Government of Nepal
Ministry of Health and Population
Department of Drug Administration
National Medicines Laboratory
Quality and Method Validation Section

Analytical profile of Gliclazide Extended Release Tablets

Analytical Profile No.: Glicla ER 080/81/AP 153

Gliclazide Extended Release Tablets contains not less than 90.0% and not more than 110.0% of the stated amount of Gliclazide

Usual Strength: 90 mg and 120 mg (Film coated extended release form)

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 certified reference solution.

2. Dissolution: *Determine by liquid chromatography*

2.1 Dissolution Parameters:

Apparatus: Paddle with Japanese Sinker

Medium: 900 ml of Phosphate Buffer pH 7.5 (Dissolve 6.8 gm. of monobasic potassium phosphate and dissolve in 250 ml of water, add 204 ml of 0.2M sodium hydroxide and dilute to 1000 ml with water and mix well. Adjust pH to 7.5 with 0.2N sodium hydroxide or diluted phosphoric acid solution.

Speed: 75 rpm

Time: 2, 4 12 hours

Withdraw a suitable volume of the medium and filter.

2.3 Test Solution: (a). **For 90 mg:** Use the filtrate.

(b). **For 120 mg:** Dilute 5 ml of filtrate to 10 ml with dissolution media

2.4 Reference Solution: (a). **For 90 mg:** Weigh accurately 100 mg of Glicalzide WS and transfer in 100 ml completely dried volumetric flask dissolve in 15 ml of methanol and dilute to volume with dissolution media. Dilute 5 ml of the solution to 50 ml with dissolution media.

(b). **For 120 mg:** Weigh accurately 66 mg of Glicalzide WS and transfer in 100 ml completely dried volumetric flask dissolve in 15 ml of methanol and dilute to volume with dissolution media. Dilute 5 ml of the solution to 50 ml with dissolution media.

2.5 Chromatographic system:

Column: C18 (4.6mmX 150-mm, 5µ)

Flow rate: 1.5 ml/min

Wavelength: 235 nm

Injection volume: 10 µl

Column Temperature: 30ºC

Mobile Phase: Prepare a filtered and degassed mixture of water, acetonitrile, triethylamine and trifluoroacetic acid in the ratio of 50:50:0.1:0.1.

2.6 Procedure: Inject the reference solution and the test solution.

Calculate the percent release of Gliclazide for each sampling time.

2.7 Limit:

Time Point(Hour)	**Drug release (%)**
2	**NLT 10% and NMT 40%**
4	**NLT 30% and NMT 80%**
12	**NLT 80%**

3. Assay: *Determine by liquid chromatography*

3.1 Test solution: (a) For 90 mg: Weigh 7 tablets and calculate average weight, transfer the tablets into 500 ml volumetric flask. Add about 300 ml acetonitrile, shake for 30 minutes at 200 RPM on rotary shaker and sonicate the sample for 20 minutes (ensure complete disintegration of tablets). Cool the sample solution to room temperature and dilute to volume with acetonitrile and mix well. Dilute the 5 ml of solution to 100 ml with diluent.

(b) For 120 mg: Weigh 5 tablets and calculate average weight, transfer the tablets into 500 ml volumetric flask. Add about 300 ml acetonitrile, shake for 30 minutes at 200 RPM on rotary shaker and sonicate the sample for 20 minutes (ensure complete disintegration of tablets). Cool the sample solution to room temperature and dilute to volume with acetonitrile and mix well. Dilute the 5 ml of solution to 100 ml with diluent.

3.2 Reference solution: Weigh accurately 60 mg of Glicalzide WS and transfer in 100 ml completely dries volumetric flask. Add 70 ml of acetonitrile, sonicate to dissolve. Make up the volume with acetonitrile and mix. Dilute 5 ml of the standard solution to 50 ml with diluent and mix.

3.3 Chromatographic system:

Column: C18 (4.6mmX 50-mm, 2.6µ)

Flow rate: 0.8 ml/min

Wavelength: 235 nm

Injection volume: 5 µl

Column Temperature: 25ºC

Mobile Phase: Buffer: Acetonitrile: 65:35

Buffer: Add 1 ml of Triethylamine and Trifluoroacetic acid to 1000 ml of water. Filter and degas.

Diluent: Prepare a mixture of pH 7.4 phosphate buffer and acetonitrile in the ration 60:40(v/v)

Preparation of pH 7.4 buffer: Weigh accurately about 3.4 gm. of monobasic potassium phosphate and dissolve in 1000 ml of water, mix well. Adjust the pH of the buffer to 7.4 with 0.2N sodium hydroxide solution

3.4 Procedure: Inject the reference solution five 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 Gliclazide in Gliclazide Extended Release Tablets.

4. Other tests: As per Pharmacopoeial requirements.