



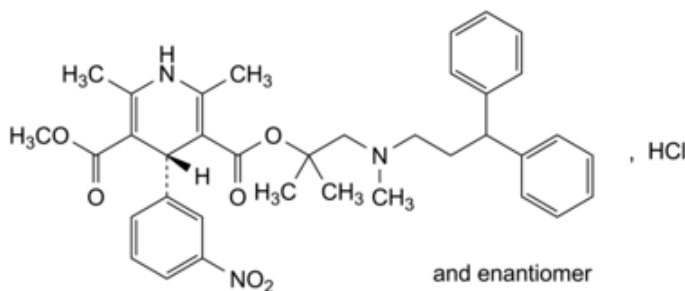
Edition: BP 2025 (Ph. Eur. 11.6 update)

Lercanidipine Hydrochloride



General Notices

(Ph. Eur. monograph 3052)



$C_{36}H_{42}ClN_3O_6$ 648 132866-11-6

Action and use

Calcium channel blocker.

Ph Eur

DEFINITION

3-[1-[(3,3-Diphenylpropyl)(methyl)amino]-2-methylpropan-2-yl] 5-methyl (4*RS*)-2,6-dimethyl-4-(3-nitrophenyl)-1,4-dihydropyridine-3,5-dicarboxylate hydrochloride.

Content

98.0 per cent to 102.0 per cent (dried substance).

CHARACTERS

Appearance

Pale yellow, crystalline powder.

Solubility

Practically insoluble in water, soluble in methanol, practically insoluble in heptane.

It shows polymorphism ([5.9](#)).

IDENTIFICATION

A. Infrared absorption spectrophotometry ([2.2.24](#)).

Comparison [lercanidipine hydrochloride CRS](#).

If the spectra obtained in the solid state show differences, dissolve the substance to be examined and the reference substance separately in [methanol R](#), evaporate to dryness and record new spectra using the residues.

B. Dissolve about 36.5 mg in 2 mL of [methanol R](#). The solution gives reaction (a) of chlorides ([2.3.1](#)); use [methanol R](#) instead of [water R](#) to wash the precipitate.

TESTS

Related substances

Liquid chromatography ([2.2.29](#)). Carry out the test protected from light.

Buffer solution Dissolve 6.97 g of [dipotassium hydrogen phosphate R](#) in [water for chromatography R](#), adjust to pH 7.2 with a 10 per cent V/V solution of [phosphoric acid R](#) and dilute to 1 L with [water for chromatography R](#).

Test solution (a) Dissolve 20.0 mg of the substance to be examined in [acetonitrile R](#) and dilute to 20.0 mL with the same solvent.

Test solution (b) Dilute 5.0 mL of test solution (a) to 10.0 mL with [acetonitrile R](#).

Reference solution (a) Dissolve 5 mg of [lercanidipine for system suitability CRS](#) (containing impurities C and D) in [acetonitrile R](#) and dilute to 5 mL with [acetonitrile R](#).

Reference solution (b) Dilute 1.0 mL of test solution (a) to 100.0 mL with [acetonitrile R](#). Dilute 1.0 mL of this solution to 10.0 mL with [acetonitrile R](#).

Reference solution (c) Dissolve 20.0 mg of [lercanidipine hydrochloride CRS](#) in [acetonitrile R](#) and dilute to 20.0 mL with the same solvent. Dilute 5.0 mL of the solution to 10.0 mL with [acetonitrile R](#).

Column:

— size: $l = 0.25$ m, $\varnothing = 4.6$ mm;

— stationary phase: [amidoalkylsilyl silica gel for chromatography R](#) (5 μ m).

Mobile phase Buffer solution, [acetonitrile for chromatography R](#) (325:675 V/V).

Flow rate 1.5 mL/min.

Detection Spectrophotometer at 220 nm.

Injection 10 μ L of test solution (a) and reference solutions (a) and (b).

Run time Three times the retention time of lercanidipine.

Identification of impurities Use the chromatogram supplied with [lercanidipine for system suitability CRS](#) and the chromatogram obtained with reference solution (a) to identify the peaks due to impurities C and D.

Relative retention With reference to lercanidipine (retention time = about 9 min): impurity C = about 0.9; impurity D = about 1.2.

System suitability Reference solution (a):

- [resolution](#): minimum 1.5 between the peaks due to impurity C and lercanidipine.

Calculation of percentage contents:

- for each impurity, use the concentration of lercanidipine hydrochloride in reference solution (b).

Limits:

- *impurity C*: maximum 0.2 per cent;
- *impurity D*: maximum 0.15 per cent;
- *unspecified impurities*: for each impurity, maximum 0.10 per cent;
- *total*: maximum 0.5 per cent;
- *reporting threshold*: 0.05 per cent.

