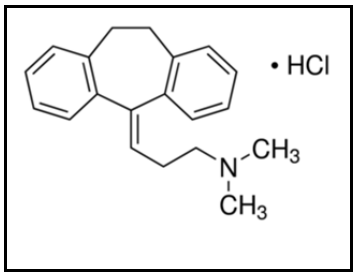
Amitriptyline hydrochloride
25 mg Tablet

Structure:



Molecular Formula and Mass: $C_{20}H_{23}N$•HCl - 313.86

Category: Antidepressant

Sample:

Grind 1 tablet and dissolve in 75.00 mL of 100% methanol. Shake at least 5 min. Concentration of solution = 25.00 mg/75.00 mL = 0.333 mg/mL. The required concentration of the sample solution representing 100% is 0.333 mg/mL.

Standards:

High Standard:

The high limit is 115%; therefore the concentration of the high standard = (0.333 mg/mL X 1.15 = 0.383 mg/mL. Weigh approximately 25.0 mg of standard. If you weighed 24.8 mg of standard, dissolve it in: (24.8 mg)/(0.383 mg/mL) = 64.8 mL of methanol. This makes the high standard solution concentration equal to 0.383 mg/mL.

Low Standard:

The low limit is 85%; therefore the concentration of the low standard = (0.333 mg/mL) X 0.85 = 0.283 mg/mL. Dilute 1.00 mL of high standard to 1.35 mL by adding 0.35 mL of methanol (1.15/0.85 = 1.35).

Spotting:

Spot on the 5 X 10 cm silica gel TLC aluminium plate with 3 µL aliquots as follows:

Left spot	low standard (85%) = 0.85 µg
Center Spot	100% sample = 1.00 µg
Right Spot	high standard (115%) = 1.15 µg

Development:

Mix 24.75 mL of acetone with 0.25 mL of concentrated ammonium hydroxide. Develop the plate in a small glass chamber with approximately 20.00 mL of this solution until the solvent front reaches within 1 cm of the top of the TLC plate. (R_f = 0.58)

Detection:

UV:

Dry the plate and observe under ultraviolet light at 254 nm. Observe the intensities and the sizes of the spots.

Developed and tested by Kristi Lianza and Joseph Sherma, Department of Chemistry, Lafayette College, Easton, PA, USA. July 6, 2015.