DATE

PY SHEET BEFORE WRITING

EXP. NUMBER | EXPERIMENT/SUBJECT | DATE 2/2/2017 | 19

NAME [redacted] | LAB PARTNER [redacted] | LOCKER/DESK NO. | COURSE & SECTION NO.

+8

turn in carbon copy next time.

Purpose: in this lab, we are going to determine the identity of the Dye of the mouth wash and the concentration of it and the absorbance of the unknown sample.

Procedure:

1. Connect the spectrophotometer with the computer, and launch it to allow it to warm up.
2. Calibrate the device with the [redacted] DI water. ✓
3. we added a dye solution (blue color) to cubit [redacted] (10 mL) of [redacted] blue solution and we determine the absorbence and the wavelength for the undiluted solution, then we calculated the concentration

Did you run the unknown? -0.5

what were they?

you know the concentration

4. we diluted the dye solution with DI water and calculated the concentration. more than twice. - What were the concentrations and absorbances?
5. we calculated the dilution for 4 different concentration

what were they

6. we will experiment for the dye solution for red color & yellow the same steps for the first dilution to find the concentration of it first [redacted] (undiluted) then 4 different diluted with different concentration. You need to write them down step by step

1st one was undiluted 10 mL of [redacted] dye - what is the concentration

for the dilution: we added 10 mL of the solution to a [redacted] DI water of [redacted] 10 mL the [redacted] second time

okay but for a concentration of what?

10 mL of Dye to a 30 mL of DI water for the 3rd

10 mL of Dye to a [redacted] 50 mL of DI water for the 4th ✓

NATURE | DATE | WITNESS Alyssa Ada | DATE

HAYDEN-McNEIL STUDENT LAB NOTEBOOK

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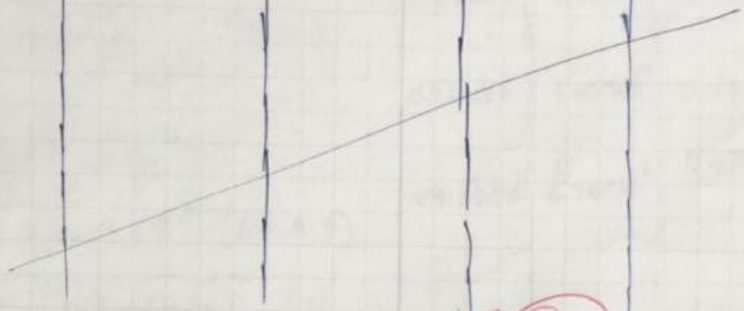
Data: mouthwash

absorbences	0.085	0.214	0.140
wavelength	396.1	510.4	633.1 units?
colors	yellow	red	blue



blue:

	concentration units?	absorbance	wavelength units?
* 1: un-diluted	1.26×10^{-5}	1.296	630.1 λ
*2: diluted	6.3×10^{-6}	0.578	628.7 λ
*3: diluted	3.15×10^{-6}	0.277	630.9
*4: diluted	2.1×10^{-6}	0.176	628.7

-1

calculations for blue:

$y = mx + b$

$y = 9.33E-6 * x + 6.086E-7$

9.33×10^{-6}

* blue moles: 1.91508 E-6

where are calculations for blue?

$M_1V_1 = M_2V_2$ -0.5

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Calculations for red color solution:

Red: $m_1 = 4.03 \times 10^{-5}$: (red #1)

$m_1V_1 = m_2V_2$

$\frac{(4.03\times10^{-5})(1)}{2} = \frac{m_2(2)}{2}$ units?

$m_2 = 2.015 \times 10^{-5}$ (red #2)

$\frac{(4.03\times10^{-5})(1)}{4} = \frac{m_2(4)}{4}$ units?

$m_2 = 1.0075 \times 10^{-5}$ (red #3)

$\frac{(4.03\times10^{-5})(1)}{6} = \frac{m_2(6)}{6}$ units?

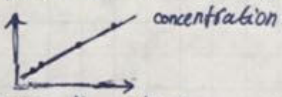
$m_2 = 6.716 \times 10^{-6}$ (red #4)

* red moles: 8.75446 E-6

red	concentration (units?)	absorbence	wavelength (units?)
#1: undiluted	4.03×10^{-5}	0.923	505.4
#2: diluted	2.015×10^{-5}	0.460	502.8
#3: diluted	1.0075×10^{-5}	0.248	500.3
#4: diluted	6.716×10^{-6}	0.170	505.4

for the red [redacted]:

$Y = 4.469E-5 * X - 8.092E-7$



Discussion:

For this expesiment we had delesmine the absorbence of the both solution, our experiment was correct due to the same range of wavelength (number range).
and the graph was linear just lik what it should looks like.

