CALIFORNIA STATE SCIENCE FAIR
2010 PROJECT SUMMARY

Name(s)
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Project Number
J2223

Project Title
Chips, Cookies, and Seeds, Oh My!

Abstract

Objectives/Goals
Can you rely on food labels to accurately report fat content? The purpose of my project was to test the actual fat content in a number of popular snack foods and compare the results with their respective nutritional label. My hypothesis is that if the food labels are correct, then the snack foods with the highest fat content should have a higher percentage lipid extraction than the snack foods with a lower fat content.

Methods/Materials
I used milk and semi sweet chocolate chips, regular and baked potato chips, regular and reduced fat Oreo cookies and sunflower seeds, measured five grams of each and smashed or broke into pieces depending on the food. I first weighed the empty beaker then added the snack food and weighed it again. Next, I added 10mL of acetone and stirred with a glass rod for one minute. I then decanted the acetone into a Petri dish making sure the snack food remained in the beaker. I repeated this step twice and left the beakers with the snack food to dry overnight. The next day I weighed the beakers again and recorded my results. I tested each snack food three times.

Results
My results for test 1 from greatest lipid extraction to the least: Semi Sweet chocolate chips (35.4%), Milk chocolate chips (29.2%), Regular Oreo cookie (25.0%), Regular potato chips (24.0%), Sunflower Seeds (20%), Reduced Fat Oreo Cookie (6.25%) and Baked Potato Chips (1.7%). Test 2: Tie between Semi sweet and Milk chocolate chips (42.9%), Sunflower Seeds (35.3%), Regular Oreo Cookie (26 %), Regular potato chips (17..3%), Baked Potato chips (15.1%), Reduced Fat Oreo cookie (9.6 %). Test 3: Regular Potato Chips 32.1%, Semi Sweet chocolate chips 32%, Sunflower Seeds 28.9 %, a tie between milk Chocolate chips and Regular Oreo cookie 24.5%, reduced fat Oreo cookie 16 %, and baked Potato Chips 9.4 %.

Conclusions/Discussion
My hypothesis was partially correct. The items with the most grams of fat per serving did have a higher percentage lipid extraction, but the exact rankings expected were incorrect. Either the food labels do have hidden fats that are unreported or there was a breakdown in the procedure. However, there was a consistency in the overall results that demonstrates that using nutritional labels can be a part of maintaining a healthy diet.

Summary Statement
The purpose of my project was to determine if food labels accurately report fat content.

Help Received
Mother helped put board together and did some typing. Dad helped me research the idea and design the experiment.