Cephapirin Benzathine Intramammary Infusion

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Manufacturers, regulatory authorities, health authorities, researchers, and other stakeholders are invited to provide their feedback and comments on this draft proposal. Manufacturers are also invited to submit samples of their products to the IPC to ensure that the proposed monograph adequately controls the quality of the product(s) they manufacture. Comments and samples received after the last date will not be considered by the IPC before finalizing the monograph.

Please send any comments you may have on this draft document to lab.ipc@gov.in, with a copy to Dr. Gaurav Pratap Singh (email: gpsingh.ipc@gov.in) before the last date for comments.

Document History and Schedule for the Adoption Process

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Further follow-up action as required.	

Cephapirin Benzathine Intramammary Infusion

Cephapirin Benzathine Intramammary Infusion is a suspension of Cephapirin Benzathine in a suitable vegetable oil vehicle.

Cephapirin Benzathine Intramammary Infusion contains equivalent of not less than 90.0 per cent and not more than 120.0 per cent of the stated amount of cephapirin ($C_{17}H_{17}N_3O_6S_2$). It contains a suitable dispersing agent.

Identification

Transfer the contents of 1 syringe of intramammary infusion to a 50-ml centrifuge tube, add 25 ml of *toluene*, mix for about 1 minute, and centrifuge. Remove and discard the toluene layer without disturbing the residue in the centrifuge tube. Wash the residue with two 25 ml portions of toluene. Dry the residue in vacuum at 60°, and use the dried residue as the test specimen. Mixed the dried residue with 9 parts of potassium bromide and record the IR spectrum, using the diffuse reflectance technique.

Determine by infrared absorption spectrophotometry (2.4.6). Compare the spectrum with that obtained with *cephapirin benzathine IPRS* or with the reference spectrum of cephapirin benzathine.

Tests

Water (2.3.43). Not more than 1.0 per cent, determined on 10 ml of intramammary infusion.

Other tests. Comply with the tests stated under Intramammary Infusions.

Assay. Determine by liquid chromatography (2.4.14).

Solution A. Dissolve 20.5 g of *potassium acetate* in 100 ml of *water*, adjusted to pH 7.5 to 8.2 with *glacial acetic acid*,

Solvent mixture. 40 volumes of *acetic acid* and 60 volumes of *water*.

Test solution. Transfer the entire content of a syringe of the intramammary infusion in to a centrifuge tube. For each ml of intramammary infusion, add 1.0 ml of *n-heptane* and 1.5 ml of the solvent mixture, cap, and vortex at high speed for 5 minutes. Centrifuge for 5 minutes at a sufficient speed to break the emulsion. Remove the aqueous layer, filter. Transfer 2.5 ml of the filtered aqueous phase to a 25-ml volumetric flask, add 15 ml of solution A and add 7 ml of *acetonitrile,* dilute to volume with the *water*.

Reference solution (a). Transfer 50 mg of *cephapirin sodium IPRS* to a 25-ml volumetric flask, add 2.5 ml of the solvent mixture and 15 ml of solution A, agitate to dissolve. Add 7 ml of *acetonitrile* and dilute to volume with the *water*.

Reference solution (b). A 0.2 per cent w/v solution of *cephapirin sodium IPRS* in 10 per cent v/v solution of *acetic acid*. Heat the solution at 50° for 12 hours to 18 hours.

Chromatographic system
- a stainless steel column 15 cm × 3.9 mm, packed with octadecylsilane bonded to porous silica (4 µm) and a guard column 15cm × 3.2 mm, packed with the same column material (7 µm),
- column temperature: 40º,

mobile phase A: a buffer solution prepared by dissolving 24.78 g of *potassium acetate* in *water*, add 6.55 ml of *glacial acetic acid* and dilute to 1000 ml with *water.*

B: *acetonitrile,*

- a gradient programme using the conditions given below,
- flow rate: 2 ml per minute,
- spectrophotometer set at 260 nm,
- injection volume: 2 µl.

Time (in min.)	Mobile phase A (per cent v/v)	Mobile phase B (per cent v/v)
0	91.5	8.5
6	91.5	8.5
10	80	20
12	80	20
21	91.5	8.5
25	91.5	8.5

Inject reference solution (a) and (b). The test is not valid until the percentage of the height of the valley is not more than 25 per cent for impurity peaks adjacent to the cephapirin peak in chromatogram obtained with the reference solution (b) and the relative standard deviation for replicate injections is not more than 3.0 per cent in the chromatogram obtained with the reference solution (a).

Calculate the percentage of height of valley, using following expression;

$$100\frac{r_V}{r_I}$$

Where,

r_V = height of the valley between cephapirin and any impurity.
r_I = height of the impurity peak.

NOTE—The System suitability solution is acceptable as long as the cephapirin peak is larger than the two peaks on either side of the cephapirin peak.

Inject reference solution (a) and the test solution.

Calculate the content of $C_{17}H_{17}N_3O_6S_2$ in the infusion.

Storage. Store in well-closed unit dose disposable syringes at temperature not exceeding 30°.

Labelling. Label Intramammary Infusion to indicate that it is for veterinary use only.