Levodopa 100 mg and Benserazide Hydrochloride 28.5 mg Tablets

Dissolution <*6.10*> Perform the test with 1 tablet of Levodopa 100 mg and Benserazide Hydrochloride 28.5 mg Tablets at 50 revolutions per minute according to the Paddle method, using 900 mL of water as the dissolution medium. Start the test, withdraw not less than 20 mL of the medium at the specified minute after starting the test, and filter through a membrane filter with a pore size not exceeding 0.45 μm. Discard the first 10 mL of the filtrate, pipet 6 mL of the subsequent filtrate, add diluted phosphoric acid (1 in 80) to make exactly 10 mL, and use this solution as the sample solution. Separately, weigh accurately about 22 mg of Levodopa RS, previously dried at 105ºC for 3 hours, and dissolve in diluted phosphoric acid (1 in 200) to make exactly 20 mL, and use this solution as the standard stock solution (1). Weigh accurately about 16 mg of Benserazide Hydrochloride RS (separately, determine the water <*2.48*> with 0.5 g by direct titration in volumetric titration. Use a solution of salicylic acid in methanol for Karl Fisher method (3 in 20) instead of methanol for Karl Fisher method), dissolve in diluted phosphoric acid (1 in 200) to make exactly 50 mL, and use this solution as the standard stock solution (2). Weigh accurately 6 mL each of the standard stock solution (1) and standard stock solution (2), add diluted phosphoric acid (1 in 200) to make exactly 100 mL, and use this solution as the standard solution. Perform the test with exactly 50 μL each of the sample solution and standard solution as directed under Liquid Chromatography <*2.01*> according to the following conditions, and determine the peak areas, A_{Ta} and A_{Sa}, of levodopa and, A_{Tb} and A_{Sb}, of benserazide of both solutions, respectively.

The requirements are met if Levodopa 100 mg and Benserazide Hydrochloride 28.5 mg Tablets conform to the dissolution requirements.

Dissolution rate (%) with respect to the labeled amount of levodopa ($C_9H_{11}NO_4$)

$= M_{Sa} \times A_{Ta}/A_{Sa} \times 1/C_a \times 450$

Dissolution rate (%) with respect to the labeled amount of benserazide hydrochloride ($C_{10}H_{15}N_3O_5 \cdot HCl$)

$= M_{Sb} \times A_{Tb}/A_{Sb} \times 1/C_b \times 180$

M_{Sa}: Amount (mg) of Levodopa RS

M_{Sb}: Amount (mg) of Benserazide Hydrochloride RS, calculated on the anhydrous basis

C_a: Labeled amount (mg) of levodopa ($C_9H_{11}NO_4$) in 1 tablet

C_b: Labeled amount (mg) of benserazide hydrochloride ($C_{10}H_{15}N_3O_5 \cdot HCl$) in 1 tablet

Operating conditions−

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

Column: A stainless steel column 6.0 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 25ºC.

Mobile phase: Dissolve 13.61 g of potassium dihydrogen phosphate in water to make 1000 mL, and adjust the pH to 2.8 with a solution prepared by dissolving 11.53 g of phosphoric acid in water to make 1000 mL.

Flow rate: Adjust the flow rate so that the retention time of benserazide is about 5 minutes.

System suitability−

System performance: When the procedure is run with 50 μL of the standard solution under the above operating conditions, benserazide and levodopa are eluted in this order with the resolution between these peaks being not less than 3.

System repeatability: When the test is repeated 6 times with 50 μL of the standard solution under the above operating conditions, the relative standard deviations of the peak areas of levodopa and benserazide are not more than 2.0%, respectively.

Dissolution Requirements

	Labeled amount	Specified minute	Dissolution rate
Levodopa	100 mg	30 minutes	Not less than 80%
Benserazide Hydrochloride	28.5 mg		Not less than 75%

Levodopa RS Levodopa (JP). When dried, it contains not less than 99.0% of levodopa ($C_9H_{11}NO_4$).

Benserazide Hydrochloride RS Benserazide Hydrochloride (JP). It contains not less than 99.0% of benserazide hydrochloride ($C_{10}H_{15}N_3O_5 \cdot HCl$), calculated on the anhydrous basis.