Ribavirin Capsules

Ribavirin Capsules contain not less than 90.0 per cent and not more than 110.0 per cent of the stated amount of ribavirin, $C_8H_{12}N_4O_5$.

Usual strengths. 100 mg; 200 mg.

Identification

In the Assay, the retention time of the principal peak in the chromatogram obtained with the test solution corresponds to the peak in the chromatogram obtained with the reference solution.

Tests

Dissolution (2.5.2).

Apparatus No. 2,
Medium. 900 ml of *water*,
Speed and time. 100 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. Dissolve a quantity of *ribavirin RS* in the dissolution medium to obtain a solution of known concentration similar to the expected concentration of the test solution.

Chromatographic system

- a stainless steel column 30 cm x 7.8 mm, packed with a strong cation-exchange resin consisting of sulphonated cross-linked styrene-divinylbenzene copolymer in the hydrogen form (9 µm),
- column temperature: 65°,
- mobile phase: *water*, adjusted to pH 2.5 with *sulphuric acid*,
- flow rate: 1.5 ml per minute,
- spectrophotometer set at 207 nm,
- injection volume: 20 µl

Inject the reference solution. The test is not valid unless 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 $C_8H_{12}N_4O_5$ in the medium.

D. Not less than 80 per cent of the stated amount of $C_8H_{12}N_4O_5$.

Related substances. Determine by liquid chromatography (2.4.14).

Test solution. Transfer an accurately weighed portion of the contents of 20 capsules containing about 50 mg of Ribavirin to a 100- ml volumetric flask, add 50 ml of the mobile phase and disperse with the aid of ultrasound for 20 minutes with intermittent shaking and dilute to volume with the mobile phase, filter.

Reference solution. A 0.0025 per cent w/v solution of *ribavirin RS* in the mobile phase.

Chromatographic system

- a stainless steel column 15 cm x 7.8 mm, packed with a strong cation-exchange resin consisting of sulphonated cross-linked styrene-divinylbenzene copolymer in the hydrogen form (7 µm),
- column temperature: 65°,
- mobile phase: *water*, adjusted to pH 2.5 with *sulphuric acid*,
- flow rate: 1 ml per minute,

- spectrophotometer set at 207 nm,
- injection volume: 10 µl.

Name	Relative retention time	Correction factor
Ribavirin Impurity A[1]	0.7	1.43
Ribavirin	1.0	-

1-*β*-D-Ribofuranosyl-1*H*-1,2,4-triazole-3-carboxylic acid.

Inject the reference solution and the test solution. In the chromatogram obtained with the test solution, the area of any peak corresponding to ribavirin impurity A is not more than 0.05 times the area of principal peak in the chromatogram obtained with the reference solution (0.25 per cent). The area of any other secondary peak is not more than 0.02 times the area of the principal peak in the chromatogram obtained with reference solution (0.1 per cent). The sum of the areas of all the secondary peaks is not more than 0.2 times the area of the principal peak in the chromatogram obtained with the reference solution (1.0 per cent). Ignore any peak with an area less than 0.01 time 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 Capsules.

Assay. Determine by liquid chromatography (2.4.14), as described under Related substances, with following modification.

Test solution. Transfer an accurately weighed portion of the mixed contents of 20 capsules containing about 50 mg of Ribavirin to a 100- ml volumetric flask, add about 50 ml of the mobile phase and disperse with the aid of ultrasound for 20 minutes with intermittent shaking and dilute to volume with the mobile phase. Dilute 5.0 ml of the solution to 100.0 ml with the mobile phase.

Reference solution. A 0.0025 per cent w/v solution of *ribavirin RS* in the mobile phase.

Inject the reference solution. The test is not valid unless the tailing factor is not more than 1.5 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 $C_8H_{12}N_4O_5$ in the capsules.

Storage. Store protected from moisture at a temperature not exceeding.