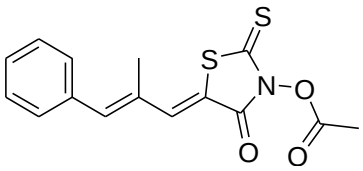
Epalrestat



$C_{15}H_{13}NO_3S_2$ Mol. Wt 319.4

Epalrestat is 2-{(5Z)-5-[(2E)-2-Methyl-3-phenylprop-2-en-1-ylidene]-4-oxo-2-thioxothiazolidin-3-yl} acetic acid.

Epalrestat contains not less than 98.0 per cent and not more than 101.0 per cent of $C_{15}H_{13}NO_3S_2$, calculated on the dried basis.

Category. Antidiabetic.

Description. A yellow to orange, crystals or crystalline powder. It shows polymorphism (2.5.11).

Identification

A. Determine by infrared absorption spectrophotometry (2.4.6). Compare the spectrum with that obtained with *epalrestat RS* or with the reference spectrum of epalrestat.

B. When examined in the range 200 nm to 400 nm (2.4.7), a 0.0005 per cent w/v solution in *methanol* shows absorption maxima and minima at the same wavelength as that of *epalrestat RS* prepared in the same manner.

C. Melting point (2.4.21). 222° to 227°.

Tests

Related substances. Determine by liquid chromatography (2.4.14).

NOTE- Carryout the tests protected from light.

Test solution. Dissolve 25 mg of the substance under examination in 10.0 ml of *N,N-dimethylformamide.*

Reference solution. A 0.0025 per cent w/v solution of *epalrestat RS* in *N,N-dimethylformamide.*

Chromatographic system

- a stainless steel column 15 cm x 4.6 mm, packed with octadecylsilane bonded to porous silica (5 µm),
- mobile phase: a mixture of 70 volumes of a buffer solution prepared by dissolving 6.8 g of *potassium dihydrogen phosphate* and 7.09 g of *disodium hydrogen phosphate* in 1000 ml of *water*, adjusted to pH 6.5, and 35 volumes of *acetonitrile*,
- flow rate: 1 ml per minute,
- spectrophotometer set at 280 nm,
- injection volume: 5 µl.

Inject the reference solution. The test is not valid unless the column efficiency in not less than 6000 theoretical plates, the tailing factor is not more than 1.5, and relative standard deviation for replicate injection is not more than 2.0 per cent.

Inject the reference solution and the test solution. In the chromatogram obtained with the test solution, the area of any secondary peak is not more than 0.2 times of the area of the principal peak in the chromatogram obtained with the reference solution (0.2 per cent) and the sum of the areas of all the secondary peaks is not more than the area of the principal peak in the chromatogram obtained with the reference solution (1.0 per cent).

Heavy metals (2.3.13). 2.0 g complies with the limit test for heavy metals. Method B (10 ppm).

Sulphated ash (2.3.18). Not more than 0.1 per cent.

Loss on drying (2.4.19). Not more than 0.2 per cent, determined on 1.0 g by drying under vacuum over silica gel at 60° for 3 hours.

Assay. Determine by liquid chromatography (2.4.14).

NOTE- Carryout the tests protected from light.

Test solution. Dissolve 20 mg of the substance under examination in *N,N-dimethylformamide* and dilute to 100.0 ml with *N,N-dimethylformamide.*

Reference solution. A 0.02 per cent w/v solution of *epalrestat RS* in *N,N-dimethylformamide*.

Use chromatographic system as described under Related substances.

Inject the reference solution. The test is not valid unless the column efficiency is not less than 2000 theoretical plates, 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 $C_{15}H_{13}NO_3S_2$.

Storage. Store protected from light and moisture, at a temperature not exceeding 30^0.

Solubility (2.4.26). Soluble in *N,N-dimethylformamide*, slightly soluble in *methanol* and in *ethanol*, and practically insoluble in *water*.
