；检验方法；检验

规则；包装、运输、贮存和保质期。

本标准为全文推荐标准。

本标准批准部门：国际沙棘协会

本标准主持机构：水利部沙棘开发管理中心（水利部水土保持植物开发管理中心）

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The Introduction

According to the plan formulated in accordance with the technical standards of the Ministry of Water Resources, in accordance with GB/ T1.1-2009 Standardization Work Guidelines Part I: This standard is hereby formulated in accordance with the provisions of Standard Structure and Preparation.

The main contents of this standard include: Scope, Normative references,Terms and definitions, Requirements, Inspection method, Ispection rules, Packaging, transportation, storage and shelf life.

This standard is recommended for full text.

This standard approved by: International Seabuckthorn Association

Host of this standard: Seabuckthorn Development and Management Center, Ministry of Water Resources (Soil and Water Conservation Plant Development and Management Center, Ministry of Water Resources)

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沙棘黄酮质量标准
Quality standard for flavonoids of Sea buckthorn

1　范围

本标准规定了沙棘黄酮的要求、检验方法、检验规则、包装、运输、贮存和保质期。

本标准适用于以沙棘果肉为原料，经食用酒精提取加工而成的沙棘黄酮。

1. Range

This standard specifies the requirements, inspection methods, inspection rules, packaging, transportation, storage and shelf life of sea-buckthorn flavonoids.

This standard applies to sea-buckthorn flavone extracted from sea-buckthorn pulp and processed by edible alcohol.

2　规范性引用文件

下列文件对于本文件的应用是必不可少的。凡是注日期的引用文件，仅注日期的版本适用于本文件。凡是不注日期的引用文件，其最新版本（包括所有的修改单）适用于本文件。

GB 4789.2　　食品安全国家标准 食品微生物学检验　菌落总数测定

GB 4789.3　　食品安全国家标准 食品微生物学检验　大肠菌群计数

GB 4789.4　　食品安全国家标准 食品微生物学检验　沙门氏菌检验

GB 4789.5　　食品安全国家标准 食品微生物学检验　志贺氏菌检验

GB 4789.10　　食品安全国家标准 食品微生物学检验 金黄色葡萄球菌检验

GB/T 4789.11 食品卫生微生物学检验　溶血性链球菌检验

GB 4789.15　　食品安全国家标准 食品微生物学检验　霉菌和酵母计数

GB/T 5009.11 食品中总砷及无机砷的测定

GB 5009.12　　食品安全国家标准 食品中铅的测定

GB/T 5009.17 食品中总汞的测定

GB 5009.3　　食品安全国家标准　食品中水分的测定

GB 5009.4　　食品安全国家标准　食品中灰分的测定

GB 5749　　生活饮用水卫生标准

GB 10343　　食用酒精

GB 16740　　食品安全国家标准　保健食品

保健食品检验与评价技术规范(中华人民共和国卫生部2003年版)

2. Normative reference files

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

In this document, for undated references, the latest version (including all amendment orders) applies to this document.

GB 4789.2 National standards for food safety, Microbiological examination of food, Total colony measurement

GB 4789.3 National standards for food safety, Microbiological examination of food, Coliform counts

GB 4789.4 National standards for food safety, Microbiological examination of food, Salmonella test

GB 4789.5 National standard for food safety, Microbiological examination of food, Shigella test

GB 4789.10 National standard for food safety, Microbiological examination of food, Examination for Staphylococcus aureus

GB/T 4789.11 Microbiology of food hygiene, Test for hemolytic streptococcus

GB 4789.15 National standard for food safety, Microbiological examination of food, Mold and yeast count

GB 5009.12 National standard for food safety, Determination of lead in food

GB/T 5009.17 - Determination of total mercury in foodstuffs

GB 5009.3 National standards for food safety, Determination of moisture in food

GB 5009.4 National standards for food safety, Determination of ash in food

GB 5749 Sanitary standard for drinking water

GB 10343 Edible alcohol

GB 16740 National standards for food safety;Health food

Technical code for inspection and evaluation of health food (2003 Edition, Ministry of Health, PRC)

3　术语和定义

沙棘黄酮　seabuckthorn flavonoids

以沙棘果肉为原料，用食用酒精提取加工的黄褐色粉末。

3. Terms and Definitions

seabuckthorn flavonoids

The yellow brown powder was extracted from the pulp of sea buckthorn and processed with edible alcohol.

