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

Analytical profile of Estradiol Valerate Tablets

Analytical Profile No.: Estra 079/080/AP 116

Estradiol Valerate Tablets contains not less than 95.0% and not more than 105.0% of the stated amount of Estradiol Valerate.

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: *Deteremine by liquid chromatography*

2.1 Dissolution Parameters:

Apparatus: Paddle

Medium: 500ml of tris buffer + 2% Sodium Lauryl Sulphate

Speed and Time: 100 rpm and 60 minutes

Withdraw a suitable volume of the medium and filter.

2.2 Tris buffer + 2% Sodium Lauryl Sulphate: Dissolve 12.1 gm. of Tris buffer in 800 ml of water, adjust the pH to 8.0 with dilute hydrochloric acid and make up the volume up to 1000 ml with water and mix. Add 20 gm of Sodium Lauryl Sulphate and dissolve.

2.3 Test Solution: Use the filtrate.

2.4 Reference Solution: Weigh accurately about 40mg of Estradiol Valerate WS to 100 ml volumetric flask, add about 70 ml of mobile phase, sonicate to dissolve, cool to room temperature and make up the volume with same solvent. Further dilute 1 ml of this solution to 100 ml with dissolution medium and mix.

2.5 Procedure: Use the chromatographic system as described in the Assay using 100 µl as injection volume. Inject the reference solution and the test solution.

Calculate the percent release of Estradiol Valerate.

2.6 Limit: Not less than 70 percent (D) of the stated amount of Estradiol Valerate.

3. Uniformity of Content

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

Test Solution: Place a tablet in a 50ml volumetric flask, add 30ml of mobile phase, sonicate to disperse whole tablet with intermittent shaking. Cool, make up the volume to 50 ml with same solvent and mix.

4. Assay: *Determine by liquid chromatography*

4.1 Test solution: Transfer an accurately weighed 5 intact tablets into a 250 ml volumetric flask. Add about 150 ml of mobile phase and sonicate to disperse the tablets. Further sonicate for 15 minutes with intermittent shaking. Cool and dilute to volume with same solvent and mix.

4.2 Reference solution: Transfer an accurately weighed quantity about 40 mg of estradiol valerate working standard into a 100 ml volumetric flask. Dissolve and dilute to volume with mobile phase. Dilute 10 ml of this solution to 100 ml with same solvent and mix.

4.3 Chromatographic system:

Column: Zorbax Extend C18 (4.6mmX 150-mm, 5µ)

Flow rate: 2.0 ml/min

Wavelength: 220 nm

Injection volume: 20µl

Column Temperature: 40ºC

Mobile Phase: A mixture of 40 volume of water and 60 volume of acetonitrile.

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 Estradiol Valerate in Estradiol Valerate Tablets.

5. Other tests: As per pharmacopoeial requirements.