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

Baclofen Tablets

General Notices

Action and use

Skeletal muscle relaxant.

DEFINITION

Baclofen Tablets contain Baclofen.

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

Content of baclofen, $C_{10}H_{12}ClNO_2$

90.0 to 110.0% of the stated amount.

IDENTIFICATION

A. Carry out the method for *thin-layer chromatography*, Appendix III A, using the following solutions.
(1) Shake a quantity of the powdered tablets containing 20 mg of Baclofen with 20 mL of a mixture of 4 volumes of *absolute ethanol* and 1 volume of *glacial acetic acid* for 30 minutes and filter.
(2) 0.1% w/v of *baclofen BPCRS* in a mixture of 4 volumes of *absolute ethanol* and 1 volume of *glacial acetic acid*.

CHROMATOGRAPHIC CONDITIONS

(a) Use as the coating *silica gel*.
(b) Use the mobile phase as described below.
(c) Apply 5 µL of each solution.
(d) Develop the plate to 15 cm.
(e) After removal of the plate, allow it to dry in air, spray with *ninhydrin solution* and heat at 100° for 10 minutes.

MOBILE PHASE

20 volumes of *glacial acetic acid*, 20 volumes of *water* and 80 volumes of *butan-1-ol*.

CONFIRMATION

The principal spot in the chromatogram obtained with solution (1) corresponds to that in the chromatogram obtained with solution (2).

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

Dissolution

Comply with the requirements for Monographs of the British Pharmacopoeia in the *dissolution test for tablets and capsules*, Appendix XII B1.

TEST CONDITIONS

(a) Use Apparatus 2 and rotate the paddle at 50 revolutions per minute.
(b) Use 900 mL of *0.1M hydrochloric acid*, 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 45 minutes withdraw a 20 mL sample of the medium and filter through a membrane filter with a nominal pore size not greater than 0.45 µm, discarding the first 10 mL of filtrate.
(2) 0.001% w/v of *baclofen BPCRS* in the mobile phase.

CHROMATOGRAPHIC CONDITIONS

The chromatographic conditions described under Assay may be used.

DETERMINATION OF CONTENT

Calculate the total content of baclofen, $C_{10}H_{12}ClNO_2$, in the medium from the declared content of $C_{10}H_{12}ClNO_2$ in *baclofen BPCRS*.

Impurity A

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

(1) Mix with the aid of ultrasound a quantity of the powdered tablets containing 0.1 g of Baclofen with 50 mL for 30 minutes, shaking occasionally to disperse the sample, and filter through a glass-fibre filter (Whatman GF/C is suitable).
(2) 0.004% w/v of *baclofen impurity A EPCRS*.
(3) 0.2% w/v of *baclofen BPCRS* and 0.004% w/v of *baclofen impurity A EPCRS*.

CHROMATOGRAPHIC CONDITIONS

(a) Use a stainless steel column (25 cm × 4.6 mm) packed with *octadecylsilyl silica gel for chromatography* (10 µm) (Spherisorb ODS 1 is suitable).
(b) Use isocratic elution and the mobile phase described below.
(c) Use a flow rate of 2 mL per minute.
(d) Use an ambient column temperature.
(e) Use a detection wavelength of 266 nm.
(f) Inject 20 µL of each solution.

MOBILE PHASE

5 volumes of *glacial acetic acid*, 440 volumes of *methanol* and 560 volumes of *water*, the mixture containing 0.182% w/v of *sodium hexanesulfonate*.

SYSTEM SUITABILITY

The test is not valid unless, in the chromatogram obtained with solution (3), the *resolution* between the peaks due to baclofen and impurity A is at least 2.0.

LIMITS

In the chromatogram obtained with solution (1) the area of any peak corresponding to baclofen impurity A is not greater than the area of the peak in the chromatogram obtained with solution (2) (2%).

ASSAY

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

(1) Add a quantity of whole tablets containing 0.1 g of Baclofen to 25 mL of a mixture of 1 volume of *glacial acetic acid* and 100 volumes of *water* and disperse with the aid of ultrasound. Dilute to 50 mL with *methanol*, filter and use the filtrate.
(2) 0.2% w/v of *baclofen BPCRS* in a mixture of 1 volume of *glacial acetic acid*, 100 volumes of *methanol* and 100 volumes of *water*.
(3) 0.2% w/v of *baclofen BPCRS* and 0.004% w/v of *baclofen impurity A EPCRS* in a mixture of 1 volume of *glacial acetic acid*, 100 volumes of *methanol* and 100 volumes of *water*.

CHROMATOGRAPHIC CONDITIONS

(a) Use a stainless steel column (25 cm × 4.6 mm) packed with *end-capped octadecylsilyl silica gel for chromatography* (10 µm) (Nucleosil C18 is suitable).
(b) Use isocratic elution and the mobile phase described below.
(c) Use a flow rate of 2 mL per minute.
(d) Use an ambient column temperature.
(e) Use a detection wavelength of 265 nm.
(f) Inject 20 µL of each solution.

MOBILE PHASE

0.01M *sodium hexanesulfonate* in a mixture of 1 volume of *glacial acetic acid*, 100 volumes of *methanol* and 100 volumes of *water*.

SYSTEM SUITABILITY

The test is not valid unless, in the chromatogram obtained with solution (3), the *resolution* between the peaks due to baclofen and impurity A is at least 7.0.

DETERMINATION OF CONTENT

Calculate the content of $C_{10}H_{12}ClNO_2$ in the tablets using the declared content of $C_{10}H_{12}ClNO_2$ in *baclofen BPCRS*.