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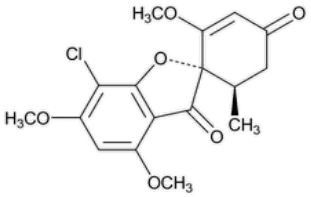
Griseofulvin



$C_{17}H_{17}ClO_6$ 352.77

Spiro[benzofuran-2(3*H*),1'-[2]cyclohexene]-3,4'-dione, 7-chloro-2',4,6-trimethoxy-6'-methyl-, (1'*S*-*trans*)-;

7-Chloro-2',4,6-trimethoxy-6'β-methylspiro[benzofuran-2(3*H*),1'-[2]cyclohexene]-3,4'-dione CAS RN®: 126-07-8; UNII: 32HRV3E3D5.

DEFINITION

Griseofulvin has a potency of NLT 900 µg/mg of griseofulvin ($C_{17}H_{17}ClO_6$).

IDENTIFICATION

Change to read:

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

• **B.** The retention time of the major peak of the *Sample solution* corresponds to that of the *Standard solution*, as obtained in the *Assay*.

ASSAY

• **Procedure**

Mobile phase: Acetonitrile, tetrahydrofuran, and water (35:5:60). Degas for 5 min before use, and stir continuously during use.

Standard stock solution: 1.25 mg/mL of USP Griseofulvin RS in methanol

Standard solution: 0.125 mg/mL of USP Griseofulvin RS in *Mobile phase* from the *Standard stock solution*

Sample stock solution: 1.24 mg/mL of Griseofulvin in methanol

Sample solution: 0.124 mg/mL of Griseofulvin in *Mobile phase* from the *Sample stock solution*

Chromatographic system

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

Mode: LC

Detector: UV 254 nm

Column: 4.6-mm × 25-cm; packing L10

Flow rate: 1 mL/min

Injection volume: 20 µL

System suitability

Sample: *Standard solution*

Suitability requirements

Relative standard deviation: NMT 2.0%

Analysis

Samples: *Standard solution* and *Sample solution*

Calculate the quantity, in µg/mg, of griseofulvin ($C_{17}H_{17}ClO_6$) in the portion of Griseofulvin taken:

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

r_U = peak response from the *Sample solution*

r_S = peak response from the *Standard solution*

C_S = concentration of USP Griseofulvin RS in the *Standard solution* (mg/mL)

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

P = potency of griseofulvin in USP Griseofulvin RS (µg/mg)

Acceptance criteria: NLT 900 µg/mg

IMPURITIES

- **Residue on Ignition ⟨281⟩:** NMT 0.2%

SPECIFIC TESTS

- **Melting Range or Temperature ⟨741⟩:** 217°–224°
- **Optical Rotation, *Specific Rotation*⟨781S⟩**

  Sample solution: 10 mg/mL in dimethylformamide

  Acceptance criteria: +348° to +364°
- **Crystallinity ⟨695⟩:** Meets the requirements
- **Loss on Drying ⟨731⟩**

  Sample: 100 mg

  Analysis: Dry at 60° for 3 h in a capillary-stoppered bottle under vacuum at a pressure not exceeding 5 mm of mercury.

  Acceptance criteria: NMT 1.0%
- **Permeability Diameter**

  Sample solution: 1.819 ± 0.001 g of Griseofulvin

  Analysis: Determine the apparent particle size in µm by the air-permeation method, using a suitable subsieve sizer. Transfer the sample to the compression tube of the apparatus. Compact with moderate pressure so that a uniform porosity is achieved. Pass dry compressed air through the tube, and measure the air pressure with a water manometer. Read the porosity, and calculate the apparent particle size from the instrument equation. Repeat the porosity readings at successively higher degrees of compaction until the apparent particle size reaches a minimum value.

  Calculate the observed permeability diameter taken, in m^2/g:

$$\text{Result} = 6/(1.455 \times M \times F)$$

  M = minimum apparent particle size

  F = factor, interpolation used if necessary, to correct the apparent particle size to the true particle size at a given porosity reading (see *Table 1*)

Table 1

Porosity Reading	*F*	Porosity Reading	*F*
0.80	1.3771	0.56	1.7353
0.76	1.4142	0.52	1.8528
0.72	1.4573	0.48	2.0076
0.68	1.5082	0.44	2.2203
0.64	1.5690	0.40	2.5298
0.60	1.6432	—	—

  Concomitantly determine the observed permeability diameter of a similar preparation of USP Griseofulvin Permeability Diameter RS. Calculate the permeability diameter of the Griseofulvin taken:

$$\text{Result} = O_U \times (A_S/O_S)$$

  O_U = observed permeability diameter of the specimen

  A_S = assigned permeability diameter of USP Griseofulvin Permeability Diameter RS

O_S = observed permeability diameter of USP Griseofulvin Permeability Diameter RS

Acceptance criteria: 1.3–1.7 m^2/g

ADDITIONAL REQUIREMENTS

- **Packaging and Storage:** Preserve in tight containers.
- **USP Reference Standards** ⟨11⟩

  USP Griseofulvin RS

  USP Griseofulvin Permeability Diameter RS

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

Topic/Question	Contact	Expert Committee
GRISEOFULVIN	Documentary Standards Support	SM12020 Small Molecules 1

Chromatographic Database Information: Chromatographic Database

Most Recently Appeared In:
Pharmacopeial Forum: Volume No. Information currently unavailable

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