

Name _____

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The Biochemical Components of Peanuts

Experiment #9

Data & Report Sheet

A. Extraction of Storage Fats from Peanuts

Mass of Peanut Kernels _____ g

Mass of Flask and Extracted Lipid _____ g

Mass of Empty Erlenmeyer Flask _____ g

Mass of Lipid Extracted _____ g
(Subtract mass of empty flask from mass of flask + extracted lipid)

Weight is the percent of fats in these peanuts: _____ percent
(100% x mass of lipid extracted/mass of peanut kernels used for extraction)

Determine the number of Calories (kilocalories) of energy derived from fat in 100 g of peanuts by multiplying 9 Cal/g fat times the answer for percent of fats obtained above. How does this compare with nutritional information for foods (peanuts)? You may need to check a nutrition book or the internet for this information.

B. Measuring Unsaturation of Fats in Peanuts

What was the result when testing peanut oil with potassium permanganate? Was there any color change in the permanganate solution when added to the oil? Describe it.

Would you say that peanuts contain unsaturated fatty acids?

C. Carbohydrates in Peanuts

What happened to the color of the iodine when it was added to the peanut meal suspension?

Describe the result after testing the peanut meal suspension with Fehling's reagent. Was there any color change or precipitation? What does this indicate with respect to sugars in peanuts?

Describe the result of testing the peanut meal suspension with Fehling's reagent after acid hydrolysis. Was there a color change or precipitate?

What kind of carbohydrate is in a peanut, from the result of the iodine test and the two Fehling's tests on unhydrolyzed and hydrolyzed peanut meal suspension?

Describe the result of testing the peanut shell hydrolysate with Fehling's reagent after acid hydrolysis. Was there a color change or precipitate?

Describe the result of testing the peanut shell hydrolysate with Bial's reagent after acid hydrolysis. Was there a color change? What kind of carbohydrate would give a color change in this test?

D. Protein in Peanuts

Describe the color of the alkaline copper solution after adding the peanut meal suspension to it, compared to alkaline copper solution in water. This is the biuret test. Would this indicate that protein is present in peanuts?

Describe the colors observed in the peanut meal suspension after heating it with nitric acid.

Describe the color after making the nitric acid solution alkaline with NaOH.

Does this indicate there is protein in the peanut kernels?