not less than 3.

System repeatability: When the test is repeated 6 times with 20 μL of the standard solution under the above operating conditions, the relative standard deviation of the peak areas of tipepidine is not more than 3.0%.

Loss on drying Not more than 0.5% (1 g, 60°C, in vacuum, phosphorus (V) oxide, 3 hours).

Residue on ignition Not more than 0.10% (1 g).

Assay Weigh accurately about 1 g of Tipepidine Hibenzate, previously dried, dissolve in 40 mL of acetic acid (100), and titrate with 0.1 mol/L perchloric acid VS until the color of the solution changes from purple through blue to green (indicator: 3 drops of crystal violet TS). Perform a blank determination, and make any necessary correction.

Each ml of 0.1 mol/L perchloric acid VS
= 51.77 mg of $C_{15}H_{17}NS_2.C_{14}H_{10}O_4$

Containers and storage Containers— Well-closed containers.

Storagle—Light-resistant.

Tipepidine Hibenzate Tablets

ヒベンズ酸チペピジン錠

Tipepidine Hibenzate Tablets contain not less than 95% and not more than 105% of the labeled amount of tipepidine hibenzate ($C_{15}H_{17}NS_2.C_{14}H_{10}O_4$: 517.66).

Method of preparation Prepare as directed under Tablets, with Tipepidine Hibenzate.

Identification **(1)** To a quantity of powdered Tipepidine Hibenzate Tablets, equivalent to 0.044 g of Tipepidine Hibenzate according to the labeled amount, add 5 mL of water, shake for 1 minute, add 10 mL of sodium hydroxide TS, and extract with two 20-mL portions of chloroform. Combine the extracts, wash with 10 mL of water, and filter the chloroform layer. Evaporate the filtrate on a water bath to dryness, dissolve the residue in 0.2 mL of 1 mol/L hydrochloric acid TS and 2 mL of water, and add 5 mL of Reinecke salt TS: a light red precipitate is formed.

(2) To a quantity of powdered Tipepidine Hibenzate Tablets, equivalent to 0.011 g of Tipepidine Hibenzate according to the labeled amount, add 30 mL of ethanol (99.5), and warm for 10 minutes with occasional shaking. After cooling, add ethanol (99.5) to make 50 mL, and filter. To 1 mL of the filtrate add ethanol (99.5) to make 20 mL, and determine the absorption spectrum of this solution as directed under the Ultraviolet-visible Spectrophotometry: it exhibits a maximum between 282 nm and 286 nm.

Dissolution test Perform the test with 1 tablet of Tipepidine Hibenzate Tablets at 50 revolutions per minute according to Method 2 under the Dissolution Test, using 900 mL of water as the test solution. Use the dissolved solution 30 minutes after starting the test as the sample solution. Separately, weigh accurately about 0.11 g of tipepidine hibenzate for assay, previously dried in a desiccator (in vacuum, phosphorus (V) oxide, 60°C) for 3 hours, and dissolve in 80 mL of diluted ethanol (99.5) (3 in 4) by warming occasionally. After cooling, add diluted ethanol (99.5) (3 in 4) to make exactly 100 mL, then pipet 20 mL of this solution, add water to make exactly 900 mL, and use this solution as the standard solution. Determine the absorbances, A_{T1} and A_{S1}, at 286 nm, and A_{T2} and A_{S2}, at 360 nm of the sample solution and the standard solution as directed under the Ultraviolet-visible Spectrophotometry.

The dissolution rate of Tipepidine Hibenzate Tablets in 30 minutes is not less than 80%.

Dissolution rate (%) with respect to the labeled amount of tipepidine hibenzate ($C_{15}H_{17}NS_2.C_{14}H_{10}O_4$)

$$= W_S \times \frac{A_T - A_{T2}}{A_S - A_{S2}} \times \frac{20}{C}$$

W_S: Amount (mg) of tipepidine hibenzate for assay.
C: Labeled amount (mg) of tipepidine hibenzate ($C_{15}H_{17}NS_2.C_{14}H_{10}O_4$) in 1 tablet.

Assay Weigh accurately and powder not less than 20 Tipepidine Hibenzate Tablets. Weigh accurately a portion of the powder, equivalent to about 0.022 g of tipepidine hibenzate ($C_{15}H_{17}NS_2.C_{14}H_{10}O_4$), add 10 mL of diluted acetic acid (100) (1 in 2) and 30 mL of methanol, and warm for 10 minutes with occasional shaking. After cooling, add diluted methanol (1 in 2) to make exactly 50 mL, and filter. Discard the first 10 mL of the filtrate, pipet the subsequent 5 mL, add exactly 5 mL of the internal standard solution, then add diluted methanol (1 in 2) to make 25 mL, and use this solution as the sample solution. Separately, weigh accurately about 0.022 g of tipepidine hibenzate for assay, previously dried in a desiccator (in vacuum, phosphorus (V) oxide, 60°C) for 3 hours, dissolve in 10 mL of diluted acetic acid (100) (1 in 2) and 30 mL of methanol, and add diluted methanol (1 in 2) to make exactly 50 mL. Pipet 5 mL of this solution, add exactly 5 mL of the internal standard solution, then add diluted methanol (1 in 2) to make exactly 25 mL, and use this solution as the standard solution. Perform the test with 20 μL each of the sample solution and the standard solution as directed under the Liquid Chromatography according to the following conditions, and calculate the ratios, Q_T and Q_S, of the peak area of tipepidine to that of the internal standard, respectively.

