DEPARTMENT OF DRUG ADMINISTRATION
National Medicines Laboratory
ANALYTICAL METHOD VALIDATION COMMITTEE

Analytical profile of Dextromethorphan Hydrobromide, Chlorpheniramine Maleate and Phenylephrine Hydrochloride Syrup

Dextromethorphan Hydrobromide, Chlorpheniramine Maleate and Phenylephrine Hydrochloride Syrup contains not less than 90 % and not more than 110 % of the stated amount of Dextromethorphan Hydrobromide, Chlorpheniramine Maleate and Phenylephrine Hydrochloride.

Usual strengths: Dextromethorphan Hydrobromide 15 mg per 5 ml, Chlorpheniramine Maleate 2 mg per 5 ml and Phenylephrine Hydrochloride 5 mg per 5 ml.

1. Identification: In the assay, the principle peak in the chromatogram obtained with the test solution should correspond to the peak in the chromatogram obtained with the reference solution of Dextromethorphan Hydrobromide, Chlorpheniramine Maleate and Phenylephrine Hydrochloride.

Tests:

2. pH: *As per manufacturer's specification*

3. wt/ml: *As per manufacturer's specification*

4. Assay: *Determine by Liquid Chromatography*

4.1 Test Solution: Take 5 ml of sample in 100 ml volumetric flak. Dissolve it with 70 ml of diluent by sonicating for 15 minutes and make up the volume with same solvent. Filter the resulting solution through 0.2 µ membrane filter.

4.2 Reference Solution:

4.2.1 Dextromethorphan Hydrobromide (Stock Solution A): Weigh accurately and transfer about 30 mg of Dextromethorphan Hydrobromide reference standard in l00 ml volumetric flask. Dissolve it with 70 ml of diluent by sonicating for 15 minutes and make up the volume with same solvent.

4.2.2 Chlorpheniramine Maleate & Phenylephrine Hydrochloride (Stock Solution B): Weigh accurately and transfer about 50 mg of Phenylephrine Hydrochloride & 20 mg of

Chlorpheniramine Maleate in 100 ml volumetric flask. Dissolve it with 70 ml of diluent by sonicating for 15 minutes and make up the volume with same solvent.

4.2.3 Mix Standard Solution: Further dilute 10 ml of stock solution A & 2 ml of stock solution B in 20 ml volumetric flask and make up the volume with diluent. Filter the resulting solution through 0.2 µ membrane filter.

4.3 Chromatographic system:

Column: C 18, 25 cm x 4.6 mm; (5µm)
Flow rate: 1.0 ml/min
Wavelength: 220 nm
Injection volume: 20 µl
Detector: UV
Column temperature: 25 ^{0}C

Mobile phase: Variable mixture of mobile phase A & mobile phase B
(Use time programming as given below)
Mobile Phase A: Dissolve 1.0 ml of triethylamine and 1.08 g of l-Octane sulfonic acid sodium salt in l000 ml HPLC grade water. Stir the mixture well for complete dissolution of the salt. Adjust the pH to 3.2 using ortho phosphoric acid.
Mobile Phase B: Acetonitrile
Diluent: Acetonitrile : Mobile Phase A :: 50 : 50 (v/v)

Time (min)	Mobile Phase A (%)	Mobile Phase B (%)
0	70	30
2	70	30
8	60	40
12	45	55
20	40	60
22	70	30
30	70	30

4.4 Procedure: Inject 20 µl of reference solution five times and test solution as per above mentioned chromatographic conditions and obtain respective chromatograms. The test is not valid unless the column efficiency determined from the major peaks is not less than 2000 theoretical plates, the tailing factor is not more than 2.0 and the relative standard deviation of replicate injections is not more than 2.0 %.

Calculate the quantity of Dextromethorphan Hydrobromide, Chlorpheniramine Maleate and Phenylephrine Hydrochloride in the syrup.

5. Other test: As per pharmacopoieal requirement.