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Technical Standard of International Seabuckthorn Association

# 团 体 标 准

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## 沙棘籽油 (Seabuckthorn seed oil)

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# 前 言

## Preface

本标准按照GB/T 1.1—2020《标准化工作导则 第1部分：标准结构和编写》的规则起草。在中华人民共和国水利行业标准SL493-2010《沙棘籽油标准》的基础上，修订为国际沙棘协会的团体标准。

本标准由国际沙棘协会归口。

本标准起草单位：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）、河北神兴沙棘研究院、高原圣果沙棘制品有限公司、北京宝得瑞健康产业有限公司、内蒙古宇航人高技术产业有限责任公司、黑龙江圣宝泰农业有限公司、吕梁野山坡食品有限责任公司、山西科林生物技术开发有限公司。

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This standard is drafted in accordance with the rules of GB/T 1.1 -- 2020 guidelines for Standardization Work part 1: Standard structure and preparation. On the basis of sea buckthorn Seed Oil Standard SL493-2010 of Water conservancy Industry standard of the People's Republic of China, it is revised as the group standard of international Sea buckthorn Association.

The international Sea buckthorn Association is responsible for this standard.

This standard drafting unit: Management Center for Seabuckthorn Development, Ministry of Water Resources (Management Center for Soil and Water Conservation Plant Development, Ministry of Water Resources), Hebei Shengxing Seabuckthorn Institute, Gaoyuanshengguo Seabuckthorn Products Co., Ltd., Heilongjiang Shengbaotai Agricultural Co., Ltd., Beijing Powdery Health Industry Co., Ltd., Inner Mongolia Yuhangren High-tech. Industry Co., Ltd., Luliang Yeshanpo Food Co., Ltd., Shanxi Kelin Bio-tech. Co., Ltd.

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# 沙棘籽油

## 1 范围

本标准规定了沙棘籽油的术语和定义、分类、要求、检验方法及规则、标签标识、包装、运输和贮存。

本标准适用于以沙棘(*Hippophae L.*)籽为原料加工而成的油脂。

## 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 2716 食品安全国家标准 植物油
- GB 2762 食品安全国家标准 食品中污染物限量
- GB 2763 食品安全国家标准 食品中农药最大残留限量
- GB 5009.11 食品安全国家标准 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 5009.22 食品安全国家标准 食品中黄曲霉毒素B1的测定
- GB 5009.27 食品安全国家标准 食品中苯并（a）芘的测定GB
- GB5009.37 食用植物油卫生标准的分析方法
- GB 5009.82 食品安全国家标准 食品中维生素 A、D、E的测定
- GB 5009.168 食品安全国家标准 食品中脂肪酸的测定
- GB 5009.227 食品安全国家标准 食品中过氧化值的测定
- GB 5009.229 食品安全国家标准 食品中酸价的测定
- GB 5009.236 食品安全国家标准 动植物油脂水分及挥发物的测定
- GB 5009.262 食品安全国家标准 食品中溶剂残留量的测定
- GB/T 5524 植物油脂检验 扦样、分样法
- GB/T 5525 植物油脂 透明度、气味、滋味鉴定方法
- GB/T 5527 植物油脂检验 折光指数测定法
- GB/T 5532 动植物油脂碘值的测定
- GB/T 5534 动植物油脂皂化值的测定
- GB/T 6388 运输包装收发货标志

GB 7718 食品安全国家标准 预包装食品标签通则

GB/T 15688 动植物油脂 不溶性杂质含量的测定

GB/T 17374 食用植物油销售包装

GB 28050 食品安全国家标准 预包装食品营养标签通则

国家质量监督检验检疫总局第 75 号令

## Seabuckthorn seed oil

### 1 Scope

This standard specifies terms and definitions, classification, requirements, inspection methods and rules, labelling, packaging, transportation and storage of seabuckthorn seed oil.

This standard applies to oils and fats processed from seabuckthorn (*Hippophae L.*) seeds.

### 2 Normative reference documents

The following documents are essential for the application of this document. For dated references, dated versions only apply to this document. For undated references, the latest version (including all amendments) of this document applies.

