

# Quantitative analysis of salicylates by visible spectroscopy

[Science](#), [Chemistry](#)



**Introduction:** The purpose of this lab was to learn how to use a spectrophotometer to measure the amount of light absorbed by different concentrations of salicylic acid, compare those concentrations to our unknown sample and to use the data collected to compile a graph showing the levels of absorbance of the different concentrations. **Methods and materials:** In this lab, we used a spectrophotometer, a test tube filled with water to be used as a blank, six test tubes with different concentrations of salicylic acid ranging from 0 mg/dL to 5 mg/dL and one test tube with an unknown concentration of salicylic acid.

We set the spectrophotometer to a wavelength of 540 nm. We adjusted the transmittance to 0%. Next, we placed the test tube with the water into the spectrophotometer and adjusted the transmittance dial to 100%. We removed the test tube containing the water and replaced it with the first concentration of 0 mg/dL. We recorded the absorbance and repeated the test for a total of 5 readings. We did this for each concentration. We then calculated the average of each concentration's absorbance readings and plotted the averages onto the graph.

Once we had gathered the data for our known concentrations we then repeated the procedure for our unknown concentration. We again took the average and plotted that on the absorbance curve to determine the concentration of the unknown.

## **Conclusions:**

We used a spectrophotometer to determine the concentration curve for the known samples then used both the spectrophotometer and the concentration

curve to determine the concentration of the unknown sample. This technique can be used by toxicologists to determine the number of drugs in a person's blood. This can be helpful if there was an overdose or if the district attorney needed to know the concentration of drugs in someone's system.