4 要求

4.1 原辅料

沙棘果肉

应干燥、无霉变，无肉眼可见外来杂质，沙棘总黄酮含量在0.2% 以上。

4.2 加工助剂

4.2.1 食用酒精

应符合GB 10343的规定。

4.2.2 生产用水

应符合GB 5749的规定。

4. Requirements

4.1 Raw Materials

Sea buckthorn pulp

Should be dry, no mildew, no foreign impurities visible to the naked eye, the total flavonoids content of Seabuckthorn above 0.2%.

4.2 Processing AIDS

4.2.1 Consumption of alcohol

Shall comply with the provisions of GB 10343.

4.2.2 Production water

Shall comply with the provisions of GB 5749.

4.3 感官指标

感官指标应符合表1的规定。

4.3 Sensory indexes

Should conform to Table 1.

表1 感官指标

Table 1 Sensory indicators

项　目item	指　标index
色泽、形态Color and shape	黄褐色粉末，细粉，Tan powder, fine powder, ≥80目
组织状态Organization status	无肉眼可见外来杂质 No foreign impurities are visible to the naked eye

4.4 标志成分

标志成分应符合表2的规定。

4.4 Marking components

Shall comply with the requirements in Table 2.

表2 标志成分
Table 2 Marking components

项　目item	指　标index
沙棘总黄酮 (以芦丁计)Total flavonoids of sea buckthorn (rutin)，% ≥	15

4.5 理化指标

理化指标应符合表3的规定。

4.5 Physical and chemical indexes

Shall conform to the provisions of Table 3.

表3 理化指标
Table 3 Physical and chemical indexes

项　目item		指　标index
水分Moisture,，%	≤	5.0
灰分Ash content，%	≤	0.8
铅Lead，mg/kg	≤	2.0
砷Arsenic，mg/kg	≤	1.0
汞Mercury，mg/kg	≤	0.3

4.6 微生物指标

微生物指标应符合表 4 的规定。

4.6 Microbiological indexes

Microbiological indicators shall conform to the provisions of Table 4.

表4 微生物指标
Table 4 Microbial indicators

项　目item		指　标index
菌落总数Total colony, CFU/g	≤	3×10^4
大肠菌群 Coliform bacteria, MPN/g	≤	0.92
霉菌和酵母Mold and yeas, CFU/g	≤	50
致病菌(指肠道致病菌和致病性球菌) Pathogenic bacteria (intestinal pathogenic bacteria and pathogenic bacteria)		不得检出 non-detectable

5 检验方法

5.1 感官指标

取约 100g 样品于洁净的白瓷盘中，置于明亮处，用肉眼观察其色泽、外观及杂质。

5.2 标志成分

沙棘总黄酮

按附录A规定的方法检验。

5.3 理化指标

5.3.1 水分

按GB 5009.3规定的方法测定。

5.3.2 灰分

按GB 5009.4规定的方法测定。

5.3.3 铅

按 GB 5009.12 规定的方法测定。

5.3.4 砷

按 GB/T 5009.11 规定的方法测定。

5.3.5 汞

按 GB/T 5009.17 规定的方法测定。

5.4 微生物指标

5.4.1 菌落总数

按GB 4789.2规定的方法检验。

5.4.2 大肠菌群

按GB 4789.3规定的方法检验。

5.4.3 霉菌和酵母菌

按GB 4789.15规定的方法检验。

5.4.4 致病菌

按GB 4789.4、GB 4789.5、GB 4789.10和GB/T 4789.11规定的方法检验。

5. Test method

5.1 Sensory indexes

Take about 100g of the sample on a clean white porcelain plate, place it in a bright place, and observe the color, appearance and impurities with naked eyes.

5.2 Marking components

Total flavonoids of sea buckthorn

Test according to the method specified in Appendix A.

5.3 Physical and chemical indexes

5.3.1 Moisture

Measured according to the method specified in GB 5009.3.

