Carbamazepine
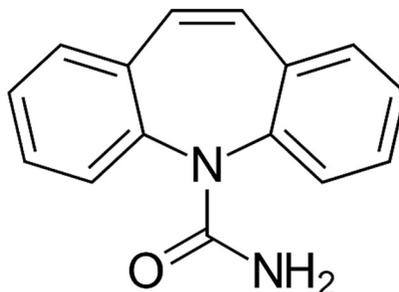# 100 mg Tablet

Structure:

Molecular Formula and Mass: $C_{15}H_{12}N_2O$-236.269

Category: Anticonvulsant

Sample:

Grind one tablet and dissolve in 100 mL of methanol. Shake for at least 10 min and filter. Pipette 2.00 mL stock sample solution and dissolve it in 3.00 mL of methanol. Final concentration of the sample solution is 0.667 mg/mL, which is the required concentration representing 100%.

Standards:

High Standard:

The high limit is 115%; therefore the concentration of the high standard is 0.667 mg/mL × 115% = 0.767 mg/mL. Weigh approximately 76.7 mg of and dissolve it in 100 mL of methanol. This makes the high standard solution concentration equal to 0.767 mg/mL, which is 115%.

Low Standard:

The low limit is 85%; therefore the concentration of the low standard = 0.667 mg/mL × 85% = 0.567 mg/mL. Dilute 1.70 mL of high standard to 2.30 mL by adding 0.60 mL of methanol. This gives a concentration of 0.767 mg/mL × 1.70 mL ÷ 2.30 mL = 0.567 mg/mL, which is 85%.

Spotting:

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

Left spot	low standard (85%) = 1.70 μg	
Center Spot	100% sample = 2.00 μg	
Right Spot	high standard (115%) =2.30 μg	

Development:

Mix 30.0mL of ethyl acetate, and 20.0 mL of methanol. 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.

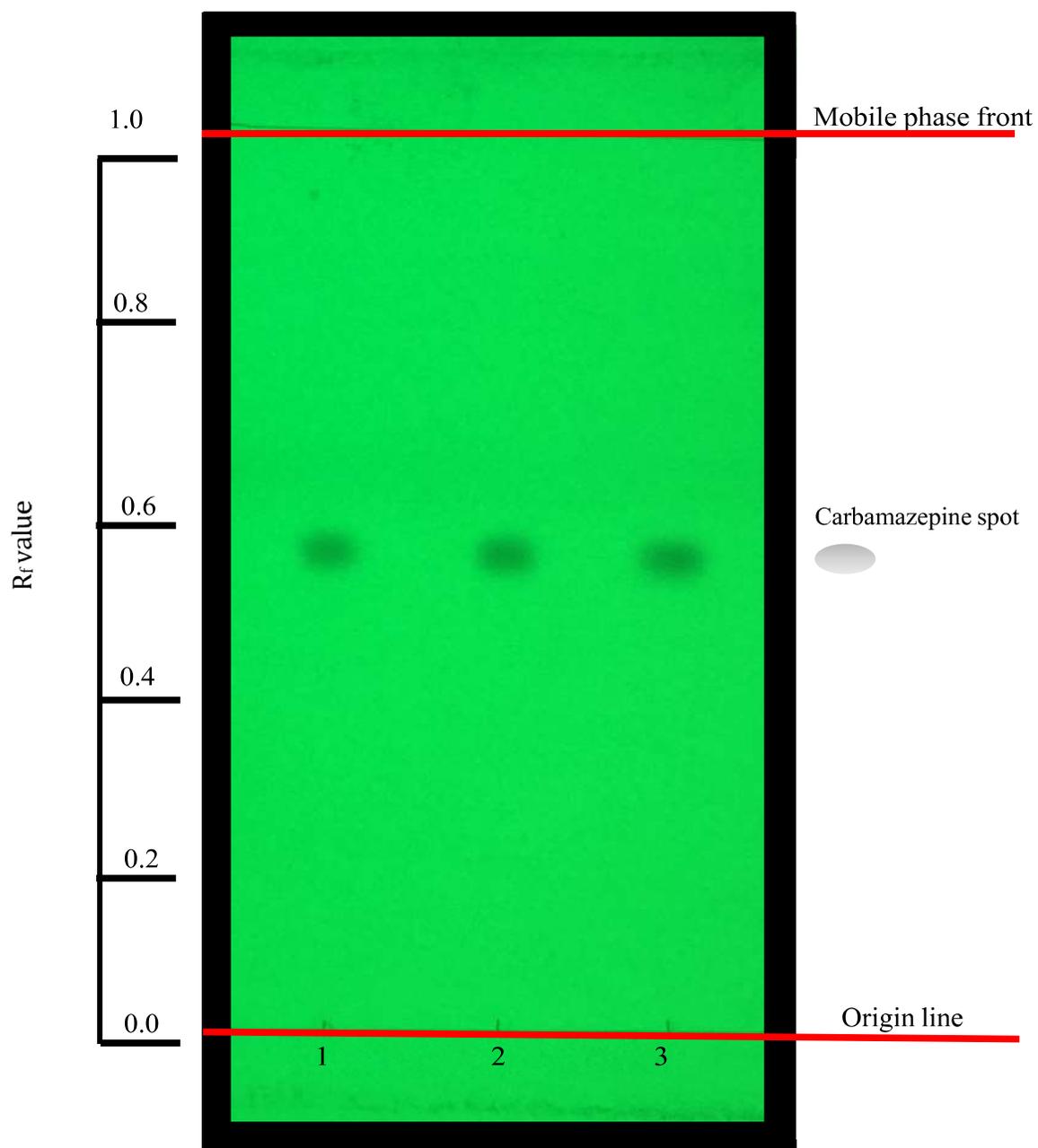(R_f = 0.58)

Detection:

UV:

R$_f$ value

1.0 — Mobile phase front

0.8

0.6 — Carbamazepine spot

0.4

0.2

0.0 — Origin line

1　　　2　　　3

Plate observed under ultraviolet light at 254 nm.

Lane 1: Low standard (85%) = 1.70μg
Lane 2: 100% sample = 2.00 μg
Lane 3: High standard (115%) = 2.30 μg

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

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