GB 2716 National standard for food safety: Vegetable oil

GB 2762 National Standard for Food Safety: Limits of contaminants in food

GB 2763 National Standard for food Safety: Maximum residue limit of pesticide in food

GB 5009.11 National Standard for Food Safety: Determination of total arsenic and inorganic arsenic in food

GB 5009.12 National Standard for Food Safety: Determination of lead in food

GB 5009.22 National Standard for Food Safety -- Determination of aflatoxin B1 in food

GB 5009.27 National Standard for Food Safety -- Determination of benzo (a) pyrene in food

GB 5009.37 Method for analysis of the hygienic standard for edible vegetable oils

GB 5009.82 National Food Safety Standard determination of vitamins A, D and E in food

GB 5009.168 National food safety standard Determination of fatty acids in food

GB 5009.227 National standard for Food Safety: Determination of peroxide value in food

GB 5009.229 National standard for Food Safety: Determination of acid value in food

GB 5009.236 National Standard for Food safety: Determination of moisture and volatiles in animal and vegetable fats

GB 5009.262 National Standard for Food Safety: Determination of residual solvent in food

GB/T 5524 Inspection of vegetable oils by means of sampling and sampling

GB/T 5525 Determination of transparency, smell and taste of vegetable oils GB/T 5527 Determination of refractive index of vegetable oils

GB/T 5532 Determination of iodine value of animal and vegetable fats

GB/T 5534 Determination of saponification value of animal and vegetable fats

GB/T 6388 Transport packaging receipt and delivery mark

GB 7718 National Standard for food safety: General rules for labels of prepackaged food

GB/T 15688 Determination of insoluble impurities in animal and vegetable fats

GB/T 17374 Edible vegetable oil sales package

GB 28050 National Standard for Food safety: General rules for nutrition labeling of prepackaged food

Order No. 75 of General Administration of Quality Supervision, Inspection and Quarantine

### 3 术语和定义

#### 3.1 沙棘籽油 Seabuckthorn seed oil

以胡颓子科沙棘属 (*Hippophae L.*) 的沙棘籽为原料加工制取的油脂。

Oil produced from seabuckthorn seeds (*Hippophae L.*) of Elaeagidae.

### 3.2 压榨沙棘籽油 Pressing seabuckthorn seed oil 以沙

棘籽为原料，用压榨法加工制取的油脂。Using seabuckthorn seed as raw material, the oil was processed by pressing method.

### 3.3 浸出沙棘籽油 solvent extraction seabuckthorn seed oil 以沙棘籽

为原料，用溶剂浸出制取的油脂。

Using seabuckthorn seeds as raw materials, extract oil with solvent.

### 3.4 超临界或亚临界萃取的沙棘籽油 supercritical or subcritical extraction seabuckthorn seed oil

以沙棘籽为原料，用超临界或亚临界萃取的油脂。

Oil extracted from seabuckthorn seed by supercritical or subcritical extraction.

## 4 分类

### 4 Classification

沙棘籽油分为压榨沙棘籽油、浸出沙棘籽油和超临界或亚临界萃取的沙棘籽油。

Seabuckthorn seed oil can be divided into pressing, leaching and supercritical or subcritical extraction.

## 5 要求

### 5 Requirements

#### 5.1 原料要求

#### 5.1 Raw material requirements

沙棘籽应完好无损，无霉变、无杂质。

Seabuckthorn seeds should be intact, free from mildew and impurities.

#### 5.2 特征指标

#### 5.2 Feature specifications

沙棘籽油基本组成和主要物理参数如表 1

The basic composition and main physical parameters of seabuckthorn seed oil are shown in Table 1

表 1 基本组成和主要物理参数

Table 1 Basic composition and main physical parameters

特 征 Parameters	指 标 Refers to the standard
折光指数 $n_{20}^{20}$ Refractive index	1.4700~1.4800
碘值(I)(g/100g) Iodine value (I) (g / 100 g)	140~180
维生素E (mg/100g), $\geq$ Vitamin E (mg/100g), $\geq$	120
皂化值 (KOH) (mg/100g)	180~210

Saponification value (KOH) (mg/100g)	
主要脂肪酸组成/(%)Main fatty acid composition /(%)	
棕榈酸(C16:0) Palmitic acid (C16:0)	6.0~11.0
棕榈油酸(C16:1) Palmitoleic acid (C16:1)	0.3~2.0
硬脂酸(C18:0) Stearic acid (C18:0)	0.1~3.0
油酸(C18:1n9) Oleic acid (C18:1 the n9)	15.0~25.0
亚油酸(C18:2n6) Linoleic acid (n6 C18:2)	30.0~40.0
亚麻酸(C18:3n3) Linolenic acid (C18:3N3)	23.0~31.0

### 5.3 质量指标

#### 5.3.1 感官指标

感官指标应符合表 2 的规定。

#### 5.3 Quality indicators

##### 5.3.1 Sensory indicators

Sensory indicators should conform to table 2.

