



Edition: BP 2025 (Ph. Eur. 11.6 update)

Refined Sesame Oil



[General Notices](#)

Sesame Oil

(Ph. Eur. monograph 0433)

Ph Eur

DEFINITION

Fatty oil obtained from the ripe seeds of *Sesamum indicum* L. by expression or extraction. It is then refined. Improved colour and odour may be obtained by further refining. It may contain a suitable antioxidant.

CHARACTERS

Appearance

Clear, light yellow liquid, almost colourless.

Solubility

Practically insoluble in ethanol (96 per cent), miscible with light petroleum.

[Relative density](#)

About 0.919.

[Refractive index](#)

About 1.473.

It solidifies to a butter-like mass at about -4 °C.

IDENTIFICATION

First identification: A.

Second identification: B.

- A. Composition of triglycerides (see Tests).
- B. Identification of fatty oils by thin-layer chromatography ([2.3.2](#)).

Results The chromatogram obtained is similar to the corresponding chromatogram shown in Figure 2.3.2-1.

TESTS

[Acid value \(2.5.1\)](#)

Maximum 0.5, determined on 10.0 g; maximum 0.3 if intended for use in the manufacture of parenteral preparations.

[Peroxide value \(2.5.5\)](#)

Maximum 10.0; maximum 5.0 if intended for use in the manufacture of parenteral preparations.

[Unsaponifiable matter \(2.5.7\)](#)

Maximum 2.0 per cent, determined on 5.0 g.

[Alkaline impurities \(2.4.19\)](#)

It complies with the test for alkaline impurities in fatty oils.

Cottonseed oil

Mix 5 mL in a test-tube with 5 mL of a mixture of equal volumes of [pentanol R](#) and a 10 g/L solution of [sulfur R](#) in [carbon disulfide R](#). Warm the mixture carefully until the carbon disulfide is expelled, and immerse the tube to 1/3 of its depth in boiling [saturated sodium chloride solution R](#). No reddish colour develops within 15 min.

Composition of triglycerides

Liquid chromatography ([2.2.29](#)).

Test solution Dilute 50.0 mg of the substance to be examined to 10.0 mL with a mixture of equal volumes of [acetone R](#) and [methylene chloride R](#).

Reference solutions Dissolve 80.0 mg of [triolein R](#) in a mixture of equal volumes of [acetone R](#) and [methylene chloride R](#) and dilute to 50.0 mL with the same mixture of solvents. Prepare 5 reference solutions by dilution of this solution so as to cover concentrations ranging from the disregard limit (0.5 per cent) to the upper limit for OLL (30.0 per cent).

Plot the logarithm of the area of the peak due to triolein against the logarithm of the concentration of triolein in the reference solution.

Column 2 columns coupled in series:

- *size of each column*: $l = 0.25$ m, $\varnothing = 4$ mm;
- *stationary phase*: [octadecylsilyl silica gel for chromatography R](#) (4 μ m).

Mobile phase:

- *mobile phase A*: [acetone R](#), [methylene chloride R](#), [acetonitrile R](#) (5:15:80 V/V/V);
- *mobile phase B*: [acetone R](#), [acetonitrile R](#), [methylene chloride R](#) (20:20:60 V/V/V);

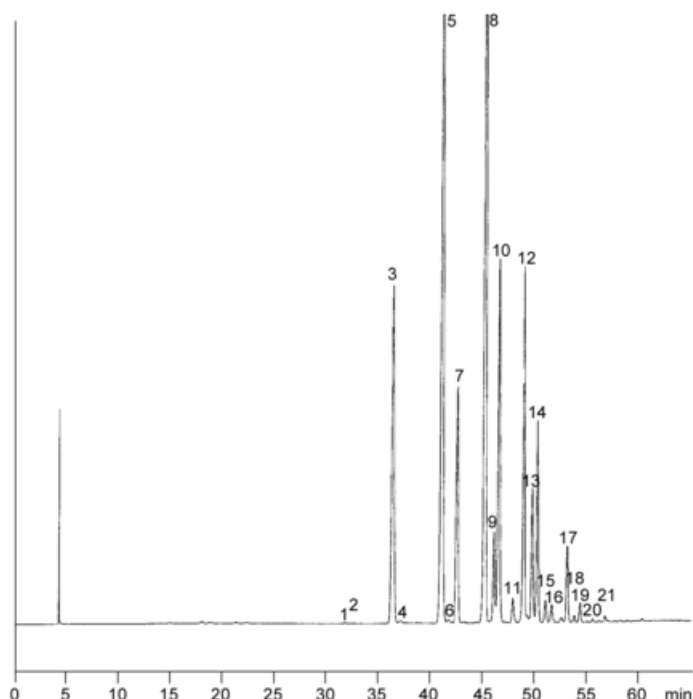
Time (min)	Mobile phase A (per cent V/V)	Mobile phase B (per cent V/V)
0 - 15	100 $\rightarrow$ 75	0 $\rightarrow$ 25
15 - 25	75	25
25 - 70	75 $\rightarrow$ 0	25 $\rightarrow$ 100
70 - 75	0 $\rightarrow$ 100	100 $\rightarrow$ 0
75 - 80	100	0

Detection Evaporative light-scattering detector; the following settings have been found to be suitable; if the detector has different setting parameters, adjust the detector settings so as to comply with the system suitability criterion:

- carrier gas: [nitrogen R](#);
- flow rate: 0.7 L/min;
- evaporator temperature: 85 °C;
- nebuliser temperature: 45 °C.

Injection 20 µL.

Identification of peaks Use the chromatograms obtained with the reference solutions to identify the peak due to triolein; identify the other peaks using the chromatogram shown in Figure 0433.-1. The fatty acids are designated as linolenic (Ln), linoleic (L), oleic (O), palmitic (P) and stearic (S).



1. LLLn	4. OLLn	7. PLL	10. POL	13. SOL	16. PPO	19. SSL
2. OLnLn	5. OLL	8. OOL	11. PPL	14. POO	17. SOO	20. PPS
3. LLL	6. OOLn	9. SLL	12. OOO	15. PSL	18. PSO	21. SSO

Figure 0433.-1. – Chromatogram for the composition of triglycerides in refined sesame oil

System suitability Test solution:

- [resolution](#): minimum 1.5 between the peaks due to OOO (triolein) and SOL.

Using the calibration curve obtained with the reference solutions, determine the percentage content of each peak with an area greater than that of the peak corresponding to the disregard limit (0.5 per cent). Assuming that the sum of these percentage contents is 100 per cent, normalise the percentage content of each of the 8 triglycerides specified below.

Composition of triglycerides:

- LLL: 7.0 per cent to 19.0 per cent;
- OLL: 13.0 per cent to 30.0 per cent;
- PLL: 5.0 per cent to 9.0 per cent;
- OOL: 12.0 per cent to 23.0 per cent;

- *POL*: 6.0 per cent to 14.0 per cent;
- *OOO*: 5.0 per cent to 16.0 per cent;
- *SOL*: 2.0 per cent to 8.0 per cent;
- *POO*: 2.0 per cent to 10.0 per cent.

Water (2.5.32)

Maximum 0.1 per cent, determined on 1.00 g.

STORAGE

In an airtight, well-filled container, protected from light; if intended for use in the manufacture of parenteral preparations store under an inert gas in an airtight container.

When the container has been opened, its contents are to be used as soon as possible. Any part of the contents not used at once is protected by an atmosphere of an inert gas.

LABELLING

The label states:

- whether the oil is obtained by expression or extraction;
- where applicable, that the substance is suitable for use in the manufacture of parenteral preparations;
- where applicable, the name of the inert gas used.

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