DEPARTMENT OF DRUG ADMINISTRATION
National Medicines Laboratory
ANALYTICAL METHOD VALIDATION COMMITTEE

Amlodipine & Hydrochlorothiazide Tablets

Analytical profile no.: Amlo Hychlo 077/078/AP 093

Amlodipine & Hydrochlorothiazide Tablets contains not less than 95.0% and not more than 105.0% of the stated amount of Amlodipine & Hydrochlorothiazide.

Usual Strength: Amlodipine 5 mg & Hydrochlorothiazide 12.5 mg

1. Identification:

In the Assay, the principle peak in the chromatogram obtained with the test solution corresponds to the peak in the chromatogram obtained with the reference solution.

Tests:

2. Dissolution: *Deteremine by liquid chromatography*

2.1 Dissolution Parameters:

Apparatus: Paddle

Medium: 900ml of simulated gastric fluid without pepsin (pH 1.2)

Speed and Time: 100 rpm and 45 minutes

Withdraw a suitable volume of the medium and filter.

Preparation of Simulated gastric fluid without pepsin (pH 1.2)

Take 6 liters of distilled water in a vessel. Add 12 g of Sodium Chloride mix well to dissolve; add 42 ml conc HCl and mix well. Check pH of the solution and adjust pH to 1.2 either by addition of conc HCl or by Sodium Hydrochloride Solution.

2.2 Test Solution: Use the filtrate.

2.3 Reference Solution: Weigh accurately about 28 mg of Amlodipine besilate WS and 62 mg of Hydrochlorothiazide WS in 50 ml volumetric flask. Add about 25 ml of mobile phase, sonicate to dissolve, cool to room temperature and make up the volume to 50 ml with same solvent. Dilute 10 ml of this solution to 50 ml with dissolution medium. Further dilute 5 ml of this solution to 100 ml with dissolution medium.

2.4 Procedure: Use the chromatographic system as described in the Assay.

Inject the reference solution and the test solution. Calculate the content of Amlodipine & Hydrochlorothiazide.

2.5 Limit: Not less than 80 percent (D) of the stated amount of Amlodipine & Hydrochlorothiazide.

3. Uniformity of Content

Determine by liquid chromatography, as described in the Assay, using the following solution as the test solution.

Test Solution: Place a tablet in a 50ml volumetric flask, add 25ml of mobile phase, sonicate to disperse whole tablet with intermittent shaking. Cool, make up the volume to 50 ml with same solvent and filter.

4. Assay: *Determine by liquid chromatography*

4.1 Test Solution: Weigh and powder 20 tablets. Weigh accurately about 1.60gm of powdered tablet into 100ml volumetric flask, add about 70 ml of mobile phase, sonicate with intermittent shaking, cool and make volume to 100 ml with same solvent. Further dilute 10 ml of this solution to 50 ml with same solvent.

4.2 Reference Solution: Weigh accurately about 28 mg of Amlodipine besilate WS and 62 mg of Hydrochlorothiazide WS in 50 ml volumetric flask. Add about 25 ml of mobile phase, sonicate to dissolve, cool to room temperature and make up the volume to 50 ml with same solvent. Dilute 10 ml of this solution to 50 ml with same solvent.

4.3 Chromatographic system:

- **Column:** C18, (250 x 4.6 mm), 5 µ particle size
- **Flow rate:** 1.0 ml/min
- **Wavelength:** 237 nm
- **Injection volume:** 20 µl
- **Detector:** UV
- **Mobile Phase:** A mixture of 60 volumes of buffer and 40 volumes of Acetonitrile
- **Buffer:** Mix 7 ml of triethylamine in 1000 ml of water and adjust pH to 3.0 using orthophosphoric acid

4.4 Procedure: Inject the reference solution five/six times and sample solutions. The test is not valid unless the column efficiency is not less than 2000 theoretical plates, tailing factor is not more than 2.0 and the relative standard deviation for replicate injections is not more than 2.0%.

Measure the peak responses. Calculate the content of Amlodipine & Hydrochlorothiazide in the tablets.

5. Other tests: As per pharmacopoeial requirement.