The Energy Content of Food Laboratory: Felix Muhiga

Teacher's Guide

Goals

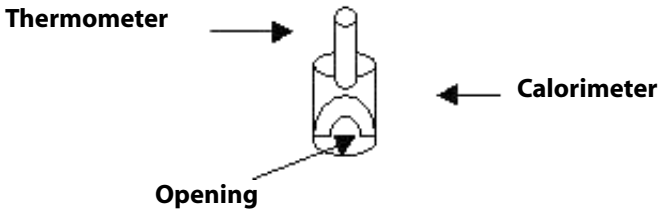
- To compare the food-group content of different foods
- To become aware of the differences between different things that we eat

The Laboratory

In this laboratory, students become involved in doing calorimetric measurements of burning food. They learn how the food-group composition of different foods influences the energy they give off in combustion, and thus about the energy that the human body may use.

Materials for Each Group

- A calorimeter with a side opening and a thermometer on top
- Thermometer
- Calorimeter
- A piece of wire
- Cork stopper to hold wire
- 4"x4" aluminum foil to protect the cork from the fire
- Different foodstuffs: marshmallow, nuts, popcorn
- Matches
- A sheet of aluminum foil



SAFETY

Wear goggles at all times during the laboratory period.

Take extra care when working with fire.

Stay away from flammable liquids (alcohol, ethers, acetone, etc) and do not touch hot parts with bare hands.

Work on a sheet of aluminum foil to avoid burning the bench-top.

Lecture Notes

We will investigate and find out the calorie content, or energy content, of different kinds of foods.

Based on the different foods that we worked with in this lab, can you tell me how we can classify the foods?

What did we say about the fat content of different kinds of food, based on the samples that we did in the lab?

Nuts: do they have more calories, or more fat, as compared to carbohydrates?

Animals like cows and horses must keep on eating all the time, for almost 24 hours, because grass and plants are at the bottom of the food energy spectrum. Above that are the carbohydrates, then the proteins, and the highest energy content is of fats.

So, it's not how much we eat, but the energy content of our food, that counts. That depends on the food content.

Comment

Check this Web site:

> http://www.hoptechno.com/nightcrew/sante7000/sante7000_search.cfm;
> use the Search form to find contents of foods.

Read about food content here:

> http://www.fda.gov/opacom/backgrounders/foodlabel/newlabel.html,
> an interactive food label from the FDA.

References: Links

http://www.mr-damon.com/experiments/3svt/food_energy/
An illustrated interactive guide to food calories experiment.

http://www.woodrow.org/teachers/chemistry/institutes/1988/foodheat.html
An alternative procedure for the calories in food experiment.