References:

- Alexander's procedure, data teables & calculations are on pg. 16-19
- Olivia's procedure, data tables and calculations are on pg. 11-13

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EXP. NUMBER | EXPERIMENT/SUBJECT: Food Dye day 2 | DATE: 2/9/2017

NAME: Taymaa Alghareeb | LAB PARTNER: Alexander & Olivia | LOCKER/DESK NO. | COURSE & SECTION NO.

Purpose: in today's lab, we are going to determine the concentration of the Food dye of the yellow dye to find the wavelength and the absorbance of it. then, we are going to reproduce the sample solution of the sample solution with the correct color to compare them together

procedure:

1. we added a yellow dye, pure dye undiluted with 9.35×10^{-5} M (FD&C yellow #5) to the cubit after connecting the spectrophotometer to the computer, and launching it & calibrating it.
2. and find the absorption and the wavelength of the undiluted yellow dye. with is :
3. after that we take 10 mL of water to 10 mL of Dye for the first diluted
4. for the second diluted Dye we added 10 mL of Dye to 30 mL of water.
5. for the 3rd diluted Dye we added 10 mL of Dye to 50 mL of DI water.
6. after adding the solutions and calculating the concentration (Calculations are on page 23 & 24)
7. we calculated how much of the undiluted dye solution should we add to mL the mixture to find the unknown.

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* yellow :

	concentration	absorbance	wavelength
*1 undiluted	9.35×10^{-5} M	1.716	419.5 λ
*2 diluted	4.675×10^{-5} M	1.733	421.2 λ
*3 diluted	2.338×10^{-5} M	0.764	424.6 λ
*4 diluted	1.558×10^{-5} M	0.530	424.6 λ

* Calculations: (to find the concentration of the diluted solution)

- the calculations is in Olivia's notes

$M_1V_1 = M_2V_2$

*2 diluted: $m_2 = 4.675 \times 10^{-5}$ M

$\frac{9.35 \times 10^{-5} \times 10}{20} = m_2 \frac{20}{20}$

*3 diluted: $m_2 = 2.338 \times 10^{-5}$ M

$m_2 = 4.675 \times 10^{-5}$ M

*4 diluted: $m_2 = 1.558 \times 10^{-5}$ M

$y = mx + b$

$y = 6.8 \times 10^{-5} x - 2.907 \times 10^{-5}$

exponential

$y = 8.34 \times 10^{-7} \lambda$ (2876x)

* yellow moles: 1.0713×10^{-6} m/L

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* Blue mixture:

(i) $1.26\times10^{-5} = 1.91508\times10^{-6}\,x$ → 17/100 mL

1 mL to 5.87

* red mixture:

(i) $4.03\times10^{-5} = 8.754\times10^{-6}\,x$ → 22/100 mL

1 mL to 4.6

* yellow mixture:

(i) $9.35\times10^{-5} = 1.07\times10^{-6}\,x$ 1/100 mL

1 mL to 87.37 mL

→ procedure:

- after finding all the information needed & how much mL of each Dye above we added each (undiluted) (given solution) separately in a burette with the specific amount of mL of 17 mL of Blue dye, 22 mL of red and 1mL of yellow together in a beaker and the diluted with 60 mL of DI water and found the wavelength and absorbance.

* Data:

Yellow	red	Blue
415.3 λ	509.2 λ	629.6
0.1	0.197	0.212

% error:- 17 % | 8 % | 51 %

% error = $\frac{\text{abs. of unknown Dye} - \text{abs of created solution}}{\text{Abs of unknown dye}}$

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* Discussion:

in this lab, we have determine the absorbance of the yellow solution, our experiment was fine, and sucessful but we had some errors in our experiment. even in the graph we had negative numbers but we fixed it by changing it to exponential. accidently we dumped the the solution that we should dilute for the second time by mistake, but we did do it over again, but we had for the second time a different number but ~~approximately~~ it was pretty close for the first time.

* References:

Alexander's procedure, data tables & calculations are on pg. 20-24

Olivia's procedure, data tables & calculations are on pg. 14-16

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