**CHEM101 Report for Laboratory Exercise #6**

**Extraction of caffeine from Tea \_\_**

*Using Microsoft Word, students are to insert responses in all yellow highlighted areas. It is recommended that the report be completed without changing font size, column width, row width, margins, and highlights. The completed report must be uploaded to the CHEM 101 lab Brightspace site as a .pdf file by the due date posted on Brightspace. All answers must be the student’s own work without assistance from others. Only reports which are completed using the template will be marked.*

**Name:** Arfaz Hossain **Lab Section:** B12 **Quad** 2 **Date:** June 26, 2024

**Abstract** *(max. 3 lines. See page 11 of the lab manual on how to write the abstract)*

\_\_

**Data / Results**

**Table 1.** \_\_\_\_

|  |  |
| --- | --- |
| **Extraction and isolation of caffeine from green tea** | |
| Mass of tea\_\_ leaves (g) |  |
| Mass of caffeine (\_\_\_) |  |
| %Mass caffeine in tea |  |
| Lethal dose 50 for a 700 g rat (g) |  |
| Number of cups of tea lethal dose for a 700 g rat |  |

**Algebraic Equations**

%Mass of caffeine in tea

\_\_

**Discussion** *Respond to the following:*

*1) What are the organic functions found in the caffeine molecule? (max. 5 lines)*

\_\_\_

*2) Considering the chemical characteristics of the three solvents used, briefly discuss, using chemistry concepts learned in CHEM 101 lecture, the pathway that caffeine followed from the tea leaves to the crystals generated. (max. 6 lines)*

\_\_\_

*3) It is advertised that one bag of tea brewed in 250 mL of water for 3 – 5 minutes would release about 34 mg of caffeine. Based on your results, discuss one shortcoming of this experiment, not a personal error, that could contribute to an inaccurate weight of caffeine extracted than the advertised. (max 3 lines).*

\_\_

*4) The lethal dose of caffeine with 50% kill for rats (LD50) is approximately 0.192g/kg. Assuming the lethal dose scales with body weight, what is the equivalent lethal dose 50% (LD50) of caffeine for an average adult human weighing 70 kg?*

\_\_

*5) Based on your results, how many cups of tea would an average human weighing 70 kg need to drink to consume a lethal dose?*

\_\_

**Conclusions** *(max. 3 lines)*

\_\_

**References**

\_\_

|  |  |
| --- | --- |
| **Feedback Summary** | max. |
| **Pre-lab quiz:** Are all responses correct? | 4 |
| **Laboratory Notebook:** Have ALL data, observations, and procedures been recorded? | 1 |
| **Report (results and assessment):** Are all sections completed accurately? Is the abstract accurate and complete? Are responses in the Discussion, correct? Does the conclusion only include the appropriate information? Are the References correctly formatted and cited? | 3 |
| **Participation:** Did the student come prepared, was the time used well in the lab and was the student engaged in the experiment? Did the student show the email confirmation letter and request the TA to check their drawers for completeness before they left the lab? | 1 |
| **Performance evaluation:** Did the student follow the safe practice guidelines throughout the whole lab period? | 1 |
| **Total mark** | 10 |

© 2024, Department of Chemistry, Faculty of Science