BCH 202 General Biochemistry [Practical]

Lab (1) Preparation of Buffer Solutions

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Final exam 1/5/1443 H
Sunday week 15

Writing a scientific report

1. **Cover page:** Title, course code, students' name.
2. **Introduction:** In this part you a background that will help to understand your topic.
3. **Objectives:** you will write it by your own words.
4. **Materials and method:** As in the lab sheet.
5. **Results:** You should report all your results that you got from your experiments. Any tables, figures or calculation.
6. **Discussion:** You must write a description and reasons for why you got your results.
7. **References.**

Writing a scientific report

When writing a report consider the following:

- Write **references**.
- Write table/figure **ligand** and **title**.
- **Justify** the text.
- **Font**: Times New Roman.
- **Size**: title: 16 pt., subtitle: 14 pt. and body: 12 pt.
- **Color:** black

Legend of tables and figures:

Table number

Table legend

Table 2. Effects of Lipofundin 20% on hepatic lipid peroxidation biomarkers.

Biomarkers	Control group	Lipofundin group
MDA (µmol/L/mgPr)	3.89 ± 0.75	7.63 ± 0.31*
TH (µmol/L/mgPr)	35.27 ± 4.22	67.32 ± 5.89*
PP (µmol/L of MDA/mg Pr)	5.06 ± 0.48	9.74 ± 0.42*

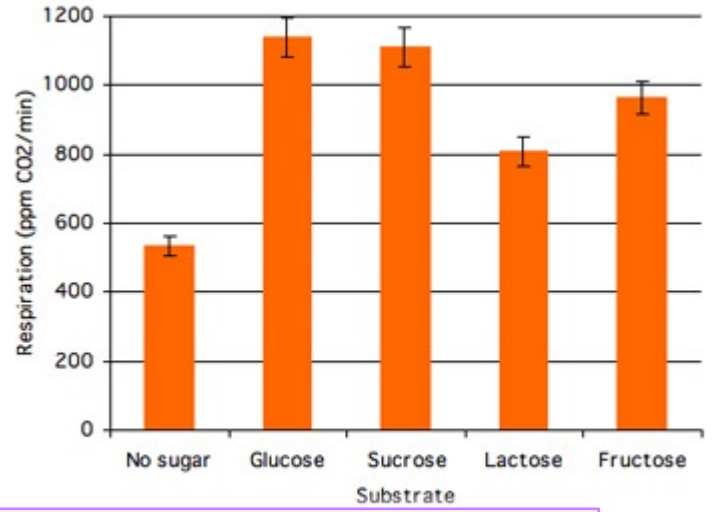

Figure 1. The Effect of Substrate on Yeast Respiration.

Figure number

Figure legend

Justify the text:

Example:

It’s consist of glass electrode which contain a very thin bulb, blown onto a hard glass tube which is sensitive to pH.The bulb contains a solution of hydrochloric acid and is connected to a platinum lead via silver -silver chloride electrode which is reversible with respect to hydrogen ions.

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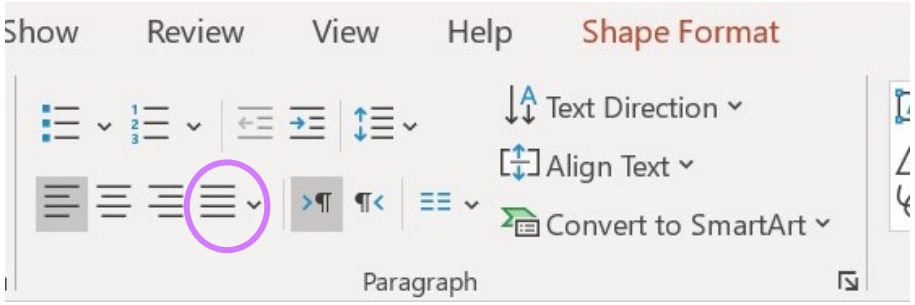
How?



General lab safety

- **Keep a safe distance.**
- **Never leave the lab without informing the instructor.**
- You must know all lab exits, eye washer, fire extinguisher, and first aid kit provided in the lab.
- Never eat, drink or chew gum in the lab. Do not taste, smell or touch any chemical.
- Tie your hair before doing an experiment.
- Closed-toed shoes should be worn at all times.
- Wash your hands with disinfectant soap after an experiment.
- Do not touch any electrical sources.

Protective personal equipment:

- Place your bag in the correct area.
- Protective gloves and glasses should be worn when handling hazardous materials.
- Lab coat and masks should be worn at all time in the lab.

The proper way of removing gloves:

Molecular weight
(A) Sodium acetate = 82.0343 g/mol

Homework:

- **You are provided with 0.15 M acetic acid and sodium acetate.**

Prepare 100 ml of a 0.2M acetate buffer, pH =5.2 if you know that pKa =4.76.

Answer: 1.23 g of sodium acetate

33.34 ml of acetic acid

Hint: you will calculate ml of acetic acid and g of sodium acetate.

[1] Molarity = $\frac{\text{No. of moles of solute}}{\text{Volume (L)}}$

[2] No. of moles = $\frac{\text{Wt(g)}}{\text{Mwt}}$

Practical Part

Objectives:

- To learn how to prepare buffers.
- To understand the behaviour of buffers solutions.

Method:

- Now take 0.6 g from NaH_2PO_4 and 1.065 g from Na_2HPO_4 dissolve them in a volume of a distilled water (less than 50 ml).

- Check the pH, then complete the volume up to 50 ml by addition of distal water using a volumetric flask.

B. Testing for buffering behaviour:

Method:

1. In one beaker add 10 ml of 0.25M phosphate buffer that you have prepared, and in another beaker add 10 ml of KCl.
2. Measure the pH.
3. Add 0.1 ml from 2M HCl to both solutions.
4. Measure the pH after the addition.

Solution	Measured pH	Add 2M HCl	Measured pH
0.25M Phosphate buffer		0.1 ml	
0.2M KCl		0.1 ml	