Loss on drying (2.2.32)

Maximum 1.0 per cent, determined on 1.000 g by drying in an oven at 105 °C for 3 h.

Sulfated ash (2.4.14)

Maximum 0.1 per cent, determined on 1.0 g.

ASSAY

Liquid chromatography ([2.2.29](#)) as described in the test for related substances with the following modification.

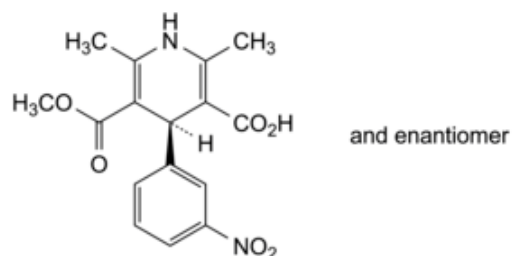
Injection Test solution (b) and reference solution (c).

Calculate the percentage content of $C_{36}H_{42}ClN_3O_6$ taking into account the assigned content of [lercanidipine hydrochloride CRS](#).

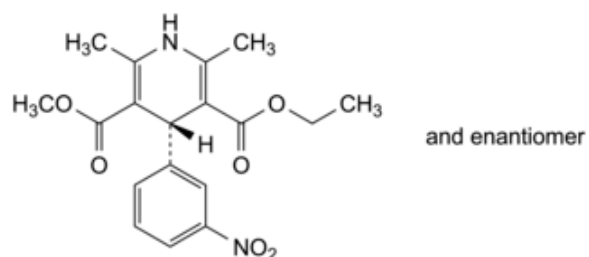
IMPURITIES

Specified impurities C, D.

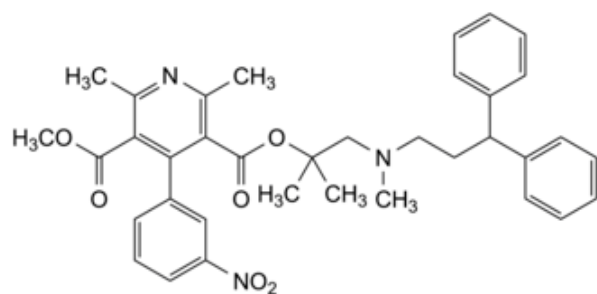
Other detectable impurities (the following substances would, if present at a sufficient level, be detected by one or other of the tests in the monograph. They are limited by the general acceptance criterion for other/unspecified impurities and/or by the general monograph [Substances for pharmaceutical use \(2034\)](#). It is therefore not necessary to identify these impurities for demonstration of compliance. See also [5.10. Control of impurities in substances for pharmaceutical use](#)) A, B, E.



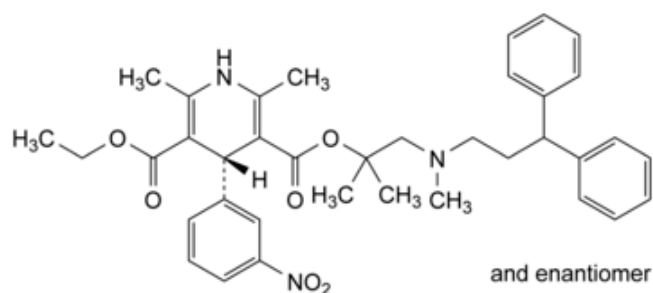
A. (4*RS*)-5-(methoxycarbonyl)-2,6-dimethyl-4-(3-nitrophenyl)-1,4-dihydropyridine-3-carboxylic acid,



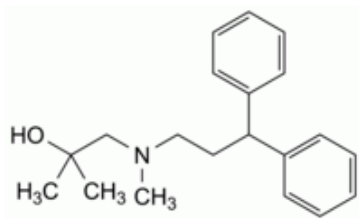
B. 3-ethyl 5-methyl (4*RS*)-2,6-dimethyl-4-(3-nitrophenyl)-1,4-dihydropyridine-3,5-dicarboxylate,



C. 3-[1-[(3,3-diphenylpropyl)(methyl)amino]-2-methylpropan-2-yl] 5-methyl 2,6-dimethyl-4-(3-nitrophenyl)pyridine-3,5-dicarboxylate,



D. 3-[1-[(3,3-diphenylpropyl)(methyl)amino]-2-methylpropan-2-yl] 5-ethyl (4*RS*)-2,6-dimethyl-4-(3-nitrophenyl)-1,4-dihydropyridine-3,5-dicarboxylate,



E. 1-[(3,3-diphenylpropyl)(methyl)amino]-2-methylpropan-2-ol.

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