

Penicillin V Potassium

The method for a 250 mg penicillin V potassium tablet published in the Minilab manual, Volume II, pages 144-147, was modified by elimination the need for exposure of the plate to iodine vapor in an iodine chamber for detection. Penicillin V potassium TLC spots were found to be naturally fluorescence quenching. Users may consider that elimination of the need for a detection reagent makes this method safer, faster, and more convenient, especially for use in the field.

In the modified method, the exact procedures published in the Minilab manual were carried out with a few exceptions. Instead of a 250 mg reference tablet for the standard, commercial analytical grade standard (penicillin V potassium salt, Sigma-Aldrich, No. 46616-250MG) was used. Instead of a 250 mg penicillin V potassium tablet, a 500 mg tablet was used. The volumes of solvents were changed accordingly to give the same concentration as is designated in the Minilab manual for the sample and standard solutions. Also, instead of detection of penicillin V potassium with iodine as colored spots in daylight as shown in the photograph on page 147 of the Minilab manual, the drug was detected as fluorescence quenching spots under 254 nm UV light, as is shown in the photograph of the plate below. The concentrations of both the 100% working standard solution and 100% working sample solution were 2.50 mg/mL, and 2.00 μ L volumes were spotted on the plates. The mobile phase was ethyl acetate-water-glacial acetic acid (15:5:5).

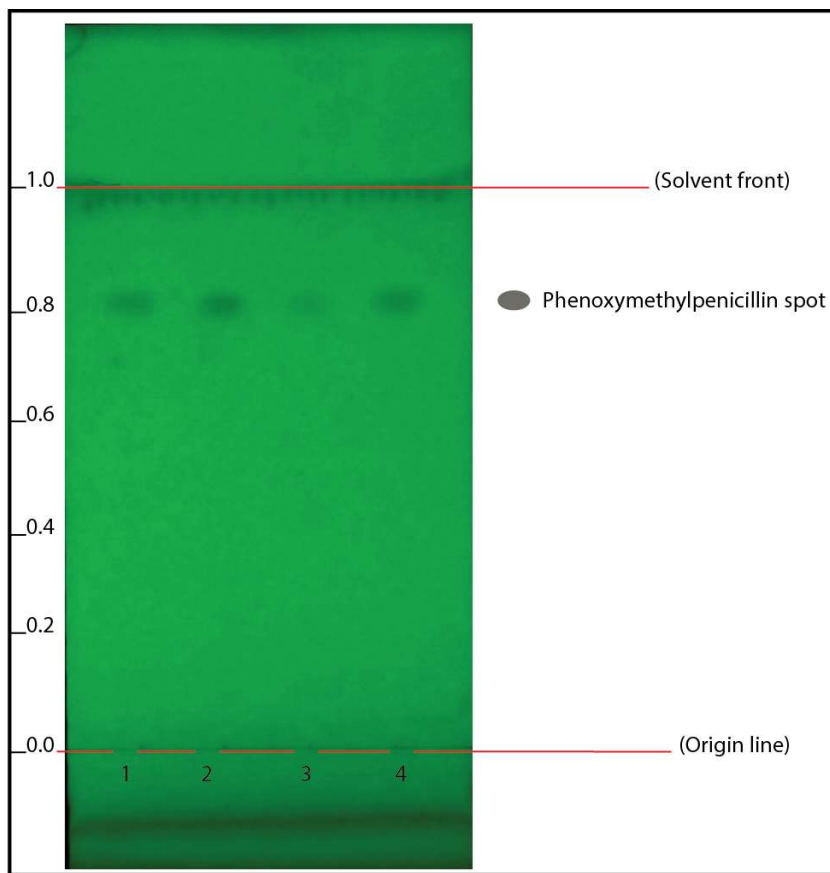
XI. CHROMATOPLATE OBSERVED UNDER 254 NM UV LIGHT

Run No.1:
Upper working standard
representing 100% of total
anhydrous phenoxymethylpenicillin

Run No.2:
A drug product of good quality with
acceptable drug content

Run No.3:
A drug product of poor quality with
unacceptable low drug content*

Run No.4:
Lower working standard
representing 80% of total
anhydrous phenoxymethylpenicillin



(*A drug product of poor quality was simulated by diluting the 100% working sample solution of a drug product of good quality with water to one-third of the theoretical value.)

This modified method was developed and tested by Bingsong Zeng, Ellen Armour, and Joseph Sherma, Department of Chemistry, Lafayette College, Easton, PA, USA., in August 2017. Bingsong Zeng's research was supported by a Camille and Henry Dreyfus Foundation Senior Scientist Mentor Program award to Professor Sherma and Ellen Armour's research by the Lafayette College EXCEL Scholars Program.