

Properties of Lipids

Data Sheet

Data Table A. *Classification and Identification of Lipids*

Classification Test	Test Tube and Sample Identity				
	1	2	3	4	5
	Coconut Oil	Corn Oil	Olive Oil	Cholesterol	Albumin
Soluble in water?					
Effect of Sudan III?					
Soluble in Hexane?					

Part B. *Test for Unsaturation*

1. What is the initial color of bromine water solution?

2. What is the initial appearance of samples 1–3 immediately after the addition of bromine water?

3. Describe the final appearance of test samples 1–3 after three minutes.

4. Which seed oils reacted with bromine? Why?

Properties of Lipids

Data Sheet (continued)

Data Table C. *Extraction of Peanut Oil*

Mass of shelled peanuts, g	
Mass of filter paper, g	
Mass of filter paper + peanut residue, g	
Mass of peanut residue, g	
Appearance of peanut residue	

Post-Lab Questions *(Use a separate sheet of paper to answer the following questions.)*

1. Does the solubility behavior of the test samples in Part A fit the pattern predicted based on the definition of lipids? Explain. Which samples in Part A are lipids?
2. Compare the effect of Sudan III staining solution on solid and liquid lipids.
3. Sudan III stain can be used to identify fat storage granules in a seed. Discuss how this might be done and what might be observed.
4. The following information was obtained from the nutritional labels of various seed oils. Do the results of the bromine test for unsaturation agree with the information provided on the food labels?

	Coconut Oil	Corn Oil	Olive Oil
Total fat	14 g	14 g	14 g
Saturated fat	13 g	2 g	2 g
Polyunsaturated fat	0 g	4 g	1 g
Monounsaturated fat	1 g	8 g	11g

5. How could the bromine test be modified to be able to rank different seed oils with respect to the amount of unsaturation in each?
6. Using the mass of peanuts before and after extraction of "peanut oil," calculate the percentage of fat in peanuts.
7. The nutritional label for peanuts lists the following information. How does your experimental value for the percentage of fat in peanuts (Question #6) compare with that reported on the nutritional label?

Peanuts	29 g
Total Fat	14 g

8. Describe some ways the extraction procedure in Part C could be improved to obtain better agreement between the experimental and known values of the amount of fat in peanuts.