CHEM 101 Laboratory Exercise #4 Laboratory Notebook

Spectrophotometric determination of Salicylic Acid

Using Microsoft Word, students must write their in-lab notes below while *completing the Laboratory exercise. The Laboratory notebook must be uploaded to the CHEM 101 Lab Brightspace site as a readable .pdf by the end of the lab period. Please see page 7 of the 202405 CHEM 101 lab manual for all the information required in the in-lab notes. The documentation below must reflect the student's work without assistance from others.*

Name: ____Arfaz Hossain____ **Lab Section:** _B12_ **Quad:** _2_ **Date:** _June 11, 2024 _

In-lab Notes:

Experimental Procedure:

In the experimental procedure, a stock iron nitrate solution was initially measured, and 5.0 ml aliquots of this solution were added to separate 25.00 mL volumetric flasks. Similarly, a stock salicylic acid solution was measured, and 1.00 mL, 5.00 mL, and 10.00 mL aliquots (SA Solution) were transferred into three different 25.00 mL volumetric flasks, respectively. Distilled water was added to each flask to reach the mark, creating standard solutions #1, #2, and #3 with known concentrations of salicylic acid. The color of each solution was noted. Additionally, a blank solution was prepared by adding distilled water to a 25.00 mL volumetric flask containing only the iron solution. This experiment allowed the creation of three distinct standard solutions with specified concentrations of salicylic acid by diluting the stock solution in volumetric flasks and noting the resulting colors of the solutions.

Absorption

Substance	Blank (mL)	Standard #1 (mL)	Standard #2 (mL)	Standard #3 (mL)	Unknown (mL)
Stock Iron Nitrate Solution	5.0	5.0	5.0	5.0	5.0
Stock Salicylic Acid Solution	---	1	5	10.00	---
Acne Cleaner	---	---	---	---	0.30
Absorbance (1st measurement)	0.000	0.152	0.737	1.362	0.624
					0.621
Absorbance (2nd measurement)	0.001			1.363	

					0.623

Cleaner Information[2]

The provided stock solution of salicylic acid is a chemical substance with a molarity of 0.002855M. Salicylic acid is an organic compound known for its diverse applications, ranging from pharmaceuticals to skincare products due to its anti-inflammatory and exfoliating properties.

Salicylic Acid Concentration: 0.5%

Iron Solution Information

Solution Concentration: is 0.010 M $Fe(NO_3)_3 \cdot 9H_2O$, an irritant.

Reference:

1. Reimer, M. et al, Laboratory Manual, Chemistry 101, pp. 19-24. (University of Victoria: Victoria, B.C.) **Summer 2024**
2. Clean & Clear Essentials Deep Cleaning Astringent. Johnson & Johnson Inc., Markham, Ontario, Canada, L3R 5L2, lot number 30038970, NPN 02072696.