Repaglinide and Voglibose Tablet

Repaglinide and Voglibose Tablets contain not less than 90.0 per cent and not more than 110.0 per cent of the stated amounts of Repaglinide, $C_{17}H_{36}N_2O_4$ and Voglibose, $C_{10}H_{21}NO_7$.

Usual strengths. Repaglinide, 0.5 mg and Voglibose 0.2 mg; Repaglinide, 0.5 mg and Voglibose 0.3 mg; Repaglinide, 1.0 mg and Voglibose, 0.2 mg; Repaglinide, 1.0 mg and Voglibose, 0.3 mg.

Identification

In the Assay of repaglinide, the principal peak in the chromatogram obtained with the test solution corresponds to the principal peak in the chromatogram obtained with the reference solution and in the Assay of voglibose, the principal peak in the chromatogram obtained with the test solution corresponds to the principal peak in the chromatogram obtained with the reference solution

Tests

Dissolution (2.5.2).

For Repaglinide

Apparatus No. 1,
Medium. 900 ml of a buffer solution prepared by dissolving 10.3 g of *citric acid monohydrate* and 18.16 g of *disodium hydrogen phosphate dihydrate* in 1000 ml of *water*, adjusted to pH 5.0.
Speed and time. 75 rpm and 30 minutes.

Withdraw a suitable volume of the medium and filter.

Determine by liquid chromatography (2.4.14).

Test solution. Dilute the filtrate, if necessary, with the dissolution medium.

Reference solution. A 0.0011 per cent w/v solution of *repaglinide* RS in the *methanol.* Dilute 5.0 ml of the solution to 100.0 ml with the dissolution medium.

Chromatographic system

- a stainless steel column 50 mm x 4.6 mm, packed with octadecylsilane bonded to porous silica (5 µm),
- column temperature: 40º,
- mobile phase: a mixture of 70 volumes of a buffer solution prepared by dissolving 2 g of *ammonium dihydrogen phosphate* in 1000 ml of *water*, adjusted to pH 2.5 with *orthophosphoric acid* and 30 volumes of *methanol*,
- flow rate: 1 ml per minute,
- spectrophotometer set at 245 nm,
- injection volume: 50 µl.

Inject the reference solution. The test is not valid unless the tailing factor is not more than 2.0 and the relative standard deviation for replicate injections is not more than 2.0 per cent.

Inject the reference solution and the test solution.

Calculate the contents of $C_{17}H_{36}N_2O_4$

D. Not less than 70 per cent of the stated amount of $C_{17}H_{36}N_2O_4$, in the medium.

Uniformity of content. Determine by liquid chromatography (2.4.14),

For Repaglinide.

Solvent mixture: 70 volumes of a buffer solution prepared by dissolving 2 g of *ammonium dihydrogen phosphate* in 1000 ml of *water*, adjusted to pH 4.0 with *orthophosphoric acid* and 30 volumes of *methanol*.

Test solution. Disperse 1 intact tablet in the solvent mixture with the aid of ultrasound for 30 minutes with intermittent shaking and dilute with the solvent mixture to obtain a concentration of 0.005 per cent w/v of Repaglinide and filter.

Reference solution. A 0.05 per cent w/v solution of *repaglinide RS* in the *methanol.* Dilute 5.0 ml of this solution to 50.0 ml with the solvent mixture.

Use the chromatographic system as described in the dissolution with the following modification.

– injection volume: 20 µl.

Inject the reference solution. The test is not valid unless the tailing factor is not more than 2.0 and the relative standard deviation for replicate injections is not more than 2.0 per cent.

Inject the reference solution and the test solution.

Calculate the content of $C_{17}H_{36}N_2O_4$ in tablet.

For Voglibose

Determine by liquid chromatography (2.4.14).

Test solution. Disperse 1 intact tablet in the mobile phase with the aid of ultrasound for 45 minutes with intermittent shaking and dilute to 25.0 ml with the mobile phase, filter.