表 2 感官指标

Table 2 Sensory indicators

指标名称 Indicators	指 标 Indicator		
	压榨沙棘籽油 Press seabuckthorn seed oil	浸出和亚临界萃取沙棘籽油 Extraction and subcritical extraction of seabuckthorn seed oil	超临界萃取沙棘籽油 Supercritical extraction of seabuckthorn seed oil
透明度 Diaphanous	澄清液体 clarifying liquid		
气味及滋味 Smell and taste	具有沙棘籽油固有的气味、滋味，无异味 It has the inherent smell and taste of seabuckthorn seed oil without peculiar smell		
色泽 Color	黄色至棕褐色 yellow to tan	棕色至棕褐色 Brown to tan	橙黄色至橙红色 Orange yellow to orange red

#### 5.3.2 理化指标

理化指标应符合表 3 的规定。

#### 5.3.2 Physical and chemical indicators

Physical and chemical indexes should conform to the provisions of Table 3.

**表 3 理化指标**

Table 3 Physical and chemical indexes

指标名称 The index name	指 标 Refers to the standard		
酸值(KOH)/(mg/g) ≤ Acid value (KOH)/(mg/g) or less	一级 G1	二级 G2	三级 G3
	3	8	15
过氧化值/(g/100g) ≤ Peroxide value /(g/100g) ≤	0.25		
水分及挥发物/(%) ≤ Moisture and volatiles /(%) ≤	0.20		
不溶性杂质/(%) ≤ Insoluble impurity /(%) ≤	0.15		

**5.4 污染物**

污染物应符合表 4 的规定。

5.4 The pollutant

Contaminants should comply with table 4.

**表 4 污染物指标**

Table 4 Pollutant indicators

指标名称 The index name	指 标 Refers to the standard		
	压榨沙棘籽油 Press seabuckthorn seed oil	浸出和亚临界萃取沙棘籽油 Extraction and subcritical extraction of seabuckthorn seed oil	超临界萃取沙棘籽油 Supercritical extraction of seabuckthorn seed oil
溶剂残留量/(mg/kg) Residual solvent /(mg/kg)	不得检出 May not be detected	≤ 20	不得检出 May not be detected
总砷（以As计）/(mg/kg) ≤ Total arsenic (As) /(mg/kg) ≤	0.1		
铅（以Pb计）/(mg/kg) ≤ Lead (in Pb) /(mg/kg) ≤	0.1		
黄曲霉毒素B <sub>1</sub> /(μg/kg) ≤ Aflatoxin B <sub>1</sub> /(μg/kg) ≤	10.0		
苯并(a)芘/(μg/kg) ≤ Benzo (a) pyrene /(μg/kg) ≤	10.0		
农药残留	按 GB 2763 的规定执行 According to GB 2763		

## 5.5 净含量

### 5.5 Net content

净含量应符合国家质量监督检验检疫总局第 75 号令的规定。

The net content should be in accordance with the state Administration of Quality Supervision, Inspection and Quarantine Order No. 75.

## 6 食品添加剂

### 6 Food additives

不得添加任何食品添加剂。

Do not add any food additives.

## 7 检验方法

### 7 Inspection methods

#### 7.1 折光指数

##### 7.1 Refractive index

按 GB/T 5527 规定的方法测定。

According to the method specified in GB/T 5527.

#### 7.2 碘值

##### 7.2 Iodine value

按 GB/T 5532 规定的方法测定。

According to the method specified in GB/T 5532.

#### 7.3 维生素E

##### 7.3 Vitamin E

按 GB 5009.82 规定的方法测定。

According to the method specified in GB 5009.82.

#### 7.4 脂肪酸组成

##### 7.4 Composition of fatty acids

按 GB 5009.168 规定的方法测定。

According to the method specified in GB 5009.168.

#### 7.5 外观

##### 7.5 Appearance

按 GB/T 5525 规定的方法鉴定。

According to the method specified in GB/T 5525.

#### 7.6 气味及滋味

##### 7.6 Smell and taste

按 GB/T 5525 规定的方法鉴定。

According to the method specified in GB/T 5525.

#### 7.7 色泽

##### 7.7 The color

按 GB 5009.37 规定的方法鉴定。

According to the method specified in GB 5009.37.

#### 7.8 水分及挥发物

## 7.8 Moisture and volatiles

按 GB 5009.236 规定的方法测定。  
According to the method specified in GB 5009.236.

### 7.9 不溶性杂质

#### 7.9 Insoluble impurities

按 GB/T15688 规定的方法测定。  
According to the method specified in GB/T15688.

### 7.10 酸值

#### 7.10 Acid value

按 GB 5009.229 规定的方法测定。  
According to the method specified in GB 5009.229.

### 7.11 过氧化值

#### 7.11 Peroxide value

按 GB 5009.227 规定的方法测定。  
According to GB 5009.227 method of determination.

### 7.12 皂化值

#### 7.12 Saponification value

按 GB/T 5534 规定的方法测定。  
According to the method specified in GB/T 5534.

### 7.13 总砷

#### 7.13 The total arsenic

按 GB 5009.11 规定的方法测定。  
According to the method specified in GB 5009.11.

### 7.14 铅

#### 7.14 Lead

按 GB 5009.12 规定的方法测定。  
According to the method specified in GB 5009.12.

