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Probenecid and Colchicine Tablets

» Probenecid and Colchicine Tablets contain not less than 90.0 percent and not more than 115.0 percent of the labeled amount of colchicine ($C_{22}H_{25}NO_6$) and not less than 90.0 percent and not more than 110.0 percent of the labeled amount of probenecid ($C_{13}H_{19}NO_4S$).

Packaging and storage—Preserve in well-closed, light-resistant containers.

USP Reference standards ⟨11⟩—

USP Colchicine RS
USP Probenecid RS

Identification—

Probenecid standard solution—Prepare a solution of USP Probenecid RS in chloroform having a concentration of about 1 mg per mL.

Colchicine standard solution—Prepare a solution of USP Colchicine RS in chloroform having a concentration of about 1 mg per mL.

Probenecid test solution—Using a portion of finely powdered Tablets, prepare a filtered solution in chloroform having a concentration of about 1 mg of probenecid per mL.

Colchicine test solution—Transfer a quantity of finely powdered Tablets, equivalent to about 0.5 mg of colchicine, to a container, add 15 mL of water, mix, and filter, collecting the filtrate. Extract the filtrate with 25 mL of chloroform, and evaporate the chloroform extract to a volume of about 1 mL.

Procedure (see *Chromatography ⟨621⟩*)—Apply separately 5-µL portions of the *Probenecid test solution* and the *Probenecid standard solution*, a 7-µL portion of the *Colchicine test solution*, and a 3.5-µL portion of the *Colchicine standard solution* to a thin-layer chromatographic plate, coated with a 0.25-mm layer of chromatographic silica gel mixture. Allow the spots to dry, and develop the chromatogram in a solvent system consisting of a mixture of methanol and ammonium hydroxide (100:1.5) until the solvent front has moved about three-fourths of the length of the plate. Remove the plate from the developing chamber, allow the solvent to evaporate, and view the plate under short-wavelength UV light: the R_F value of the principal spot in the chromatogram obtained from the *Probenecid test solution* corresponds to that obtained from the *Probenecid standard solution*. The R_F value of the principal spot in the chromatogram obtained from the *Colchicine test solution* corresponds to that obtained from the *Colchicine standard solution*.

Dissolution ⟨711⟩—

Medium: pH 6.8 phosphate buffer (see under *Buffer Solutions* in the section *Reagents, Indicators, and Solutions*); 900 mL.

Apparatus 2: 50 rpm.

Time: 30 minutes.

Procedure for probenecid—Determine the amount of $C_{13}H_{19}NO_4S$ dissolved from UV absorbances at the wavelength of maximum absorbance at about 244 nm of filtered portions of the solution under test, suitably diluted with 0.1 N sodium hydroxide, if necessary, in comparison with a Standard solution having a known concentration of USP Probenecid RS.

Procedure for colchicine—Extract a filtered 200-mL portion of the solution under test with two 25-mL portions of chloroform, collecting the chloroform extracts in a suitable flask. Evaporate the combined extracts to a small volume, and transfer to a 10-mL volumetric flask. Rinse the flask with small portions of chloroform, and add the rinsings to the 10-mL volumetric flask. Dilute with chloroform to volume, and mix. Determine the amount of $C_{22}H_{25}NO_6$ dissolved from absorbances, at the wavelength of maximum absorbance at about 350 nm, of this solution, using chloroform as the blank, in comparison with a Standard solution in chloroform having a known concentration of USP Colchicine RS.

Tolerances—Not less than 80% *(Q)* of the labeled amounts of $C_{22}H_{25}NO_6$ and $C_{13}H_{19}NO_4S$ are dissolved in 30 minutes.

Uniformity of dosage units ⟨905⟩: meet the requirements.

Assay for probenecid—

Standard preparation—Dissolve an accurately weighed quantity of USP Probenecid RS on 0.1 N sodium hydroxide, and dilute quantitatively and stepwise with 0.1 N sodium hydroxide to obtain a solution having a known concentration of about 10 µg per mL.

Assay preparation—Weigh and finely powder not less than 20 Tablets. Weigh accurately a portion of the powder, equivalent to about 250 mg of probenecid, and transfer to a 250-mL volumetric flask. Add 0.1 N sodium hydroxide to volume, and mix. Filter a portion of the solution,

discarding the first 20 mL of the filtrate, pipet 2 mL of the filtrate into a 200-mL volumetric flask, dilute with 0.1 N sodium hydroxide to volume, and mix.

Procedure—Concomitantly determine the absorbances of the *Assay preparation* and the *Standard preparation* at the wavelength of maximum absorbance at about 244 nm, with a suitable spectrophotometer, using 0.1 N sodium hydroxide as the blank. Calculate the quantity, in mg, of $C_{13}H_{19}NO_4S$ in the portion of Tablets taken by the formula:

$$25C(A_U/A_S)$$

in which C is the concentration, in µg per mL, of USP Probenecid RS in the *Standard preparation*, and A_U and A_S are the absorbances of the *Assay preparation* and the *Standard preparation*, respectively.

Assay for colchicine—[NOTE—Conduct this procedure without delay, under subdued light, using low-actinic glassware.]

Alcoholic sodium carbonate solution—Dissolve 5.0 g of anhydrous sodium carbonate in 900 mL of water, add 100 mL of isopropyl alcohol, and mix.

Standard preparation—Dissolve an accurately weighed quantity of USP Colchicine RS in *Alcoholic sodium carbonate solution*, and dilute quantitatively and stepwise with *Alcoholic sodium carbonate solution* to obtain a solution having a known concentration of about 10 µg per mL.

Assay preparation—Weigh and finely powder not less than 20 Probenecid and Colchicine Tablets. Weigh accurately a portion of the powder, equivalent to about 1 mg of colchicine, and transfer to a 100-mL volumetric flask. Add 75 mL of *Alcoholic sodium carbonate solution*, shake for 30 minutes, dilute with *Alcoholic sodium carbonate solution* to volume, mix, and filter, discarding the first 20 mL of the filtrate.

Procedure—Concomitantly determine the absorbances of the *Assay preparation* and the *Standard preparation* at the wavelength of maximum absorbance at about 350 nm, with a suitable spectrophotometer, using *Alcoholic sodium carbonate solution* as the blank. Calculate the quantity, in mg, of $C_{22}H_{25}NO_6$ in the portion of Tablets taken by the formula:

$$0.1C(A_U/A_S)$$

in which C is the concentration, in µg per mL, of USP Colchicine RS in the *Standard preparation*, and A_U and A_S are the absorbances of the *Assay preparation* and the *Standard preparation*, respectively.

Auxiliary Information - Please check for your question in the FAQs before contacting USP.

Topic/Question	Contact	Expert Committee
PROBENECID AND COLCHICINE TABLETS	Documentary Standards Support	SM32020 Small Molecules 3
REFERENCE STANDARD SUPPORT	RS Technical Services RSTECH@usp.org	SM32020 Small Molecules 3

Chromatographic Database Information: Chromatographic Database

Most Recently Appeared In:
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