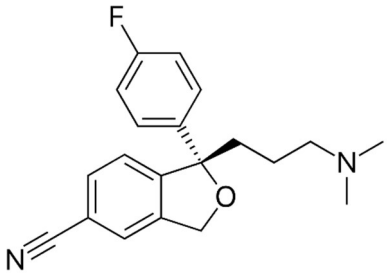
Escitalopram
10 mg Tablet

Structure:



Molecular Formula and Mass: $C_{20}H_{21}FN_2O$ – 324.399
Category: Selective serotonin reuptake inhibitor
Sample:

Grind one tablet and dissolve in 10.0 mL of methanol. Shake for at least 10 min and filter. Final concentration of sample solutions is 1.00 mg/mL, which is the required concentration representing 100%.

Standards:

Since the standard is in the oxalate form while the sample is in the free base form, a conversion factor of 324 ÷ 414 = 0.783 (the ratio of the molecular weight of the free base to that of the oxalate) was applied when calculating the concentration of the standard.

High Standard:

The high limit is 115%; therefore the concentration of the high standard is 1.00 mg/mL × 115% = 1.15 mg/mL. Weigh approximately 36.7 mg of standard (equivalent to 36.7 mg × 0.783 = 28.7 mg escitalopram) and dissolve it in 25.0 mL of methanol. If you weighed 36.8 mg of standard, dissolve it in: 36.8 mg × 0.783 ÷ 1.15 mg/mL = 25.1 mL of methanol. This makes the high standard solution concentration equal to 1.15 mg/mL, which is 115%.

Low Standard:

The low limit is 85%; therefore the concentration of the low standard = 1.00 mg/mL × 85.0% = 0.850 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 1.15 mg/mL × 1.70 mL ÷ 2.30 mL = 0.850 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%) = 2.55 µg
Center Spot	100% sample = 3.00 µg
Right Spot	high standard (115%) = 3.45 µg

Development:

Mix 30.0 mL of toluene, 6.00 mL of ethanol, 6.00 mL of acetone, and 1.00 mL of ammonia. 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:

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

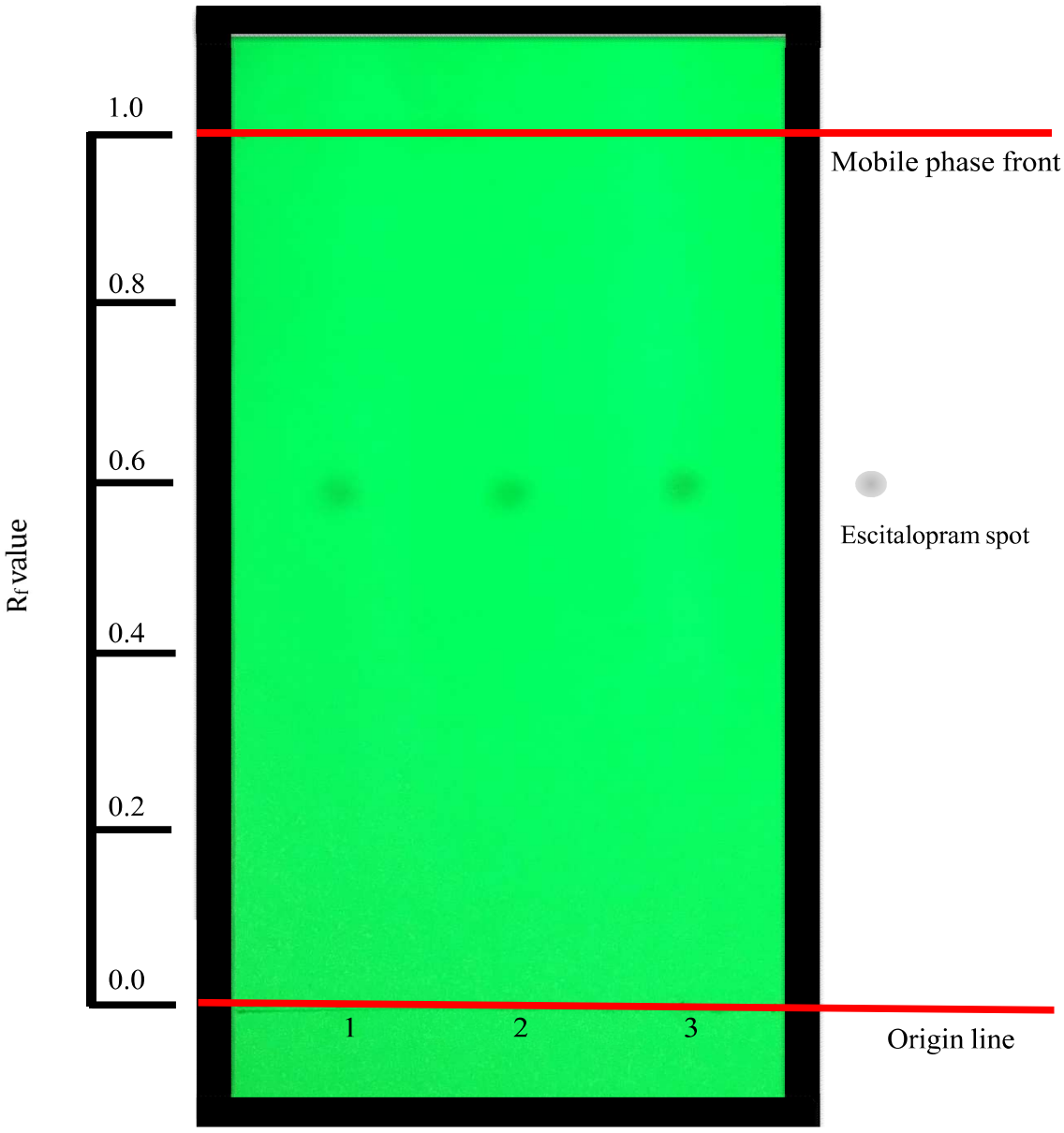


Plate observed under ultraviolet light at 254 nm.

Lane 1: Low standard (85%) = 2.55 µg

Lane 2: 100% sample = 3.00 µg

Lane 3: High standard (115%) = 3.45 µg

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June, 2018
Bingsong Zeng's EXCEL Scholar research was supported by Lafayette College EXCEL Scholars Program