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

Ketoprofen Tablets

General Notices

Action and use

Cyclo-oxygenase inhibitor; analgesic; anti-inflammatory.

DEFINITION

Ketoprofen Tablets contain Ketoprofen.

The tablets comply with the requirements stated under Tablets and with the following requirements.

Content of ketoprofen, $C_{16}H_{14}O_3$

95.0 to 105.0% of the stated amount.

IDENTIFICATION

Shake a quantity of powdered tablets containing 40 mg of Ketoprofen with 10 mL of *dichloromethane*. Filter and evaporate the solution to dryness under nitrogen. Dry the residue at 60° for 1 hour. The *infrared absorption spectrum* of the residue, Appendix II A, is concordant with the *reference spectrum* of ketoprofen (*RSV 053*).

TESTS

Dissolution

Comply with the *dissolution test for tablets and capsules*, Appendix XII B1.

TEST CONDITIONS

(a) Use Apparatus 2, and rotate the paddle at 50 revolutions per minute.
(b) Use 900 mL of a phosphate buffer prepared by dissolving 1.46 g of *potassium dihydrogen orthophosphate* and 20.06 g of *disodium hydrogen orthophosphate* in sufficient water to produce 1000 mL, adjusting the pH to 7.5 if necessary with *orthophosphoric acid*, at a temperature of 37°, as the medium.

PROCEDURE

After 45 minutes withdraw a sample of the medium and measure the *absorbance* of the filtered sample, diluted with dissolution medium if necessary, to produce a solution expected to contain 0.00055% w/v of Ketoprofen, at the maximum at 260 nm, Appendix II B, using dissolution medium in the reference cell.

DETERMINATION OF CONTENT

Calculate the total content of ketoprofen, $C_{16}H_{14}O_3$, in the medium taking 662 as the value of A(1%, 1 cm) at the maximum at 260 nm.

LIMITS

The amount of ketoprofen released is not less than 75% (Q) of the stated amount.

Related substances

Carry out the method for *liquid chromatography*, Appendix III D, using the following solutions prepared immediately before use in mobile phase.

(1) Shake a quantity of the powdered tablets containing 25 mg of Ketoprofen with 20 mL, mix with the aid of ultrasound and dilute to 25 mL. Filter and use the filtrate.
(2) Dilute 1 volume of solution (1) to 100 volumes. Further dilute 1 volume to 5 volumes.
(3) 0.0002% w/v of *ketoprofen impurity A EPCRS*.
(4) 0.0002% w/v of *ketoprofen impurity C EPCRS*.
(5) 0.0005% w/v of *ketoprofen BPCRS* and 0.0001% w/v of *ketoprofen impurity A EPCRS*.

CHROMATOGRAPHIC CONDITIONS

(a) Use a stainless steel column (15 cm × 4.6 mm) packed with *octadecylsilyl silica gel for chromatography* (5 µm) with a specific surface area of 350 m^2/g and a pore size of 10 nm (Nucleosil 100 C18 is suitable).
(b) Use isocratic elution and the mobile phase described below.
(c) Use a flow rate of 1 mL per minute.
(d) Use an ambient column temperature.
(e) Use a detection wavelength of 233 nm.
(f) Inject 20 µL of each solution.
(g) Allow the chromatography to proceed for 7 times the retention time of ketoprofen.

MOBILE PHASE

2 volumes of freshly prepared *phosphate buffer solution pH 3.5,* 43 volumes of *acetonitrile* and 55 volumes of *water*.

When the chromatograms are recorded under the prescribed conditions, the relative retentions with reference to ketoprofen (retention time about 8. minutes) are: impurity C, about 0.3; impurity E, about 0.7; impurity B, about 0.8; impurity D, about 1.5; impurity A, about 1.6; impurity F, about 2.2.

SYSTEM SUITABILITY

The test is not valid unless, in the chromatogram obtained with solution (5), the *resolution* between the peaks due to ketoprofen and impurity A is at least 7.0.

LIMITS

In the chromatogram obtained with solution (1):

Use the chromatogram obtained with solution (3) to identify the peak due to impurity A; use the chromatogram obtained with solution (4) to identify the peak due to impurity C.

the area of any peak corresponding to impurity A is not greater than the area of the principal peak in the chromatogram obtained with solution (3) (0.2%);

the area of any peak corresponding to impurity C is not greater than the area of the principal peak in the chromatogram obtained with solution (4) (0.2%);

the area of any peak corresponding to impurity B, D, E or F is not greater than the area of the principal peak in the chromatogram obtained with solution (2) (0.2% of each);

the area of any other *secondary peak* is not greater than 5 times the area of the principal peak in the chromatogram obtained with solution (2) (1.0%);

the sum of the areas of all the *secondary peaks* excluding impurities A and C is not greater than twice the area of the principal peak in the chromatogram obtained with solution (2) (0.4%).

Disregard any peak (excluding impurities A, B, C, D, E and F) with an area less than 1.5 times the area of the principal peak in the chromatogram obtained with solution (2) (0.3%).

ASSAY

Weigh and powder 20 tablets. Carry out the method for *liquid chromatography*, Appendix III D, using the following solutions in mobile phase.

(1) Shake a quantity of the powdered tablets containing 20 mg of Ketoprofen in mobile phase, mix with the aid of ultrasound and dilute to 25 mL. Dilute 1 volume to 100 volumes, filter and use the filtrate.
(2) 0.001% w/v of *ketoprofen BPCRS*.
(3) 0.0005% w/v *ketoprofen BPCRS* and 0.0001% w/v *ketoprofen impurity A EPCRS*.

CHROMATOGRAPHIC CONDITIONS

The chromatographic 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 ketoprofen and impurity A is at least 7.0.

DETERMINATION OF CONTENT

Calculate the content of $C_{16}H_{14}O_3$ in the tablets using the declared content of $C_{16}H_{14}O_3$ in *ketoprofen BPCRS*.

IMPURITIES

The impurities limited by the requirements of this monograph include those listed under Ketoprofen.