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

Allopurinol Oral Suspension

General Notices

NOTE: This monograph has been developed to cover unlicensed formulations.

Action and use

Xanthine oxidase inhibitor; treatment of gout and hyperuricaemia.

DEFINITION

Allopurinol Oral Suspension is a suspension of Allopurinol in a suitable flavoured vehicle.

The oral suspension complies with the requirements stated under Oral Liquids and with the following requirements. Where appropriate, the oral suspension also complies with the requirements stated under Unlicensed Medicines.

Content of allopurinol, $C_5H_4N_4O$

95.0 to 105.0% of the stated amount.

IDENTIFICATION

A. The *light absorption*, Appendix II B, in the range 230 to 350 nm of solution (2) obtained in the Assay is concordant with that of solution (3).
B. In the Assay, the principal peak in the chromatogram obtained with solution (2) has the same retention time as that in the chromatogram obtained with solution (3).

TESTS

Acidity

pH, 2.5 to 4.5, Appendix V L.

Dissolution

Complies with the requirements stated under Unlicensed Medicines, Oral Suspensions, using 900 mL of 0.01M *hydrochloric acid* as the dissolution medium and rotating the paddle at 75 revolutions per minute. Use a volume of the oral suspension containing one dose.

Related substances

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

(1) 0.92% w/v solution of *sulfanilamide* in *methanol* (internal standard solution).
(2) To a quantity of the oral suspension containing 0.1 g of Allopurinol add 30 mL of a solution containing 10% w/v of *sodium chloride* in 0.1M *sodium hydroxide*. Add 10 mL of the internal standard solution and sufficient *methanol* to produce 100 mL; mix and filter through glass wool. Dilute 25 volumes of the resulting solution to 100 volumes with a 1% w/v solution of *anhydrous potassium dihydrogen orthophosphate*, mix and filter through a 0.45-µm membrane filter.
(3) Dissolve 0.1 g of *allopurinol BPCRS* in 30 mL of a solution containing 10% w/v of *sodium chloride* in 0.1M *sodium hydroxide*. Add 10 mL of the internal standard solution and sufficient *methanol* to produce 100 mL; mix. Dilute 25 mL of the

resulting solution to 100 mL with a 1% w/v solution of *anhydrous* *potassium dihydrogen orthophosphate*, mix and filter through a 0.45-µm membrane filter.
(4) Dilute 10 volumes of solution (3) to 100 volumes with the mobile phase; further dilute 10 volumes to 100 volumes and then dilute 5 volumes to 100 volumes with the mobile phase; mix and filter through a 0.45-µm membrane filter.

CHROMATOGRAPHIC CONDITIONS

(a) Use a stainless steel column (15 cm × 4.6 mm) packed with *octadecylsilyl silica gel for chromatography* (5 µm) (Develosil RP-aqueous is suitable).
(b) Use isocratic elution and the mobile phase described below.
(c) Use a flow rate of 1 mL per minute.
(d) Use a column temperature of 35°.
(e) Use a detection wavelength of 250 nm.
(f) Inject 10 µL of each solution.

MOBILE PHASE

2 volumes of *methanol* and 98 volumes of a 2% w/v solution of *anhydrous* *potassium dihydrogen orthophosphate*.

SYSTEM SUITABILITY

The chromatogram obtained with solution (3) shows a peak due to allopurinol (retention time about 11 minutes) and a peak with a retention relative to allopurinol of about 0.5 (sulfanilamide).

LIMITS

Using the chromatogram obtained with solution (4), calculate the ratio of the area of the peak due to allopurinol to the area of the peak due to the internal standard (*R*).

In the chromatogram obtained with solution (2):

the ratio of the area of any *secondary peak* to the area of the peak due to the internal standard is not greater than 0.04*R* (0.2%).

ASSAY

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

(1) 0.92% w/v solution of *sulfanilamide* in *methanol* (internal standard solution).
(2) To a weighed quantity of the oral suspension containing 0.1 g of Allopurinol add 30 mL of a solution containing 10% w/v of *sodium chloride* in 0.1M *sodium hydroxide*. Add 10 mL of the internal standard solution and sufficient *methanol* to produce 100 mL; mix and filter through glass wool. Dilute 25 volumes of the resulting solution to 100 volumes with a 1% w/v solution of *anhydrous* *potassium dihydrogen orthophosphate*, mix and filter through a 0.45-µm membrane filter.
(3) Dissolve 0.1 g of *allopurinol BPCRS* in 30 mL of a solution containing 10% w/v of *sodium chloride* in 0.1M *sodium hydroxide*. Add 10 mL of the internal standard solution and sufficient *methanol* to produce 100 mL; mix. Dilute 25 volumes of the resulting solution to 100 volumes with a 1% w/v solution of *anhydrous* *potassium dihydrogen orthophosphate*, mix and filter through a 0.45-µm membrane filter.

CHROMATOGRAPHIC CONDITIONS

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MOBILE PHASE

2 volumes of *methanol* and 98 volumes of a 2% w/v solution of *anhydrous* *potassium dihydrogen orthophosphate*.

DETERMINATION OF CONTENT

Determine the *weight per mL* of the oral suspension, Appendix V G, and calculate the content of $C_5H_4N_4O$, weight in volume, using the declared content of $C_5H_4N_4O$ in *allopurinol BPCRS*.

Impurities

The impurities limited by the requirements of this monograph include impurities A, B, C, D and E listed under Allopurinol.