### 7.15 黄曲霉毒素 B<sub>1</sub>

#### 7.15 Aflatoxin B<sub>1</sub>

按 GB 5009.22 规定的方法测定。  
According to the method specified in GB 5009.22.

### 7.16 溶剂残留量

#### 7.16 Residual solvent

按 GB 5009.262 规定的方法测定。  
According to the method of GB 5009.262.

### 7.17 苯并(a)芘

#### 7.17 Benzo (a) pyrene

按 GB 5009.27 规定的方法测定。  
According to the method specified in GB 5009.27.

## 8 检验规则

### 8 Inspection rules

## 8.1 检验分类

### 8.1 Classification of inspection

检验分为出厂检验和型式检验两种。

The inspection is divided into factory inspection and type inspection.

## 8.2 组批与抽样

### 8.2 Batch and sampling

每批原料所生产的产品为一检验批，抽样方法按照 GB/T 5524 规定的要求执行。

The products produced from each batch of raw materials shall be one inspection lot, and the sampling method shall be in accordance with the requirements specified in GB/T 5524.

## 8.3 出厂检验

### 8.3 Delivery inspection

8.3.1 产品出厂前应逐批检验，检验合格后，方可出厂。

8.3.1 The products shall be inspected batch by batch before leaving the factory. Only after passing the inspection can they leave the factory.

8.3.2 出厂检验项目：压榨沙棘籽油和超临界 CO<sub>2</sub>或亚临界萃取的沙棘籽油应检验表 1、表 2、表 3 全项；溶剂浸出的沙棘籽油应检验表 1、表 2、表 3 全项和表 4 溶剂残留量。

8.3.2 Delivery inspection items: Pressed seabuckthorn seed oil and supercritical CO<sub>2</sub> or subcritical extraction of seabuckthorn seed oil shall be inspected in All items in Table 1, Table 2 and Table 3; Solvent extracted seabuckthorn seed oil should be tested for all items in Table 1, Table 2, Table 3 and solvent residues in Table 4.

## 8.4 型式检验

型式检验项目应包括本标准 5.1、5.2、5.3、5.4 规定的全部指标进行检验，正常生产时，每年进行一次检验。有下列情形之一，应进行型式检验：

- a) 产品定型鉴定时；
- b) 原料、工艺、设备有较大变动时；
- c) 停产半年以上恢复生产时；
- d) 国家质量监督机构提出型式检验要求时。

### 8.4 Type test

Type inspection items shall include all indicators specified in 5.1, 5.2, 5.3 and 5.4 of this standard for inspection, and shall be inspected once a year in normal production. Type inspection shall be carried out under any of the following circumstances:

- A) In the process of product identification;
- B) Major changes in raw materials, processes and equipment;
- C) resumption of production after suspension for more than half a year;
- D) When the type inspection requirements are put forward by the national quality supervision agency.

## 8.5 判定规则

### 8.5 Decision rules

型式检验项目全部符合本标准规定时，该批产品判为合格。

出厂检验项目有一项不合格时，即判定该批产品为不合格。

When all the type inspection items meet the requirements of this standard, the batch of products shall be judged as qualified.

When there is one unqualified item in the ex-factory inspection, the batch of products shall be judged as unqualified.

## **9 标签标识**

### 9 Label identification

标签标识应符合 GB 7718、GB 28050 的规定外，应注明加工方法。

The label shall be in accordance with the provisions of GB 7718 and GB 28050, and the processing method shall be indicated.

## **10 包装、运输、贮存**

### 10 Packing, transportation and storage

#### **10.1 包装**

##### 10.1 The packing

包装材料应符合 GB/T 191、GB/T 17374 及国家食品卫生的有关规定和要求，应采用避光材质密封包装，并附有产品合格证。

The packaging materials shall comply with GB/T 191, GB/T 17374 and the relevant provisions and requirements of national food hygiene, and shall be sealed with light-proof materials, and the product qualification certificate shall be attached.

#### **10.2 运输**

##### 10.2 Transportation

产品在运输过程中不能与危险品混运。运输时必须有遮盖物，避免日晒、雨淋、污染和标签脱落，防止受热及撞击。

The product cannot be mixed with dangerous goods during transportation. During transportation, cover must be provided to avoid sun, rain, contamination and label shedding, and prevent from heat and impact.

#### **10.3 贮存**

##### 10.3 The storage

产品应保存在阴凉、干燥、通风良好的避光处或低温条件下，避免受潮。不得与有毒、有害、有异味、易挥发、易腐蚀等物品同库储存。

The product should be stored in a cool, dry, well-ventilated place away from light or under low temperature to avoid dampness. Do not store with toxic, harmful, odorous, volatile, corrosive and other articles.