5.3.2 Ash content

Measured according to the method specified in GB 5009.4.

5.3.3 Lead

Measured in accordance with the method specified in GB 5009.12.

5.3.4 Arsenic

According to the method specified in GB/T 5009.11.

5.3.5 Mercury

Measured according to the method specified in GB/T 5009.17.

5.4 Microbiological indexes

5.4.1 Total number of colonies

Test according to the method specified in GB 4789.2.

5.4.2 Coliform

Test according to the method specified in GB 4789.3.

5.4.3 Molds and yeasts

Test according to the method specified in GB 4789.15.

5.4.4 Pathogenic bacteria

Test according to the method specified in GB 4789.4, GB 4789.5, GB 4789.10 and GB/T 4789.11.

6 检验规则

6.1 检验分类

检验分为出厂检验和型式检验两种。

6.2 组批与抽样

同一批投料、同一班次、同一品种、同一生产线、同一规格的产品组成一检验批次。从同一批次产品中，按0.1%随机抽样品用于检验。

6.3 出厂检验

6.3.1 产品出厂前应逐批经厂检验部门检验合格后,并附有合格证方可出厂。

6.3.2 出厂检验项目有感官指标、水分、沙棘总黄酮含量和微生物指标（菌落总数、大肠菌群）。

6.4 型式检验

6.4.1 有下列情形之一者应进行型式检验：

a) 产品定型鉴定时；

b) 正常生产条件下每年进行一次；

c) 原料、工艺、设备有较大变动时；

d) 停产半年以上恢复生产时；

e) 国家质量监督机构提出型式检验要求时。

6.4.2 型式检验是对规定的全部要求进行检验。

6.5 判定规则

型式检验项目全部符合本标准规定时，该批产品判为合格。

出厂检验项目中微生物指标有一项不合格时，即判定该批产品不合格。其他检验项目有 不合格项时，允许自该批中再次随机加倍取样进行复验。复验符合要求即判定该批产品为合格；仍不符合要求的，即判定该批产品为不合格。

6. Inspection rules

6.1 Inspection Classification

The inspection is divided into factory inspection and type inspection.

6.2 Batch and sampling

The same batch of feeding, the same shift, the same variety, the same production line, the same specification of the products constitute an inspection batch. A random sample of 0.1% of the same batch is taken for testing.

6.3 Delivery inspection

6.3.1 Before leaving the factory, the products shall pass the inspection of the factory inspection department one by one and be released with the certificate of qualification.

6.3.2 Ex-factory inspection items include sensory index, moisture, total flavonoids content of sea buckthorn and microbial index (total number of colonies, coliform bacteria

6.4 Type test

6.4.1 Type test shall be carried out under any of the following circumstances:

a) When the product is finalized and evaluated;

b) Once a year under normal production conditions;

c) Major changes in raw materials, processes and equipment;

d) when production is suspended for more than half a year and resumed;

e) When the national quality supervision agency puts forward the type test requirements.

6.4.2 Type test is to test all requirements stipulated.

6.5 Decision rules

When the type inspection items all conform to the provisions of this standard, the batch of products are judged to be qualified.

When there is one unqualified microbial index in the delivery inspection items, the batch of products are judged to be unqualified. If there are nonconforming items in other inspection items, random double sampling from the batch is allowed for reinspection. Reinspection meets the requirements to determine the batch of products case; Still do not meet the requirements, that is, the batch of products judged as unqualified.

7　包装、运输、贮存和保质期

7.1　包装

沙棘黄酮的包装材料应符合食品卫生要求。

7.2　运输

本品在运输中不能与酸、碱及有毒有害物质混运。运输时必须有遮盖物，避免日晒、雨 淋、受热及撞击。搬运装卸应小心轻放。

7.3　贮存

产品应保存在通风、阴凉、干燥的仓库中，避光、避免受潮，不得与有毒有害物质混贮。

7.4　保质期

在保证贮运条件下，产品自生产之日起保质期为24个月。

7.Packaging, transportation, storage and shelf life

7.1 Packaging

The packaging materials of sea-buckthorn flavone should meet the requirements of food hygiene.

