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

Selegiline Tablets

General Notices

Action and use

Monoamine oxidase type B inhibitor; treatment of Parkinson's disease.

DEFINITION

Selegiline Tablets contain Selegiline Hydrochloride.

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

Content of selegiline hydrochloride, $C_{13}H_{18}ClN$

95.0 to 105.0% of the stated amount.

IDENTIFICATION

A. Shake a quantity of the powdered tablets containing 0.1 g of Selegiline Hydrochloride with 2 mL of *water* and 1 mL of 1M *sodium hydroxide*. Extract with 10 mL of *dichloromethane*, filter the extract through *anhydrous sodium sulfate* and evaporate the filtrate to dryness. The *infrared absorption spectrum* of a thin film of the residue, Appendix II A, is concordant with the *reference spectrum* of selegiline (*RS 400*).
B. In the Assay, the chromatogram obtained with solution (1) shows a peak with the same retention time as the principal peak in the chromatogram obtained with solution (2).

TESTS

(*S*)-Selegiline

Carry out the method for *liquid chromatography*, Appendix III A, using the following solutions. For solution (1) add to a quantity of the powdered tablets containing 20 mg of Selegiline Hydrochloride 1 mL of *propan-2-ol* and 10 µL of *butylamine*, dilute to 10 mL with the mobile phase, shake thoroughly, filter and use the filtrate. For solution (2) dissolve 8 mg of *(RS)-selegiline hydrochloride EPCRS* in a mixture of 10 µL of *butylamine* and 1 mL of *propan-2-ol* and dilute to 10 mL with the mobile phase. For solution (3) dilute 0.5 mL of solution (2) to 20 mL with the mobile phase.

The chromatographic procedure may be carried out using (a) a stainless steel column (25 cm × 4.6 mm) packed with *silica gel OD for chiral separation* (Chiralcel OD is suitable), (b) as the mobile phase with a flow rate of 0.5 mL per minute a mixture of 0.2 volumes of *propan-2-ol* and 99.8 volumes of *cyclohexane* and (c) a detection wavelength of 220 nm.

Inject 20 µL of each solution. When the chromatograms are recorded in the prescribed conditions, the retention time of (*S*)-selegiline is about 10 minutes. Adjust the sensitivity of the system so that the height of the peaks in the chromatogram obtained with solution (3) is about 10% of the full scale of the recorder. The test is not valid unless the *resolution factor* between the peaks corresponding to (*S*)-selegiline and (*R*)-selegiline in the chromatogram obtained with solution (2) is at least 1.5. If necessary, adjust the concentration of propan-2-ol in the mobile phase.

In the chromatogram obtained with solution (1), any peak corresponding to (*S*)-selegiline is not greater than the area of the corresponding peak in the chromatogram obtained with solution (3) (0.5%).

Related substances

Carry out the method for *liquid chromatography*, Appendix III D, using the following solutions. For solution (1) shake a quantity of the powdered tablets containing 20 mg of Selegiline Hydrochloride with 10 mL of a mixture of equal volumes of *methanol* and *acetonitrile*, filter and dilute 5 mL of the filtrate to 10 mL with *water*. For solution (2) dilute 1 volume of solution (1) to 10 volumes with the mobile phase and dilute 1 volume of this solution to 50 volumes with the mobile phase. Solution (3) contains 0.001% w/v of *methylamphetamine hydrochloride* in the mobile phase. Solution (4) contains 0.005% w/v of *selegiline hydrochloride BPCRS* and 0.001% w/v of *nortriptyline hydrochloride BPCRS* in the mobile phase.

The chromatographic procedure may be carried out using (a) a stainless steel column (25 cm × 4.6 mm) packed with *octylsilyl silica gel for chromatography* (5 µm), (b) as the mobile phase with a flow rate of 1 mL per minute a mixture prepared in the following manner: dilute 250 mL of *methanol* and 250 mL of *acetonitrile* to 1000 mL with a solution prepared by dissolving 4 mL of *butylamine* in 900 mL of *water*, adjusting the pH to 6.5 with *acetic acid*, and adding sufficient *water* to produce 1000 mL and (c) a detection wavelength of 215 nm.

Inject 20 µL of each solution. The test is not valid unless, in the chromatogram obtained with solution (4), the *resolution factor* between the two principal peaks is at least 3.0.

For solution (1) allow the chromatography to proceed for at least 2.5 times the retention time of the principal peak. In the chromatogram obtained with solution (1) the area of any *secondary peak* is not greater than 2.5 times the area of the peak in the chromatogram obtained with solution (2) (0.5%), the area of not more than two such peaks is greater than half the area of the principal peak in the chromatogram obtained with solution (2) (0.1%) and the sum of the areas of any such peaks is not greater than six times the area of the principal peak in the chromatogram obtained with solution (2) (1.2%).

If, in the chromatogram obtained with solution (1), the area of any peak corresponding to methylamphetamine is greater than half the area of the peak in the chromatogram obtained with solution (3), the following limits apply. The area of any peak corresponding to methylamphetamine is not greater than the area of the peak in the chromatogram obtained with solution (3) (1%), the area of any other *secondary peak* is not greater than 2.5 times the area of the principal peak in the chromatogram obtained with solution (2) (0.5%) and the sum of the areas of any such peaks is not greater than five times the area of the principal peak in the chromatogram obtained with solution (2) (1%). In each case, disregard any peak with an area less than 0.1 times that of the area of the principal peak in the chromatogram obtained with solution (2) (0.02%).

ASSAY

Weigh and powder 20 tablets. Carry out the method for *liquid chromatography*, Appendix III D, using the following solutions. For solution (1) shake a quantity of the powdered tablets containing 10 mg of Selegiline Hydrochloride with 100 mL of a mixture of equal volumes of *methanol* and *acetonitrile*, filter and dilute 50 mL of the filtrate to 100 mL with *water*. Solution (2) contains 0.005% w/v of *selegiline hydrochloride BPCRS* in the mobile phase. Solution (3) contains 0.005% w/v of *selegiline hydrochloride BPCRS* and 0.001% w/v of *nortriptyline hydrochloride BPCRS* in the mobile phase.

The chromatographic conditions described under Related substances may be used.

The assay is not valid unless, in the chromatogram obtained with solution (3), the *resolution factor* between the two principal peaks is at least 3.0.

Calculate the content of $C_{13}H_{18}ClN$ in the tablets from the chromatograms obtained and using the declared content of $C_{13}H_{18}ClN$ in *selegiline hydrochloride BPCRS*.

STORAGE

Selegiline Tablets should be protected from light and moisture.