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

Ivermectin Injection

General Notices

Action and use

Antihelminthic.

DEFINITION

Ivermectin Injection is a sterile solution of Ivermectin in a suitable non-aqueous vehicle.

The injection complies with the requirements stated under Parenteral Preparations and with the following requirements.

Content of ivermectin, calculated as the sum of component H_2B_{1a} ($C_{48}H_{74}O_{14}$) and component H_2B_{1b} ($C_{47}H_{72}O_{14}$)

95.0 to 105.0% of the stated amount.

The ratio of the contents H_2B_{1a} / (H_2B_{1a} + H_2B_{1b}) is at least 90.0%.

IDENTIFICATION

A. Carry out the method for *thin-layer chromatography*, Appendix III A, using a silica gel 60 F_{254} precoated plate (Merck silica gel 60 F_{254} plates are suitable) and a mixture of 1 volume of *concentrated ammonia R1*, 9 volumes of *methanol* and 90 volumes of *dichloromethane* as the mobile phase. Apply separately to the plate 2 µL of each of the following solutions. For solution (1) dissolve a volume of the injection in sufficient *methanol* to produce a solution containing 0.05% w/v of Ivermectin; filter if necessary. Solution (2) contains 0.05% w/v of *ivermectin BPCRS* in *methanol*. After removal of the plate, allow it to dry in air and examine under *ultraviolet light (254 nm* and *366 nm)*. The principal spot in the chromatogram obtained with solution (1) is similar in position, colour and size to that in the chromatogram obtained with solution (2).
B. In the Assay, the chromatogram obtained with solution (1) shows two principal peaks with retention times similar to those of the two principal peaks in the chromatogram obtained with solution (2).

TESTS

Clarity and colour of solution

The injection is *clear*, Appendix IV A, and not more intensely coloured than *reference solution Y_4*, Appendix IV B, Method II.

Related substances

Carry out the method for *liquid chromatography*, Appendix III D, using the following solutions. For solution (1) dissolve a volume of the injection in sufficient *methanol* to produce a solution containing 0.04% w/v of Ivermectin. Solutions (2), (3) and (4) contain 0.04% w/v, 0.0004% w/v and 0.00002% w/v respectively of *ivermectin BPCRS* in *methanol*. Inject 20 µL of each solution.

The chromatographic procedure may be carried out using (a) a stainless steel column (25 cm × 4.6 mm) packed with *octadecylsilyl silica gel for chromatography* (5 µm) (Apex ODS 1 is suitable), (b) as the mobile phase at a flow rate of 1.5 mL per minute a mixture of 39 volumes of *water*, 55 volumes of *methanol* and 106 volumes of *acetonitrile* and (c) a detection wavelength of 245 nm.

The test is not valid unless, in the chromatogram obtained with solution (2), the *resolution factor* between the first peak (component H_2B_{1b}) and the second peak (component H_2B_{1a}) is at least 3.0.

In the chromatogram obtained with solution (1) the area of any peak with a retention time of 1.3 to 1.5 relative to that of the principal peak is not greater than 2.7 times the area of the principal peak in the chromatogram obtained with solution (3) (2.7%), the area of any other *secondary peak* is not greater than the area of the principal peak in the chromatogram obtained with solution (3) (1%) and the sum of the areas of any such peaks is not greater than 6 times the area of the principal peak in the chromatogram obtained with solution (3) (6%). Disregard any peak with an area less than the area of the principal peak in the chromatogram obtained with solution (4) (0.05%).

ASSAY

Carry out the method for *liquid chromatography*, Appendix III D, using the following solutions. For solution (1) dissolve a volume of the injection in sufficient *methanol* to produce a solution containing 0.04% w/v of Ivermectin. Solution (2) contains 0.04% w/v of *ivermectin BPCRS* in *methanol*. Inject 20 µL of each solution.

The chromatographic conditions described under Related substances may be used.

Calculate the content of ivermectin (H_2B_{1a} + H_2B_{1b}) in the injection and the ratio H_2B_{1a} / (H_2B_{1a} + H_2B_{1b}) using as the declared content the contents of $C_{48}H_{74}O_{14}$ (H_2B_{1a}) and $C_{47}H_{72}O_{14}$ (H_2B_{1b}) in *ivermectin BPCRS*.