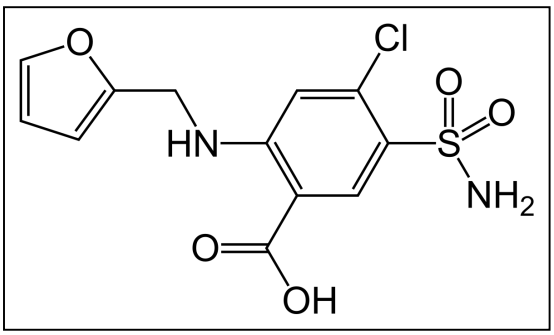
Furosemide
40 mg Tablet

Structure:



Molecular Formula and Mass: $C_{12}H_{11}ClN_2O_5S$ – 330.74
Category: Diuretic
Sample:

Grind one tablet and dissolve in 100 mL acetone. Shake at least 15 min and filter. Concentration of stock sample solution = 40.0 mg/100 mL = 0.400 mg/mL. Further dilute 1.00 mL with 0.500 mL of acetone for a total volume of 1.50 mL and a final theoretical concentration of 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) = 50.2 mL of acetone. 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 = 0.227mg/mL. Dilute 1.00 mL of high standard to 1.35 mL by adding 0.35 mL of acetone (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 17.0 mL of toluene, 13.0 mL of ethyl acetate, and 1.00 mL of glacial acetic acid. 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 = 0.35)

Detection:

UV:

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

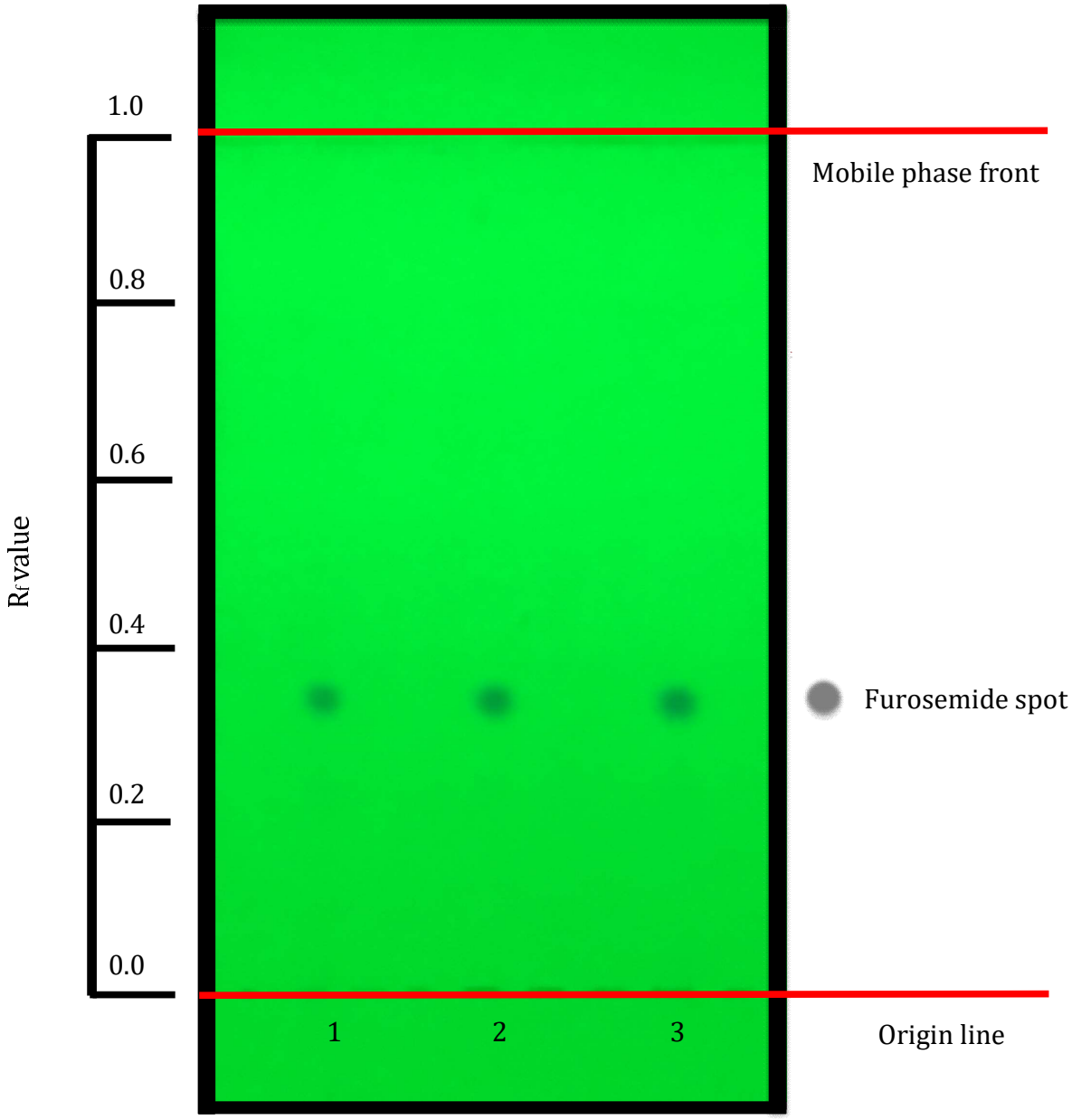


Plate observed under ultraviolet light at 254 nm

Lane 1: Low standard (85%) = 0.680 µg

Lane 2: 100% sample = 0.800 µg

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

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