Reference solution. Dissolve a weighed quantity of *voglibose RS* in the mobile phase to obtain a solution of the same concentration as that of the test solution.
Chromatographic system

– a stainless steel column 25 cm x 4.6 mm, packed with aminopropylsilane bonded to porous silica (5 µm) (Such as Hypersil APS-2 or equivalent),
– mobile phase: a mixture of 30 volumes of a buffer solution prepared by dissolving 0.6 g of *potassium dihydrogen phosphate* and 0.28 g of *dipotassium hydrogen phosphate* in 1000 ml of *water* and 70 volumes of *acetonitrile*,
– flow rate: 0.8 ml per minute,
– spectrophotometer set at 205 nm,
– injection volume: 100 µl.

Inject the reference solution. The test is not valid unless the tailing factor is not more than 2.0 and the relative standard deviation for replicate injections is not more than 3.0 per cent.

Inject the reference solution and the test solution.

Calculate the content of $C_{10}H_{21}NO_7$ in tablet.

Related substances. Determine by liquid chromatography (2.4.14).

For Repaglinide

Solvent mixture: 70 volumes of a buffer solution prepared by dissolving 2 g of *ammonium dihydrogen phosphate* in 1000 ml of *water*, adjusted to pH 4.0 with *orthophosphoric acid* 30 volumes of *methanol*.

Test solution. Disperse a quantity of powdered tablets containing 4 mg Repaglinide in the solvent mixture with the aid of mechanical shakes for 20 minutes and dilute to 50.0 ml with the solvent mixture, filter.

Reference solution. A 0.08 per cent w/v solution of *repaglinide* RS in *methanol*. Dilute 1.0 ml of the solution to 100.0 ml with the solvent mixture. Further dilute 1.0 ml of the solution to 100.0 ml with the solvent mixture.

Use the chromatographic system as described in the dissolution with the following modification.

– injection volume: 20 µl.

Inject the reference solution. The test is not valid unless the tailing factor is not more than 2.0 and the relative standard deviation for replicate injections is not more than 5.0 per cent.

Inject the reference solution and the test solution. In the chromatogram obtained with test solution, the area of any secondary peak is not more than 5 times the area of the principal peak in the chromatogram obtained with reference solution (0.5 per cent). The sum of areas of all the secondary peaks is not more than 20 times the area of the principal peak in the chromatogram obtained with reference solution (2.0 per cent). Ignore any peak due to voglibose and with an area less than 0.5 times the area of the principal peak in the chromatogram obtained with reference solution (0.05 per cent).

Other tests. Comply with the tests stated under Tablets.

Assay. Determine by liquid chromatography (2.4.14).

For Repaglinide

Solvent mixture: 70 volumes of a buffer solution prepared by dissolving 2 g of *ammonium dihydrogen phosphate* in 1000 ml of *water*, adjusted to pH 4.0 with *orthophosphoric acid* 30 volumes of *methanol*.

Test solution. Disperse a quantity of powdered tablets containing 4 mg of Repaglinide in the solvent mixture with the aid of ultrasound for 30 minutes with intermittent shaking and dilute to 50.0 ml with the solvent mixture, filter.

Reference solution. A 0.08 per cent w/v solution of *repaglinide* RS in *methanol.* Dilute 5 ml of the solution to 50.0 ml with the solvent mixture.

Use the chromatographic system as described in the dissolution with the following modification.

– injection volume: 20 µl.

Inject the reference solution. The test is not valid unless the tailing factor is not more than 2.0 and the relative standard deviation for replicate injections is not more than 2.0 per cent.

Inject the reference solution and the test solution.

Calculate the content of $C_{17}H_{36}N_2O_4$ in the tablets.

For Voglibose -

Test solution. Disperse a quantity of powdered tablets containing 1.2 mg of Voglibose in mobile phase with the aid of ultrasound for 45 minutes with intermittent shaking and dilute to 100.0 ml with the mobile phase, filter.

Reference solution. A 0.0012 per cent w/v solution of *voglibose* RS in mobile phase.

Use the chromatographic system as described in the Uniformity of content.

Inject the reference solution. The test is not valid unless the tailing factor is not more than 2.0 and the relative standard deviation for replicate injections is not more than 3.0 per cent.

Inject the reference solution and the test solution.

Calculate the content of $C_{10}H_{21}NO_7$ in the tablets.

Storage. Store protected from moisture, at a temperature not exceeding 30°.