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

Ursodeoxycholic Acid Oral Suspension

General Notices

Action and use

Bile acid; treatment of gallstones.

DEFINITION

Ursodeoxycholic Acid Oral Suspension is a suspension of Ursodeoxycholic Acid in a suitable vehicle.

The oral suspension complies with the requirements stated under Oral Liquids and with the following requirements.

Content of ursodeoxycholic acid, $C_{24}H_{40}O_4$

95.0 to 105.0% of the stated amount.

Shake the oral suspension vigorously before carrying out the following tests.

IDENTIFICATION

A. Weigh a quantity of the oral suspension containing 50 mg of Ursodeoxycholic Acid into a test tube, add 5 mL of *sulfuric acid* and allow to dissolve. Add 0.5 mL *formaldehyde solution*, allow to stand for 5 minutes and add 25 mL *water*. The suspension obtained is greyish-blue.
B. In the Assay, the chromatogram obtained with solution (1) shows a peak with the same retention time as the principal peak in the chromatogram obtained with solution (2).

TESTS

Acidity

pH, 3.8 to 5.2, Appendix V L.

Related substances

Carry out the method for *liquid chromatography*, Appendix III D, using the following solutions in Solvent A.

Solvent A 20 volumes of *methanol* and 80 volumes of mobile phase.

(1) Add a quantity of the oral suspension containing 250 mg of Ursodeoxycholic Acid to 15 mL of Solvent A and mix with the aid of ultrasound for 15 minutes. Dilute to 50 mL and filter (0.45-µm PVDF filter is suitable).
(2) Dilute 1 volume of solution (1) to 100 volumes.
(3) 0.5% w/v of *ursodeoxycholic acid impurity standard BPCRS* and 0.0055% w/v of *chenodeoxycholic acid BPCRS* (impurity A).
(4) Dilute 1 volume of solution (2) to 10 volumes.

CHROMATOGRAPHIC CONDITIONS

(a) Use a stainless steel column (10 cm × 2.1 mm) packed with *octadecylsilyl silica gel for chromatography* (3 µm) (Uptisphere HDO C18 is suitable).
(b) Use isocratic elution and the mobile phase described below.
(c) Use a flow rate of 0.6 mL per minute.
(d) Use a column temperature of 40°.
(e) Use a refractive index detector.
(f) Inject 8 µL of each solution.
(g) For solution (1), allow the chromatography to proceed for 5 times the retention time of ursodeoxycholic acid.

MOBILE PHASE

25 volumes of *acetonitrile*, 34 volumes of *methanol* and 47 volumes of a solution prepared by dissolving 0.8 g of *sodium dihydrogen orthophosphate* ***dihydrate*** in 1000 mL of *water* and adjusting the pH to 3.0 with *orthophosphoric acid*.

When the chromatograms are recorded under the prescribed conditions the retention time relative to ursodeoxycholic acid (retention time, about 5 minutes) are: 7-ketolithocholic acid (impurity F), about 1.3 and chenodeoxycholic acid, about 2.8.

SYSTEM SUITABILITY

The test is not valid unless, in the chromatogram obtained with solution (3), the *resolution* between the peaks due to ursodeoxycholic acid and 7-ketolithocholic acid is at least 2.0.

LIMITS

In the chromatogram obtained with solution (1):

the area of any peaks corresponding to chenodeoxycholic acid is not greater than the area of the principal peak in the chromatogram obtained with solution (2) (1.0%);

the area of any other *secondary peak* is not greater than 0.2 times the area of the principal peak in the chromatogram obtained with solution (2) (0.2%);

the sum of the areas of any other *secondary peaks* is not greater than the area of the principal peak in the chromatogram obtained with solution (2) (1.0%).

Disregard any peak with an area less than the area of the principal peak in the chromatogram obtained with solution (4) (0.1%).

ASSAY

Carry out the method for *liquid chromatography*, Appendix III D, using the following solutions in Solvent A, as described under Related substances.

(1) Add a weighed quantity of the oral suspension containing 250 mg of Ursodeoxycholic Acid to 15 mL of Solvent A and mix with the aid of ultrasound for 15 minutes. Dilute to 50 mL and filter (0.45-µm PVDF filter is suitable).
(2) 0.5% w/v of *ursodeoxycholic acid BPCRS*.
(3) 0.5% w/v of *ursodeoxycholic acid impurity standard BPCRS*.

CHROMATOGRAPHIC CONDITIONS

The conditions described under Related substances may be used.

SYSTEM SUITABILITY

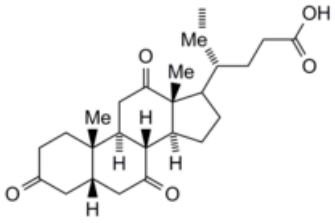
The test is not valid unless, in the chromatogram obtained with solution (3), the *resolution* between the peaks due to ursodeoxycholic acid and 7-ketolithocholic acid is at least 2.0.

DETERMINATION OF CONTENT

Determine the *weight per mL* of the oral suspension, Appendix V G, and calculate the content of $C_{24}H_{40}O_4$, weight in volume, using the declared content of $C_{24}H_{40}O_4$ in *ursodeoxycholic acid BPCRS*.

IMPURITIES

The impurities limited by the requirements of this monograph include A, D, E and F listed under Ursodeoxycholic Acid and the following:



1. 3,7,12-trioxo-(5β)-cholan-24-oic acid (dehydrocholic acid).