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

Nevirapine Prolonged-release Tablets

General Notices

Nevirapine Prolonged-release Tablets from different manufacturers, whilst complying with the requirements of the monograph, are not interchangeable unless otherwise justified and authorised.

Action and use

Non-nucleoside reverse transcriptase inhibitor; antiviral (HIV).

DEFINITION

Nevirapine Prolonged-release Tablets contain Nevirapine. They are formulated so that the active ingredient is released over a period of several hours.

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

PRODUCTION

A suitable dissolution test is carried out to demonstrate the appropriate release of Nevirapine. The dissolution profile reflects the *in vivo* performance which in turn is compatible with the dosage schedule recommended by the manufacturer.

Content of nevirapine, $C_{15}H_{14}N_4O$

95.0 to 105.0% of the stated amount.

IDENTIFICATION

In the Assay, record the UV spectrum of the principal peak in the chromatograms obtained with solutions (1) and (2) with a diode array detector in the range of 190 to 400 nm.

The UV spectrum of the principal peak in the chromatogram obtained with solution (1) is concordant with that of the peak in the chromatogram obtained with solution (2);

the retention time of the principal peak in the chromatogram obtained with solution (1) is similar to that of the peak in the chromatogram obtained with solution (2).

TESTS

Related substances

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

(1) Mix with the aid of ultrasound a quantity of the powdered tablets containing 0.2 g of Nevirapine with 80 mL of *methanol* and dilute to 100 mL with *methanol*. Filter through a 0.45-µm membrane filter and dilute 1 volume of the filtrate to 2 volumes with the mobile phase.
(2) Dilute 1 volume of solution (1) to 100 volumes with the mobile phase. Dilute 1 volume of this solution to 5 volumes with the mobile phase.

(3) Dissolve the contents of a vial of *nevirapine for peak identification EPCRS* in 2 mL of the mobile phase.

CHROMATOGRAPHIC CONDITIONS

(a) Use a stainless steel column (15 cm × 4.6 mm) packed with *end-capped amidohexadecylsilyl silica gel for chromatography* (5 µm) (Supelcosil LC-ABZ is suitable).
(b) Use isocratic elution and the mobile phase described below.
(c) Use a flow rate of 1.0 mL per minute.
(d) Use a column temperature of 35°.
(e) Use a detection wavelength of 220 nm.
(f) Inject 20 µL of each solution.
(g) Allow chromatography to proceed for 4 times the retention time of nevirapine.

MOBILE PHASE

Solution B: Dissolve 2.88 g of *ammonium dihydrogen orthophosphate* in 1000 mL of *water*, adjusted to pH 5.0 with 1M *sodium hydroxide*.

15 volumes of *acetonitrile* and 85 volumes of solution B.

When the chromatograms are recorded under the prescribed conditions, the relative retentions with reference to nevirapine (retention time of about 13 minutes) are: impurity B, about 0.7; impurity A, 1.5; impurity C, 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 impurity B and nevirapine is at least 3.0.

LIMITS

In the chromatogram obtained with solution (1):

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

the sum of the areas of all *secondary peaks* is not greater than 5 times the area of the principal peak in the chromatogram obtained with solution (2) (1.0%).

Disregard any peak with an area less than half the area of the principal peak in the chromatogram obtained with solution (2) (0.1%).

ASSAY

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

(1) Mix with the aid of ultrasound a quantity of the powdered tablets containing 0.2 g of Nevirapine with 120 mL of *methanol*. Add 40 mL of *water* and further mix. Dilute to 200 mL with *methanol*, mix and centrifuge. Dilute 1 volume of the supernatant liquid to 50 volumes with *methanol (80%)* and filter through a 0.45-µm membrane filter.
(2) 0.002% w/v solution of *nevirapine BPCRS* in *methanol (80%)*.
(3) Dissolve the contents of a vial of *nevirapine for peak identification EPCRS* in 2 mL of *methanol (80%)*.

CHROMATOGRAPHIC CONDITIONS

(a) Use a stainless steel column (15 cm × 3.9 mm) packed with *end-capped octadecylsilyl silica gel for chromatography* (5 µm) (Symmetry C18 is suitable).
(b) Use isocratic 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 an autosampler temperature of 10°.
(f) Use a detection wavelength of 214 nm.
(g) Inject 20 µL of each solution.

MOBILE PHASE

23 volumes of *acetonitrile R1* and 77 volumes of *water R1*.

When the chromatograms are recorded under the prescribed conditions the retention time of nevirapine is about 4 minutes.

SYSTEM SUITABILITY

The test is not valid unless, in the chromatogram obtained with solution (3), the *resolution* between the peaks due to impurity B and nevirapine is at least 3.0.

DETERMINATION OF CONTENT

Calculate the content of nevirapine, $C_{15}H_{14}N_4O$, in the tablets from the chromatograms obtained and using the declared content of $C_{15}H_{14}N_4O$ in *nevirapine BPCRS*.

IMPURITIES

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