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

Sertraline Tablets

General Notices

Action and use

Selective serotonin reuptake inhibitor; antidepressant.

DEFINITION

Sertraline Tablets contain Sertraline Hydrochloride.

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

Content of sertraline, $C_{17}H_{17}Cl_2N$

95.0 to 105.0% of the stated amount.

IDENTIFICATION

Shake a quantity of the powdered tablets containing the equivalent of 0.22 g of sertraline with 10 mL of *absolute ethanol* for 10 minutes and filter. Evaporate the filtrate to dryness and dry the residue at 60° under vacuum for 1 hour. The *infrared absorption spectrum* of the residue, Appendix II A, is concordant with *reference spectrum A* of sertraline hydrochloride *(RS 460)*. If the spectrum thus obtained is not concordant, record a solution spectrum using a 1.0% w/v solution of the residue obtained above in *dichloromethane*. The *infrared absorption spectrum* of the resulting solution, Appendix II A, is concordant with *reference spectrum B* of sertraline hydrochloride *(RS 443)*.

TESTS

Dissolution

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

TEST CONDITIONS

(a) Use Apparatus 2, rotating the paddle at 75 revolutions per minute.
(b) Use 900 mL of *sodium acetate buffer solution pH 4.5*, at a temperature of 37°, as the medium.

PROCEDURE

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

(1) After 30 minutes withdraw a 10-mL sample of the medium and filter (Whatman GF/C is suitable), discard the first 5 mL of filtrate.
(2) 0.0056% w/v of *sertraline hydrochloride BPCRS* in dissolution medium.

CHROMATOGRAPHIC CONDITIONS

(a) Use a stainless steel column (15 cm × 4.6 mm) packed with *octadecylsilyl silica gel for chromatography* (4 µm) (Novapak C18 is suitable).
(b) Use isocratic elution and the mobile phase described below.
(c) Use a flow rate of 1.8 mL per minute.
(d) Use a column temperature 30°.
(e) Use a detection wavelength of 265 nm.
(f) Inject 20 µL of each solution.

MOBILE PHASE

15 volumes of *methanol*, 40 volumes of a solution containing 0.286% v/v *glacial acetic acid* and 0.348% v/v *triethylamine* and 45 volumes of *acetonitrile*.

When the chromatograms are recorded under the prescribed conditions the retention time of sertraline is about 2 minutes.

DETERMINATION OF CONTENT

Calculate the content of sertraline, $C_{17}H_{17}Cl_2N$, in the medium using the declared content of $C_{17}H_{17}Cl_2N$,HCl in *sertraline hydrochloride BPCRS*. Each mg of $C_{17}H_{17}Cl_2N$,HCl is equivalent to 0.8936 mg of $C_{17}H_{17}Cl_2N$.

LIMITS

The amount of sertraline released after 30 minutes 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.

Solution A 30 volumes of *acetonitrile* and 70 volumes of *water*.

(1) Shake a quantity of whole tablets containing the equivalent of 0.45 g of sertraline with 150 mL of solution A until fully dispersed. Mix for 5 minutes with the aid of ultrasound and add sufficient solvent A to produce 200 mL, mix and filter (Whatman PVDF is suitable), discarding the first 5 mL of filtrate.
(2) Dilute 1 volume of solution (1) to 500 volumes with solution A.
(3) 0.001% w/v of *(R)-mandelic acid* in solution A.
(4) 0.25% w/v of *sertraline hydrochloride impurity standard BPCRS* in solution A.
(5) Dilute 1 volume of solution (2) to 2 volumes with solution A.

CHROMATOGRAPHIC CONDITIONS

(a) Use a stainless steel column (25 cm × 4.6 mm) packed with *octadecylsilyl silica gel for chromatography* (5 µm) (Symmetry C18 is suitable).
(b) Use gradient elution and the mobile phase described below.
(c) Use a flow rate of 1.0 mL per minute.
(d) Use an ambient column temperature.
(e) Use a detection wavelength of 210 nm.
(f) Inject 20 µL of each solution.

MOBILE PHASE

Mobile phase A 0.272% w/v of *potassium dihydrogen orthophosphate* in *water*, adjusted to pH 3.0 with *orthophosphoric acid*.

Mobile phase B *acetonitrile R1*

Time (Minutes)	Mobile phase A (% v/v)	Mobile phase B (% v/v)	Comment
0-30	70	30	isocratic
30-40	70→60	30→40	linear gradient
40-41	60→70	40→30	linear gradient
41-50	70	30	re-equilibration

SYSTEM SUITABILITY

The test is not valid unless the chromatogram obtained with solution (4) closely resembles the reference chromatogram supplied with *sertraline hydrochloride impurity standard BPCRS*.

LIMITS

In the chromatogram obtained with solution (1):

the area of any peak corresponding to impurity C is not greater than 4 times the area of the principal peak in the chromatogram obtained with solution (2) (0.8%);

the area of any peak corresponding to (*R*)-mandelic acid is not greater than the area of the corresponding peak in the chromatogram obtained with solution (3) (0.4%);

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

The total impurity content, excluding impurity C, is not greater than 1.5%.

Disregard any peak with an area less than that of the principal peak in the chromatogram obtained with solution (5) (0.1%).

ASSAY

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

(1) Mix for 45 minutes with the aid of ultrasound a quantity of the powdered tablets containing the equivalent of 0.19 g of sertraline with 150 mL of mobile phase, shake for 30 minutes, cool, add sufficient *water* to produce 200 mL, mix and filter (Whatman GF/C is suitable), discarding the first 5 mL of filtrate. Dilute 1 volume of the filtrate to 20 volumes with mobile phase.
(2) 0.005% w/v of *sertraline hydrochloride BPCRS* in the mobile phase.

CHROMATOGRAPHIC CONDITIONS

The chromatographic conditions described under Dissolution may be used.

DETERMINATION OF CONTENT

Calculate the content of $C_{17}H_{17}Cl_2N$ in the tablets using the declared content of $C_{17}H_{17}Cl_2N$,HCl in *sertraline hydrochloride BPCRS*. Each mg of $C_{17}H_{17}Cl_2N$,HCl is equivalent to 0.8936 mg of $C_{17}H_{17}Cl_2N$.

LABELLING

The quantity of the active ingredient is stated in terms of the equivalent amount of sertraline.

IMPURITIES

The impurities limited by the requirements of this monograph include impurities B, C and E listed under Sertraline Hydrochloride.