Amount (mg) of tipepidine hibenzate ($C_{15}H_{17}NS_2.C_{14}H_{10}O_4$)
= amount (mg) of tipepidine hibenzate for assay $\times \frac{Q_T}{Q_S}$

Internal standard solution—A solution of dibucaine hydrochloride in methanol (1 in 2000).

Operating conditions—

Detector: An ultraviolet absorption photometer (wavelength: 254 nm).

Column: A stainless steel column 4.6 mm in inside diameter and 15 cm in length, packed with octadecylsilanized silica gel for liquid chromatography (5 μm in particle diameter).

Column temperature: A constant temperature of about 40°C.

Mobile phase: A mixture of a solution of sodium lauryl sulfate in diluted phosphoric acid (1 in 1000) (1 in 500), acetonitrile and 2-propanol (3:2:1).

Flow rate: Adjust the flow rate so that the retention time

of tipepidine is about 7 minutes.

System suitability—

System performance: When the procedure is run with 20 μL of the standard solution under the above operating conditions, tipepidine and the internal standard are eluted in this order with the resolution between these peaks being not less than 10.

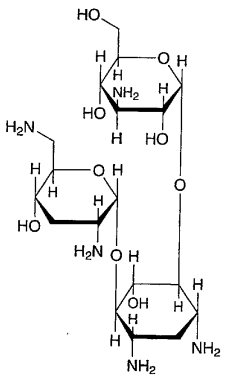
System repeatability: When the test is repeated 6 times with 20 μL of the standard solution under the above operating conditions, the relative standard deviation of the ratios of the peak area of tipepidine to that of the internal standard is not more than 1.0%.

Containers and storage Containers—Tight containers.

Storage—Light-resistant.

Tobramycin

トブラマイシン



$C_{18}H_{37}N_5O_9$: 467.51

O-3-Amino-3-deoxy-α-D-glucopyranosyl-(1→6)-*O*-[2,6-diamino-2,3,6-trideoxy-α-D-*ribo*-hexopyranosyl-(1→4)]-2-deoxy-D-streptamine [*32986-56-4*]

Tobramycin conforms to the requirements of Tobramycin in the Minimum Requirements for Antibiotic Products of Japan.

Description Tobramycin occurs as a white to pale yellowish white powder.

It is very soluble in water, slightly soluble in methanol, very slightly soluble in ethanol (95), and practically insoluble in diethyl ether.

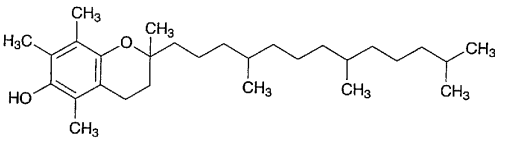
It is hygroscopic.

Tocopherol

Vitamin E

dl-α-Tocopherol

トコフェロール



$C_{29}H_{50}O_2$: 430.71

2,5,7,8-Tetramethyl-2-(4,8,12-trimethyltridecyl)chroman-6-ol [*10191-41-0*]

Tocopherol contains not less than 96.0% and not more than 102.0% of $C_{29}H_{50}O_2$.

Description Tocopherol is a clear, yellow to red-brown, viscous liquid. It is odorless.

It is miscible with ethanol (99.5), with acetone, with diethyl ether, with chloroform and with vegetable oils.

It is freely soluble in ethanol (95), and practically insoluble in water.

It is optically inactive.

It is oxidized by air and light, and acquires a dark red color.

Identification (1) Dissolve 0.01 g of Tocopherol in 10 mL of ethanol (99.5), add 2 mL of nitric acid, and heat at 75°C for 15 minutes: a red to orange color develops.

(2) Determine the infrared absorption spectrum of Tocopherol as directed in the liquid film method under the Infrared Spectrophotometry, and compare the spectrum with the Reference Spectrum or the spectrum of Tocopherol Reference Standard: both spectra exhibit similar intensities of absorption at the same wave numbers.

Absorbance $E^{1\%}_{1\,cm}$ (292 nm): 71.0 - 76.0 (0.01 g, ethanol (99.5), 200 mL).

Refractive index n_D^{20}: 1.503 - 1.507

Specific gravity d_{20}^{20}: 0.947 - 0.955

Purity (1) Clarity and color of solution—Dissolve 0.10 g of Tocopherol in 10 mL of ethanol (99.5): the solution is clear and has no more color than Matching Fluid C.

(2) Heavy metals—Proceed with 1.0 g of Tocopherol according to Method 4, and perform the test. Prepare the control solution with 2.0 mL of Standard Lead Solution (not more than 20 ppm).

Assay Dissolve about 0.05 g each of Tocopherol and Tocopherol Reference Standard, accurately weighed, in ethanol (99.5) to make exactly 50 mL, and use these solutions as the sample solution and the standard solution. Pipet 20 μL each of these solutions, and perform the test as directed under the Liquid Chromatography according to the following conditions, and determine the peak heights, H_T and H_S, of tocopherol in the sample solution and the standard solution.