

ICS 67.200.10

CCS X 14



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

GB/T 45319-2025

Eucommia ulmoides Oliv. seed oil

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Issued on: February 28, 2025

Implemented on: September 1, 2025

**Issued by: State Administration for Market Regulation;
Standardization Administration of the PRC**

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1 Scope

This document defines the terms relating to *Eucommia ulmoides* Oliv. seed oil, gives the classification of *Eucommia ulmoides* Oliv. seed oil, specifies the quality requirements, the inspection rules and the requirements for labelling, packaging, storage, transport and sale, and describes the corresponding inspection methods.

This document applies to the production, sale and inspection of *Eucommia ulmoides* Oliv. seed oil.

2 Normative references

The contents of the following documents constitute indispensable provisions of this document through the normative references made to them in the text. For dated references, only the edition corresponding to that date applies to this document; for undated references, the latest edition (including all amendments) applies to this document.

GB/T 191 Packaging - Pictorial marking for handling of goods.

GB/T 5009.37 Method for analysis of hygienic standard of edible oils.

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

GB 5009.236 National food safety standard - Determination of moisture and volatile matter content of animal and vegetable fats and oils.

GB/T 5490 Inspection of grain and oils - General rules.

GB/T 5524 Animal and vegetable fats and oils - Sampling.

GB/T 5525 Vegetable fats and oils - Determination of transparency, odour and taste.

GB/T 5526 Animal and vegetable fats and oils - Determination of relative density.

GB/T 5532 Animal and vegetable fats and oils - Determination of iodine value.

GB/T 5534 Animal and vegetable fats and oils - Determination of saponification value.

GB/T 15688 Animal and vegetable fats and oils - Determination of insoluble impurities content.

GB/T 30354 Specification for bulk transport of edible vegetable oil.

3 Terms and definitions

The following terms and definitions apply to this document.

3.1 *Eucommia ulmoides* Oliv. seed oil: The oil produced from the winged fruit of *Eucommia ulmoides* as raw material.

3.2 crude *Eucommia ulmoides* Oliv. seed oil: The oil produced from the winged fruit of *Eucommia ulmoides* as raw material that cannot be eaten directly.

3.3 finished *Eucommia ulmoides* Oliv. seed oil: The oil produced from the winged fruit of *Eucommia ulmoides* as raw material and refined so that it is fit to eat.

4 Classification

According to the degree of processing, *Eucommia ulmoides* Oliv. seed oil is divided into two classes: crude *Eucommia ulmoides* Oliv. seed oil and finished *Eucommia ulmoides* Oliv. seed oil.

5 Quality requirements

5.1 Basic composition and main physical parameters. The basic composition and the main physical parameters of *Eucommia ulmoides* Oliv. seed oil shall conform to Table 1. The relative density ($d_{20/20}$) is from 0.918 to 0.938. The iodine value, expressed as iodine, is from 164 to 202 g per 100 g. The saponification value, expressed as potassium hydroxide, is from 182 to 195 mg/g. The main fatty acid composition, as a percentage, is: palmitic acid (C16:0) from 6.0 to 7.1; stearic acid (C18:0) from 2.0 to 2.4; oleic acid (C18:1) from 13.0 to 18.0; linoleic acid (C18:2) from 10.0 to 14.7; alpha-linolenic acid (C18:3) from 45.0 to 66.0.

5.2.1 Crude *Eucommia ulmoides* Oliv. seed oil. The quality indicators of crude *Eucommia ulmoides* Oliv. seed oil shall conform to Table 2. The odour and taste shall be those inherent in crude *Eucommia ulmoides* Oliv. seed oil, with no off-odour. The moisture and volatile matter shall be not more than 0.50 %. The insoluble impurities shall be not more than 0.50 %. Note: the quality indicators for crude *Eucommia ulmoides* Oliv. seed oil apply only to

trade in crude *Eucommia ulmoides* Oliv. seed oil.

5.2.2 Finished *Eucommia ulmoides* Oliv. seed oil. The quality indicators of finished *Eucommia ulmoides* Oliv. seed oil shall conform to Table 3, which sets them for two grades. For grade 1 the colour is pale yellow to yellow, and for grade 2 yellow to yellow-brown. For both grades the odour and taste shall be those inherent in *Eucommia ulmoides* Oliv. seed oil, with no off-odour. The transparency at 20 degrees Celsius shall be clear for grade 1, while slight turbidity is allowed for grade 2. The moisture and volatile matter shall be not more than 0.10 % for grade 1 and not more than 0.20 % for grade 2. The insoluble impurities shall be not more than 0.05 % for grade 1 and not more than 0.10 % for grade 2.

6 Inspection methods

6.1 Relative density: determined in accordance with GB/T 5526.

6.2 Iodine value: determined in accordance with GB/T 5532.

6.3 Saponification value: determined in accordance with GB/T 5534.

6.4 Fatty acid composition: determined in accordance with GB 5009.168.

6.5 Colour: determined in accordance with GB/T 5009.37.

6.6 Transparency, odour and taste: determined in accordance with GB/T 5525.

6.7 Moisture and volatile matter: determined in accordance with GB 5009.236.

6.8 Insoluble impurities: determined in accordance with GB/T 15688.

7 Inspection rules

7.1 General rules of inspection: in accordance with GB/T 5490.

7.2 Sampling: in accordance with GB/T 5524.

7.3 Factory inspection. 7.3.1 Every batch shall be inspected and an inspection report issued as required. 7.3.2 Crude *Eucommia ulmoides* Oliv. seed oil shall be inspected for the items given in Table 2 and finished *Eucommia ulmoides* Oliv. seed oil for the items given in Table 3.

7.4 Type inspection. 7.4.1 Type inspection shall be carried out whenever there is a major change in the raw material, the equipment or the process, or when the supervisory authority requires it. 7.4.2 In normal production the product shall undergo type inspection once every six months. 7.4.3 Type inspection covers all the items specified in Clause 5. Where one or more of the results do not conform to Tables 1 to 3 of Clause 5, the oil extracted from the *Eucommia* seed raw material used for that batch shall be inspected and the finding supported by evidence.

7.5 Rules for judgement. 7.5.1 Where a finished *Eucommia ulmoides* Oliv. seed oil product does not state a quality grade, it is judged as grade 2. 7.5.2 A crude *Eucommia ulmoides* Oliv. seed oil product that fails one item of Table 2 on inspection is judged non-conforming. A finished *Eucommia ulmoides* Oliv. seed oil product that fails one item of Table 3 on inspection is judged non-conforming for that grade.

8 Labelling

8.1 The product name shall be marked as *Eucommia ulmoides* Oliv. seed oil, and every item shall conform to this document.

8.2 The processing technique of the *Eucommia ulmoides* Oliv. seed oil and the grade of the finished oil shall be marked on the package or on the accompanying documents.

9 Packaging, storage, transport and sale

9.1 Packaging. The pictorial marking for handling of goods shall conform to GB/T 191.

9.2 Storage. 9.2.1 The product shall be stored in a clean, cool, dry place away from light. It shall not be stored together with harmful or toxic materials and shall be kept away from anything with an unusual odour. 9.2.2 Where the shelf life of the product depends on particular conditions, this shall be stated on the label.

9.3 Transport. 9.3.1 Prepacked product shall be protected during transport from sunlight, rain, leakage, contamination and loss of the label. 9.3.2 Bulk transport shall meet the requirements of GB/T 30354; a dedicated vehicle shall be used and the vehicle kept clean.

9.4 Sale. Finished *Eucommia ulmoides* Oliv. seed oil shall not be sold loose, out of its original package, at the retail point.