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

Lacidipine Tablets

General Notices

Action and use

Calcium channel blocker.

DEFINITION

Lacidipine Tablets contain Lacidipine. They are coated.

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

Content of lacidipine, $C_{26}H_{33}NO_6$

95.0 to 105.0% of the stated amount.

Carry out all of the following procedures protected from light and prepare solutions immediately before use.

IDENTIFICATION

A. Shake a quantity of whole tablets containing 4 mg of Lacidipine with 50 mL of *absolute ethanol* with the aid of ultrasound for 30 minutes. Dilute to 100 mL with *absolute ethanol* and filter through a 0.45-µm membrane filter (Millipore Millex is suitable). The *light absorption* of the filtrate, Appendix II B, in the range 250 to 400 nm exhibits maxima only at 284 nm and 368 nm.
B. In the Assay, the principal peak in the chromatogram obtained with solution (1) has the same retention time as the principal peak in the chromatogram obtained with solution (2).

TESTS

Dissolution

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

TEST CONDITIONS

(a) Use Apparatus 2, rotating the paddle at 50 revolutions per minute.
(b) Use as the medium 500 mL of a solution prepared by mixing 100 mL of *water* with 10 mL of *polysorbate 20*, shaking gently and diluting to 1000 mL with *water* at a temperature of 37°.

PROCEDURE

(1) After 45 minutes, withdraw a sample of 10 mL of the medium and filter immediately through a 0.45-µm membrane filter (Millipore Millex is suitable), having first activated the filter with 3 mL of *methanol* followed by 5 mL of a 1% w/v solution of *polysorbate 20*. Measure the *absorbance* of the filtrate in a 2-cm cell, suitably diluted with the dissolution medium if necessary, at the maximum at 284 nm, Appendix II B, using the dissolution medium in the reference cell.

(2) Measure the *absorbance*, in a 2 cm cell, of a solution of *lacidipine BPCRS* prepared by diluting a 0.02% w/v solution in *absolute ethanol* to a suitable volume with the dissolution medium at the maximum at 284 nm, Appendix II B, using the dissolution medium in the reference cell.

DETERMINATION OF CONTENT

Calculate the total content of lacidipine, $C_{26}H_{33}NO_6$, in the medium using the declared content of $C_{26}H_{33}NO_6$ in *lacidipine BPCRS*.

Related substances

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

(1) Shake a quantity of the powdered tablets containing 20 mg of Lacidipine with 50 mL of *absolute ethanol* with the aid of ultrasound for 15 minutes. Cool, dilute to 100 mL with *absolute ethanol*, filter through a 0.45-µm membrane filter (Millipore Millex is suitable) and dilute 5 volumes of the filtrate to 20 volumes with *hexane*.
(2) Dilute 1 volume of solution (1) to 100 volumes with the mobile phase.
(3) Dilute 1 volume of a 0.1% w/v solution of *lacidipine impurity standard BPCRS* in *absolute ethanol* to 5 volumes with the mobile phase.

CHROMATOGRAPHIC CONDITIONS

(a) Use a stainless steel column (25 cm x 4.6 mm) packed with *cyanosilyl silica gel for chromatography* (5 µm) (Spherisorb CN is suitable).
(b) Use isocratic elution using the mobile phase described below.
(c) Use a flow rate of 2 mL per minute.
(d) Use ambient column temperature.
(e) Use a detection wavelength of 240 nm.
(f) Inject 20 µL of each solution.
(g) If necessary adjust the composition of the mobile phase so that, in the chromatogram obtained with solution (3), the retention time of the peak due to lacidipine is about 10 minutes.
(h) For solution (1) allow the chromatography to proceed for 2 times the retention time of the principal peak.

MOBILE PHASE

3 volumes of *absolute ethanol* and 97 volumes of n-*hexane*.

SYSTEM SUITABILITY

The test is not valid unless the chromatogram obtained with solution (3) closely resembles the chromatogram supplied with *lacidipine impurity standard BPCRS*.

LIMITS

In the chromatogram obtained with solution (1):

the area of any peak due to lacidipine impurity B is not greater than the area of the principal peak in the chromatogram obtained with solution (2) (2%, taking into account the correction factor of 0.5);

the area of any other *secondary peak* is not greater than half the area of the principal peak in the chromatogram obtained with solution (2) (0.5%);

the total nominal content of impurities is not greater than 2.5%;

disregard any peak with a relative retention time of 1.5 with respect to the peak due to lacidipine impurity B.

Uniformity of content

Tablets containing less than 2 mg and/or less than 2% w/w of Lacidipine comply with the requirements stated under Tablets using the following method of analysis. Place one tablet in 50 mL of *absolute ethanol*, disperse the tablet completely with the aid of ultrasound for 30 minutes crushing with a glass rod if it does not disintegrate, and mix. Cool and filter through a 0.45-µm membrane filter (Millipore Millex is suitable). If necessary further dilute with *absolute ethanol* to produce a solution containing 0.004% w/v of Lacidipine. Measure the *absorbance* of the resulting solution at the maximum at 368 nm, Appendix II B, using *absolute ethanol* in the reference cell. Calculate the content of $C_{26}H_{33}NO_6$ in each tablet from the *absorbance* obtained from a 0.004% w/v solution of *lacidipine BPCRS* in *absolute ethanol* and using the declared content of $C_{26}H_{33}NO_6$ in *lacidipine BPCRS*.

ASSAY

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

(1) Disperse with the aid of ultrasound 10 whole tablets in 50 mL of *absolute ethanol* for 10 minutes, cool and filter through a 0.45-µm membrane filter (Millipore Millex is suitable). Dilute a quantity of the filtrate with sufficient mobile phase to produce a solution containing 0.01% w/v of Lacidipine.
(2) Dilute 5 volumes of a 0.04% w/v solution of *lacidipine BPCRS* in *absolute ethanol* to 20 volumes with the mobile phase.
(3) Dilute 1 volume of a 0.1% w/v solution of *lacidipine impurity standard BPCRS* in *absolute ethanol* to 5 volumes with the mobile phase.

CHROMATOGRAPHIC CONDITIONS

The chromatographic conditions described under Related substances may be used.

SYSTEM SUITABILITY

The test is not valid unless the chromatogram obtained with solution (3) closely resembles the chromatogram supplied with *lacidipine impurity standard BPCRS*.

DETERMINATION OF CONTENT

Calculate the content of $C_{26}H_{33}NO_6$ in the tablets using the declared content of $C_{26}H_{33}NO_6$ in *lacidipine BPCRS*.

STORAGE

Lacidipine Tablets should be protected from light.

IMPURITIES

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