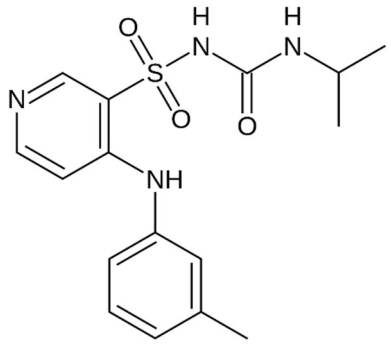
Torsemide
20 mg Tablets

Structure:



Molecular Formula and Mass: $C_{16}H_{20}N_4O_3S$ – 348.42
Category: Diuretic
Sample:

Grind one tablet and dissolve in 50.0 mL of methanol. Shake for at least 10 min and filter. Dilute 5.00 mL of the stock solution with 1.00 mL of methanol. Final concentration of sample solutions = 0.333 mg/mL, which is the required concentration representing 100%.

Standards:

High Standard:

The high limit is 115%; therefore, the concentration of the high standard = (0.333 mg/mL) × 1.15 = 0.383 mg/mL. Weigh approximately 38.3 mg of standard and dissolve it in 100 mL of methanol. If you weighed 38.2 mg of standard, dissolve it in: (38.2 mg ÷ 0.383 mg/mL) = 99.7 mL of methanol. This makes the high standard solution concentration equal to 0.383 mg/mL, which is 115%.

Low Standard:

The low limit is 85%; therefore, the concentration of the low standard = (0.333 mg/mL) × 0.85 = 0.283 mg/mL. Dilute 7.40 mL of high standard to 10.0 mL by adding 2.60 mL of methanol. This gives a concentration of [(0.383 mg/mL × 7.40 mL) ÷ (10.0 mL)] = 0.283 mg/mL, which is 85.0%.

Spotting:

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

Left spot	low standard (85%) = 0.849 µg
Center Spot	100% sample = 1.00 µg
Right Spot	high standard (115%) = 1.15 µg

Development:

Mix 21.0 mL of ethyl acetate, 3.00 mL of acetic acid, and 8.00 mL of acetone. 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 = 0.33)

Detection:

UV:

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

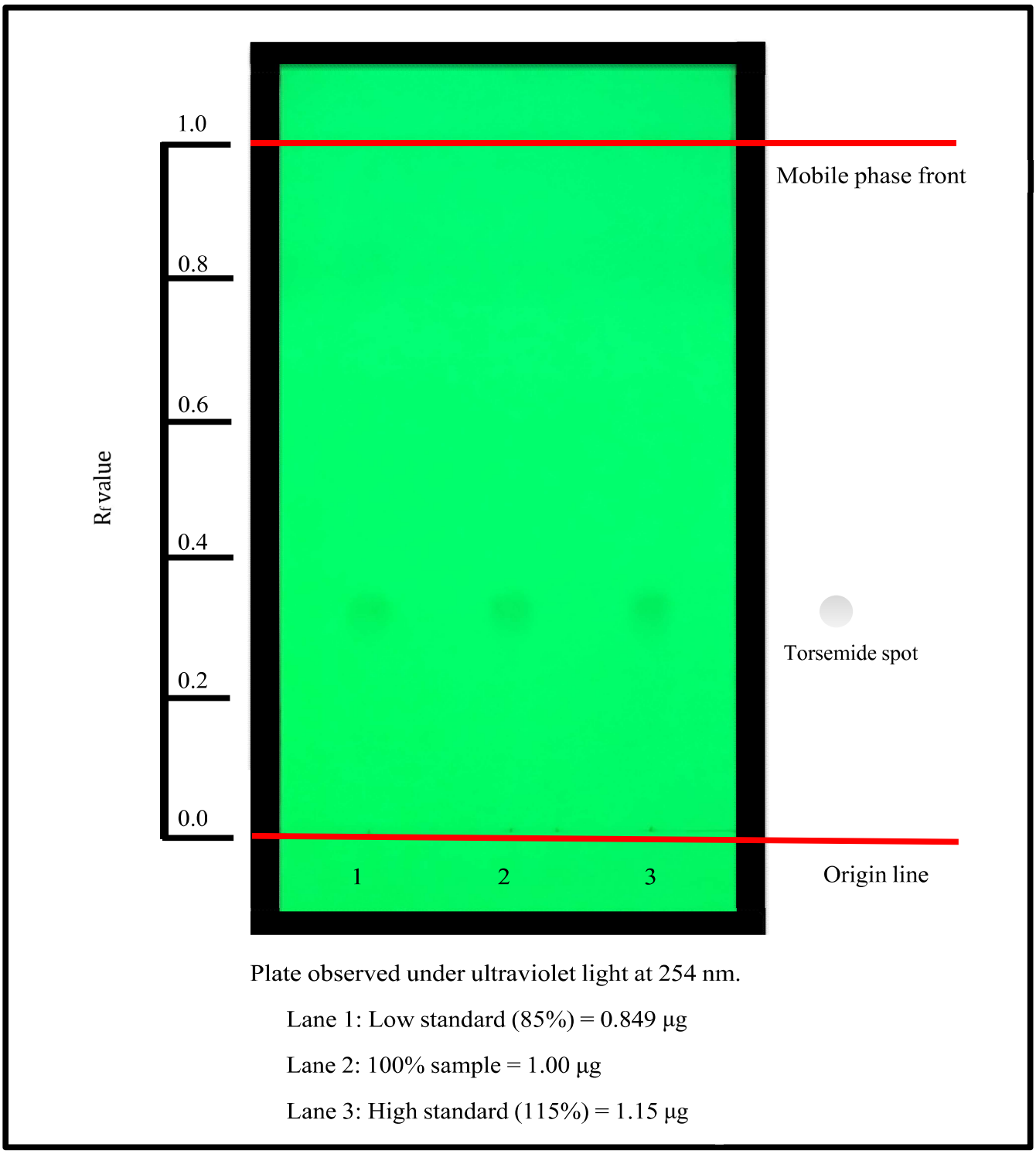


Plate observed under ultraviolet light at 254 nm.

Lane 1: Low standard (85%) = 0.849 µg

Lane 2: 100% sample = 1.00 µg

Lane 3: High standard (115%) = 1.15 µg

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