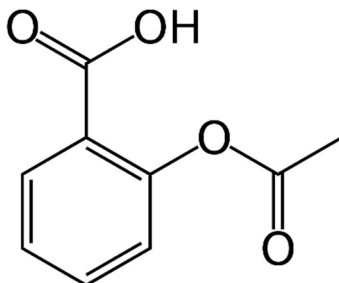


Acetylsalicylic acid
250 mg Tablet
Co-formulated with 250 mg Acetaminophen and 65 mg Caffeine

Structure:



Molecular Formula and Mass: $C_9H_8O_4$ – 180.158

Category: Nonsteroidal anti-inflammatory drug

Sample:

Grind one tablet and dissolve in 100 mL of methanol. Shake for at least 10 min and filter. Final concentration of the sample solution is 2.50 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 $2.50 \text{ mg/mL} \times 115\% = 2.88 \text{ mg/mL}$. Weigh approximately 71.9 mg of standard and dissolve it in 25.0 mL of methanol. If you weighed 72.0 mg of standard, dissolve it in: $72.0 \text{ mg} \div 2.88 \text{ mg/mL} = 25.0 \text{ mL}$ of methanol. This makes the high standard solution concentration equal to 2.88 mg/mL, which is 115%.

Low Standard:

The low limit is 85%; therefore the concentration of the low standard = $2.50 \text{ mg/mL} \times 85\% = 2.13 \text{ mg/mL}$. Dilute 1.70 mL of high standard to 2.30 mL by adding 0.60 mL of methanol. This gives a concentration of $2.88 \text{ mg/mL} \times 1.70 \text{ mL} \div 2.30 \text{ mL} = 2.13 \text{ mg/mL}$, 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%) = 6.39 μg
Center Spot	100% sample = 7.50 μg
Right Spot	high standard (115%) = 8.64 μg

Development:

Mix 38.0 mL of ethyl acetate and 2.00 mL of 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.

($R_f = 0.57$)

Detection:

UV:

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

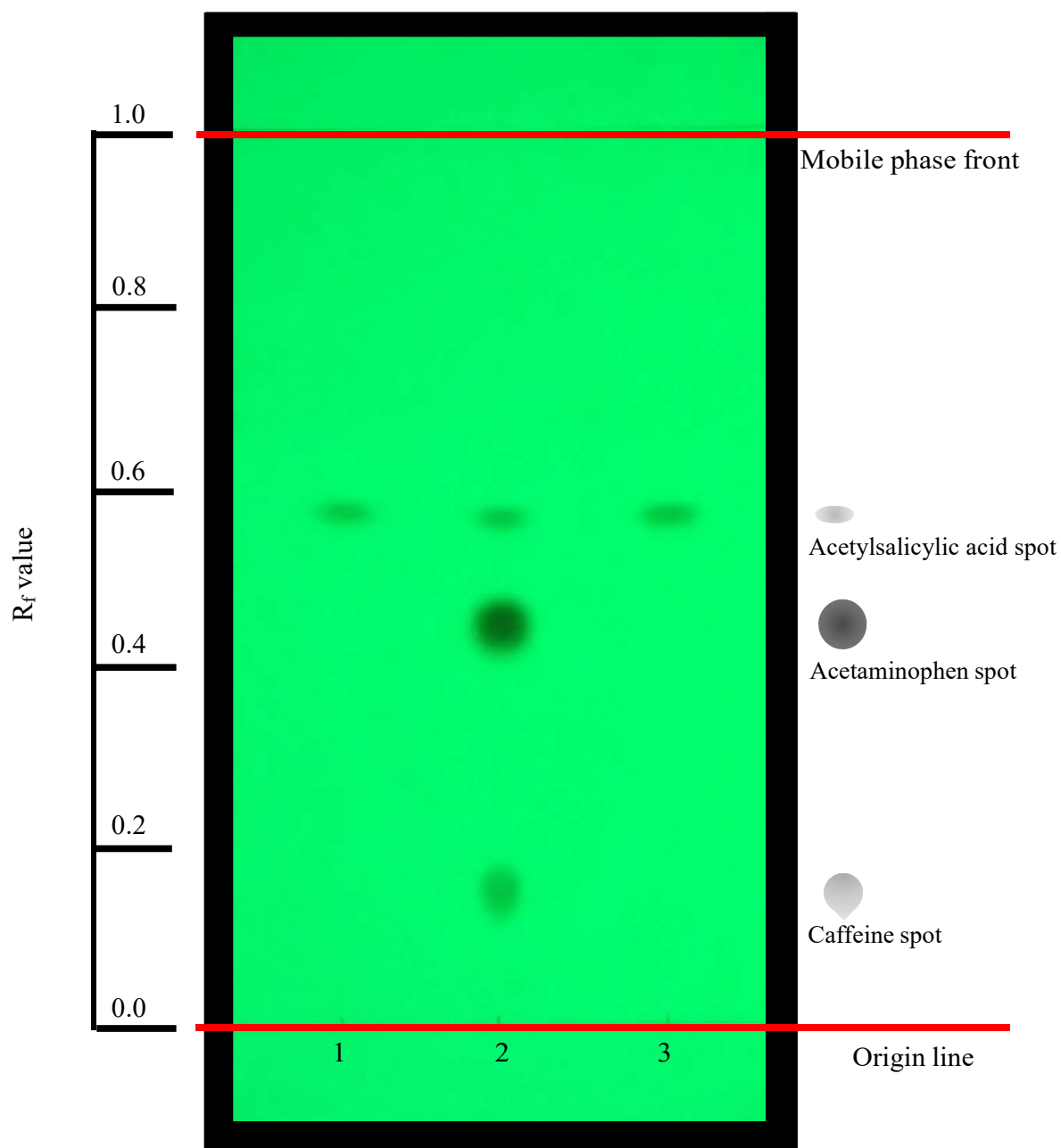


Plate observed under ultraviolet light at 254 nm.

Lane 1: Low standard (85%) = 6.39 μg

Lane 2: 100% sample = 7.50 μg

Lane 3: High standard (115%) = 8.64 μg

Developed and tested by Bingsong Zeng, Yiru Gu, and Joseph Sherma

Department of Chemistry, Lafayette College, Easton, PA, USA

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