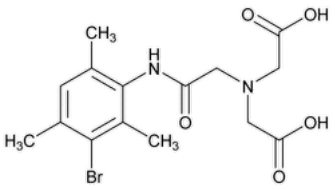
Status: Currently Official on 15-Feb-2025
Official Date: Official as of 01-May-2020
Document Type: USP Monographs
DocId: GUID-7B848EB9-EF39-4C73-B9AF-7164EFE48ABC_4_en-US
DOI: https://doi.org/10.31003/USPNF_M47580_04_01
DOI Ref: tcc08

Mebrofenin



$C_{15}H_{19}BrN_2O_5$ 387.23

Glycine, *N*-[2-[(3-bromo-2,4,6,-trimethylphenyl)amino]-2- oxoethyl]-*N*-(carboxymethyl)-;

[[[(3-Bromomesityl)carbamoyl]methyl]imino]diacetic acid CAS RN®: 78266-06-5; UNII: 7PV0B6ED98.

DEFINITION

Mebrofenin contains NLT 97.0% and NMT 101.0% of mebrofenin ($C_{15}H_{19}BrN_2O_5$), calculated on the dried basis.

IDENTIFICATION

Change to read:

• **A.** ▲Spectroscopic Identification Tests ⟨197⟩, *Infrared Spectroscopy*: **197K**▲ (CN 1-May-2020)

ASSAY

• **Procedure**

Sample solution: Dissolve 100 mg of Mebrofenin in 40 mL of dimethylformamide in a conical flask with the aid of sonication if necessary. Add 3 drops of thymol blue TS.

Analysis: Titrate the *Sample solution* with 0.1 N sodium methoxide (in toluene) VS to a blue endpoint while flushing the flask with a gentle stream of nitrogen. Perform a blank determination, and make any necessary correction. Each mL of 0.1 N sodium methoxide is equivalent to 19.36 mg of mebrofenin ($C_{15}H_{19}BrN_2O_5$).

Acceptance criteria: 97.0%–101.0% on the dried basis

IMPURITIES

• **Residue on Ignition ⟨281⟩:** NMT 0.1%

• **Limit of Nitrilotriacetic Acid**

Mobile phase: Add 10 mL of a solution (1 in 4) of tetrabutylammonium hydroxide in methanol to 200 mL of water, and adjust with 1 M phosphoric acid to a pH of 7.5 ± 0.1. Transfer this solution to a 1000-mL volumetric flask, add 90 mL of methanol, and dilute with water to volume.

Diluent: 10 mg/mL of cupric nitrate solution

Standard stock solution: 0.5 mg/mL of nitrilotriacetic acid in dilute ammonium hydroxide (1 in 20)

Standard solution: 0.05 mg/mL of nitrilotriacetic acid from a suitable volume of *Standard stock solution* in *Diluent*. [Note—Prepare fresh on the day of use.]

Sample solution: 10 mg/mL of Mebrofenin in *Diluent*. Sonicate, if necessary, to dissolve. [Note—Prepare fresh on the day of use.]

Chromatographic system

(See *Chromatography ⟨621⟩, System Suitability*.)

Mode: LC

Detector: UV 254 nm

Column: 4.6-mm × 25-cm; packing L7

Flow rate: 0.8 mL/min

Injection volume: 20 µL

System suitability

Sample: *Standard solution*

[Note—Peaks containing copper may be present.]

Suitability requirements

Resolution: NLT 1.7 between the major peak and any other peak

Relative standard deviation: NMT 2.0%

Analysis

Samples: *Standard solution* and *Sample solution*

Calculate the percentage of nitrilotriacetic acid in the portion of Mebrofenin taken:

$$\text{Result} = (r_U/r_S) \times (C_S/C_U) \times 100$$

r_U = peak response of copper nitrilotriacetic acid from the *Sample solution*

r_S = peak response of copper nitrilotriacetic acid from the *Standard solution*

C_S = concentration of the *Standard solution* (mg/mL)

C_U = concentration of the *Sample solution* (mg/mL)

Acceptance criteria: NMT 0.1%

- **Organic Impurities**

Buffer: Prepare a mixture of equal volumes of 0.025 M monobasic potassium phosphate and 0.025 M dibasic sodium phosphate.

Mobile phase: Mix 400 mL of *Buffer* with 600 mL of methanol in a 1-L volumetric flask. Dilute with water to volume. Adjust with 1 N hydrochloric acid to a pH of 5.0 ± 0.1.

Sample solution: 0.5 mg/mL of Mebrofenin in *Mobile phase*

Chromatographic system

(See *Chromatography ⟨621⟩, System Suitability*.)

Mode: LC

Detector: UV 220 nm

Column: 4.6-mm × 25-cm; packing L1

Flow rate: 1 mL/min

Injection volume: 20 µL

Run time: Twice the retention time of mebrofenin

System suitability

Sample: *Sample solution*

Suitability requirements

Capacity factor, *k'*: NLT 1.2

Column efficiency: NLT 200 plates

Tailing factor: NMT 4.0

Relative standard deviation: NMT 2.0% for the mebrofenin peak

Analysis

Sample: *Sample solution*

Calculate the percentage of impurities in the portion of Mebrofenin taken:

$$\text{Result} = (r_U/r_T) \times 100$$

r_U = sum of the peak responses of the individual impurities

r_T = total of all of the peak responses in the chromatogram

Acceptance criteria: NMT 3%

SPECIFIC TESTS

- **Melting Range or Temperature, *Class I*⟨741⟩:** 185°–200°, but the range between the beginning and end of melting does not exceed 4°.
- **Loss on Drying ⟨731⟩**

Analysis: Dry under vacuum at 100° for 3 h.

Acceptance criteria: NMT 0.3%

ADDITIONAL REQUIREMENTS

- **Packaging and Storage:** Preserve in tight containers. Store at 25°, excursions permitted between 15° and 30°.
- **USP Reference Standards ⟨11⟩**

USP Mebrofenin RS

Auxiliary Information - Please check for your question in the FAQs before contacting USP.

Topic/Question	Contact	Expert Committee
MEBROFENIN	Documentary Standards Support	SM42020 Small Molecules 4

Chromatographic Database Information: Chromatographic Database

Most Recently Appeared In:
Pharmacopeial Forum: Volume No. PF 29(6)

Current DocID: GUID-7B848EB9-EF39-4C73-B9AF-7164EFE48ABC_4_en-US

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