**Lab Investigation: Comparing the Reactivity of Alkanes and Alkenes – Saturated and Unsaturated Fats**

**Introduction: (Complete the following blanks as your introduction)**

Hydrocarbons are classified as Aromatic and Aliphatic. Aliphatic hydrocarbons that have single bonds are called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. They have the general formula \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Double bonded hydrocarbons are called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and have the general formula \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Triple bonded hydrocarbons are called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and have the general formula \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Organic molecules that have double or triple bonds are called (*delete the one that does not apply)*  **saturated or unsaturated** hydrocarbons. They are (*delete the one that does not apply*) **more or less** reactive than single bonded hydrocarbons. These type of fats are (*delete the one that does not apply*) **more or less** healthy for you.

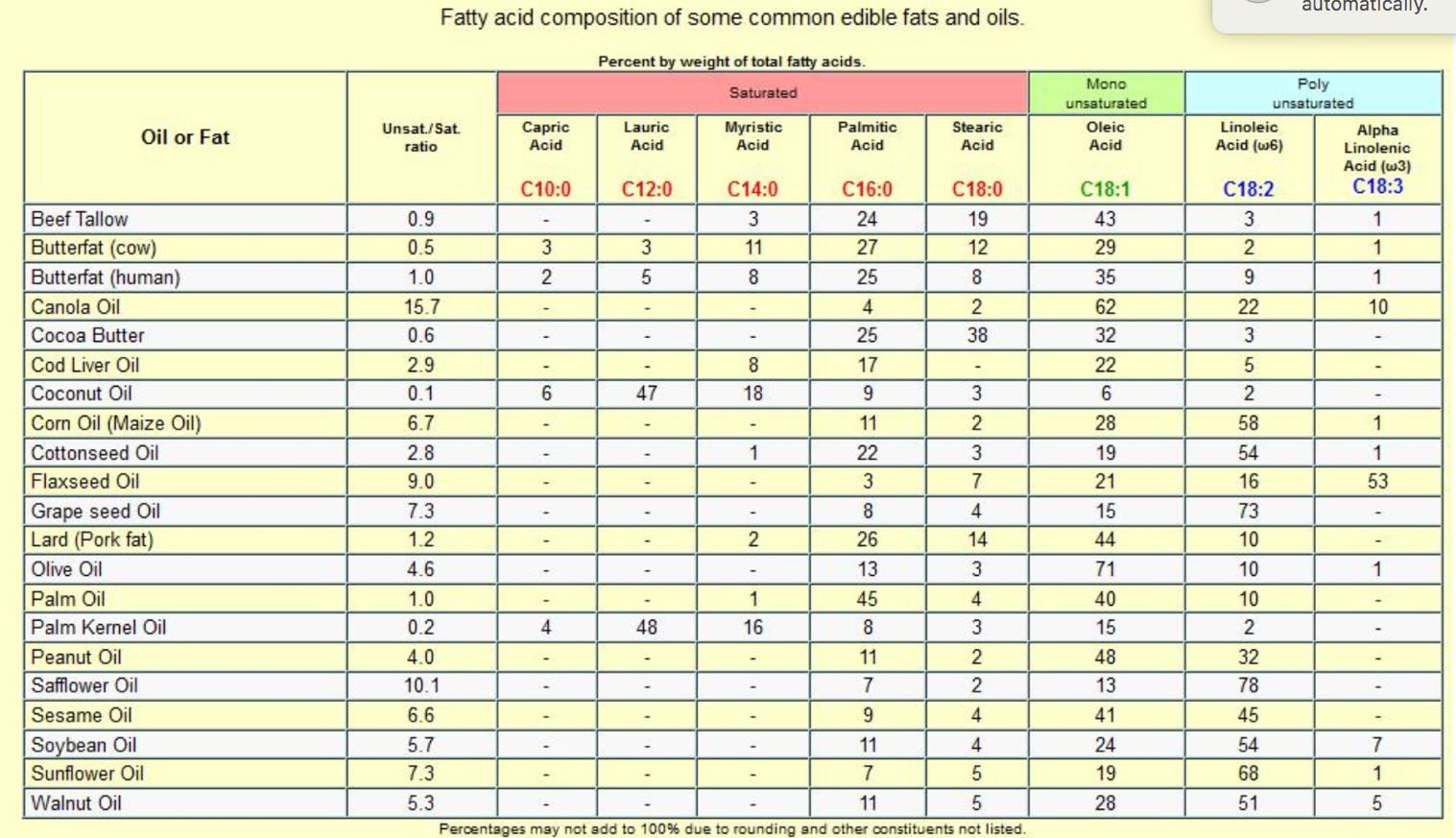
In this lab aqueous potassium permanganate will be used to test for degree of unsaturation. KMnO4 will only react if there are unsaturated fats (alkenes/alkynes) present in the sample. This is shown by a colour change from purple to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. When KMnO4 comes in contact with oils that have primarily saturated fats (alkanes) the colour remains \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.



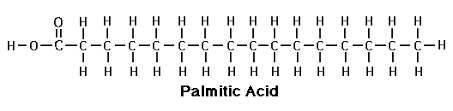
Figure 1: KMnO4 test for unsaturation.

Below is a list of the type of saturated and unsaturated fats that are found in different fats and oils.

Table 1:



Below is an example of palmitic acid, a saturated fat found in every oil listed above. Copy and paste an image of 1 more saturated fats and 1 unsaturated fat found in oils you tested.



**Purpose:** Copy from the lab sheet.

The oils/fats that will be tested in this lab include:

**Safety:** Include safety precautions listed on lab sheet

**Procedure:** Refer to lab sheet. Reference: Chemistry 11 Chapter: Chemistry of Hydrocarbons, McGraw Hill Ryerson. Toronto. Pg 555

**Observation Table:** Create a table to display your results

**Conclusion:** APE format – Restate the Purpose, State your findings, Explain.