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

Analytical profile of Mirabegron Extended Release Tablets

Analytical Profile No.: Mirab 080/81/AP 148

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

Usual Strength: 25 mg and 50 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 reference solution.

2. Dissolution: *Determine by liquid chromatography*

2.1 Dissolution Parameters:

Apparatus: Basket

Medium: 900 ml of Phosphate Buffer pH 6.8 (Dissolve 40.8 gm Potassium dihydrogen orthophosphate and 5.4 gm Sodium Hydroxide pellets in sufficient water to produce 6000 ml and mix well. Measure and adjust the pH 6.80 with 1 N NaOH or 10% orthophosphoric acid.

Speed: 100 rpm

Time: 1, 3, 5, 8.5 hours

Withdraw a suitable volume of the medium and filter.

2.2 Test Solution: Use the filtrate.

2.3 Reference Solution: Weigh accurately 27.7 mg of Mirabegron WS and transfer in 100 ml completely dried volumetric flask using dissolution medium. Dilute 2 ml of the solution to 20 ml with dissolution media **[For 25 mg strength]** and 2 ml to 10 ml with dissolution media **[For 50 mg strength].**

2.4 Procedure: Use the chromatographic system as described in the Assay. Inject the reference solution and the test solution.

Calculate the percent release of Mirabegron for each sampling time.

2.5 Limit:

Time Point(Hour)	Drug release (%)
1	NMT 30
3	22-55
5	50-85
8.5	NLT 80

3. Uniformity of Content

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

3.1 Test Solution:

3.1.1. For 25 mg strength: Place one tablet in 100 ml completely dried volumetric flask by adding 50 ml **methanol**, sonicate for 15 minute. Make up the volume with **buffer Solution**. Dilute 2 ml of this solution to 20 ml with **mobile phase**. **[Ensure that all the tablets gets disintegrated completely]**

3.1.2. For 50 mg Strength: Place one tablet in 100 ml completely dried volumetric flask by adding 50 ml **methanol**, sonicate for 15 minute. Make up the volume with **buffer Solution.** Dilute 1 ml of this solution to 20 ml with **mobile phase.** . **[Ensure that all the tablets gets disintegrated completely]**

3.2 Reference Solution: Same as assay.

4. Assay: *Determine by liquid chromatography*

4.1 Test solution: Weigh 20 tablets and calculate average weight. Weight accurately the powder equivalent to 27.7 mg of Mirabegron in 100 ml of dry volumetric flask, add 50 ml of **methanol**, sonicate for 15 minute. Make up the volume with **buffer solution**. Dilute 2 ml of the solution to 20 ml with **mobile phase.**

4.2 Reference solution: Weigh accurately 27.7 mg of Mirabegron WS and transfer in 100 ml completely dries volumetric flask. Add 50 ml of **methanol**, sonicate to dissolve. Make up the volume with **buffer solution**. Dilute 2 ml of the solution to 20 ml with **mobile phase**.

4.3 Chromatographic system:

Column: C18 (4.6mmX 250-mm, 5µ)

Flow rate: 1.0 ml/min

Wavelength: 250 nm

Injection volume: 10 µl

Column Temperature: 45ºC

Mobile Phase: Buffer: Acetonitrile: 65:35

Buffer: Dissolve 6.8 gm. Of Potassium dihydrogen orthophosphate in 1000 ml water. Adjust pH 6.0 with sodium hydroxide solution.

4.4 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 Mirabegron in Mirabegron Extended Release Tablets.

5. Other tests: As per Pharmacopoeial requirements.