7.2 Transportation

This product cannot be mixed with acid, alkali and toxic and harmful substances during transportation. Transport must be covered from sun, rain, heat and impact. Handling and handling should be handled with care.

7.3 Storage

Products should be kept in ventilated, cool, dry warehouse, avoid light, avoid moisture, do not mix with toxic and harmful substances.

7.4 Shelf life

Under the condition of guaranteed storage and transportation, the shelf life of the product is 24 months from the date of production.

附录 A（规范性附录）

中华人民共和国卫生部

《保健食品检验与评价技术规范》（2003 版）

——保健食品中总黄酮的测定

A.1 试剂

A. 1. 1　聚酰胺粉

A. 1.2　芦丁标准溶液：称取 5.0mg 芦丁，加甲醇溶解并定容至 100 mL，即得 50μg/mL。 A. 1.3　乙醇：分析纯。

A. 1.4　甲醇：分析纯。

A.2 分析步骤

A.2. 1　试样处理：

称取一定量的试样(沙棘黄酮粉)，加乙醇定容至 25mL，摇匀后，超声提取 20min，放置，吸取上清液 1.0 mL，于蒸发皿中，加 1g 聚酰胺粉吸附，于水浴上挥去乙醇，然后转入层析柱。先用20 mL 苯洗，苯液弃去，然后用甲醇洗脱黄酮，定容至 25 mL。此液于波长 360nm测定吸收值，同时以芦丁为标准品，测定标准曲线，求回归方程，计算试样中总黄酮含量。

A.2.2　芦丁标准曲线：

吸取芦丁标准溶液：0、1.0、2.0、3.0、4.0、5.0 mL 于 10 mL 比色管中，加甲醇至刻度，摇匀，于波长 360nm 比色。求回归方程，计算试样中总黄酮含量。

A.3 计算和结果表示：

$$X=\frac{A\times V_2\times 100}{V_1\times M\times 1000}$$

式中：

X—试样中总黄酮的含量，mg/100g；

A— 由标准曲线算得被测液中黄酮量， μg ；

M—试样质量，g；

V_1—测定用试样体积，mL；

V_2—试样定容总体积，mL。

计算结果保留二位有效数字。

Appendix A (Normative appendix)

Technical code for inspection and evaluation of health food (2003 edition)
-- Determination of total flavones in health food
Issued by Ministry of Health of the People's Republic of China

A.1 Reagent

A.1.1 Polyamide powder

A.1.2 Rutin standard solution: weigh 5.0mg rutin, dissolve it with methanol and volume it to 100 mL to obtain 50μg/ mL. A.1.3 Ethanol: Analytically pure.

A.1.4 Methanol: analytically pure.

A.2 Analysis procedure

A.2.1 Sample treatment

A certain amount of sample (seabuckine flavone powder) was weighed, ethanol was added to 25ml, shaken well, ultrasonic extraction was carried out for 20min, and then 1.0 ml of supernitant was absorbed. The sample was placed in the evaporating dish, 1g of polyamide powder was added for adsorption, ethanol was removed on the water bath, and then transferred to the chromatographic column. Wash with 20 ml benzene, discard the benzene solution, then eluate the flavonoid with methanol, constant volume to 25 ml. The absorption value of the liquid was measured at 360nm wave length. Meanwhile, rutin was used as the standard substance to determine the standard curve, and the regression equation was obtained to calculate the total flavonoids content in the sample.

A.2.2 Rutin standard curve:

Absorb rutin standard solution: 0, 1.0, 2.0, 3.0, 4.0, 5.0 mL into a 10 ml colorimetric tube and add methanol to scale, shake well, color comparison at wave length 360nm. The regression equation was obtained to calculate the total flavonoids content in the sample.

A.3 Calculation and results:

$$X = \frac{A \times V_2 \times 100}{V_1 \times M \times 1000}$$

Where:

X -- content of total flavonoids in sample, mg/100g;

A -- Calculate the amount of flavonoids in the measured liquid from the standard curve, μg;

M -- sample mass, g;

V1 -- sample volume for determination, ml;

V2 -- constant volume total volume of sample, ml.

Two significant digits are reserved for the calculation result.