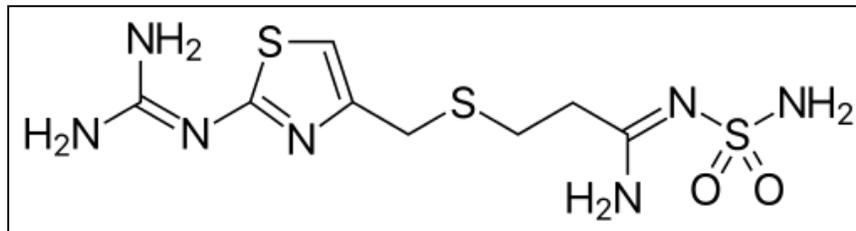


Famotidine
10 mg Tablet

Structure:



Molecular Formula and Mass: C₈H₁₅N₇O₂S₃ – 337.44

Category: H₂ antagonist

Sample:

Grind one tablet and dissolve in 25.0 mL of methanol-glacial acetic acid (9:1). Shake at least 10 min. Concentration of solution = 10.0 mg/25.0 mL = 0.400 mg/mL. The solution is then filtered and 2.00 mL is further diluted with an additional 1.00 mL of methanol-glacial acetic acid (9:1). The final concentration of the sample solution = 0.267 mg/mL, which is the required concentration representing 100%.

Standards:

High Standard:

The high limit is 115%; therefore the concentration of the high standard = (0.267 mg/mL X 1.15 = 0.307 mg/mL. Weigh approximately 15.3 mg of standard. If you weighed 15.4 mg of standard, dissolve it in: (15.4 mg)/(0.307 mg/mL) = 50.1 mL of methanol-glacial acetic acid (9:1). This makes the high standard solution concentration equal to 0.307 mg/mL.

Low Standard:

The low limit is 85%; therefore the concentration of the low standard = (0.267 mg/mL X 0.85 = 0.227 mg/mL. Dilute 1.00 mL of the high standard to 1.35 mL by adding 0.35 mL of methanol-glacial acetic acid (9:1) (1.15/0.85 = 1.35).

Spotting:

Spot on the 5 x 10 cm silica gel TLC aluminium plate with 3.00 µL aliquots as follows:

Left spot	low standard (85%) = 0.680 µg
Center Spot	100% sample = 0.800 µg
Right Spot	high standard (115%) = 0.920 µg

Development:

Mix 20.0 mL of ethyl acetate, 12.5 mL methanol, 10.0 mL toluene, and 1.00 mL concentrated ammonium hydroxide. Develop the plate in a small glass chamber with approximately 20.0 mL of this solution until the solvent front reaches within 1 cm of the top of the TLC plate. (R_f = 0.48).

Detection:

UV:

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

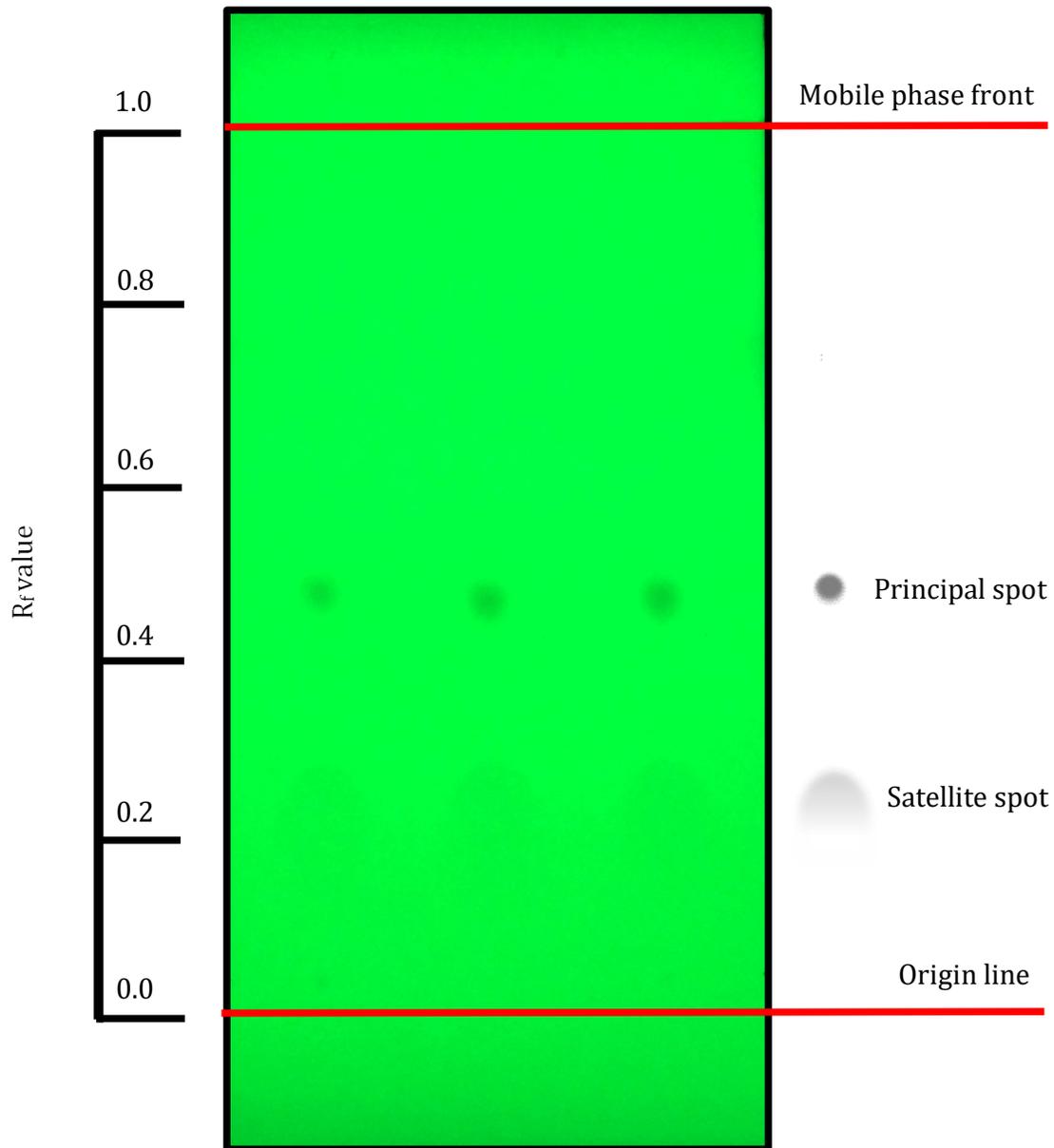


Plate observed under ultraviolet light at 254 nm

Lane 1: Low standard (85%) = 0.680 μg

Lane 2: 100% sample = 0.800 μg

Lane 3: High standard (115%) = 0.920 μg

Developed and tested by Kaitlin Nguyen and Joseph Sherma
Department of Chemistry, Lafayette College, Easton, PA, USA,
November 2016