

POTATO CHIP TASTING

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Materials Needed

potato chips: (you can compare across a brand or several different brands)
 regular, such as Lay's
 low fat, such as Lay's Wow! (made with Olestra)
 no fat, available in some grocery stores and natural food stores (these can be made from thin sliced potatoes cooked in a microwave oven.)
potato crisps: (you can compare across a brand or several different brands)
 regular, such as Pringles®
 low fat, such as Pringles® Right Crisps and Baked Lay's
 no fat, such as Pringles® No Fat (made with Olestra)
bowls or baskets to hold potato chips and crisps, lined with clean, white paper napkins
napkins or paper towels

Safety

This experiment is best performed as a classroom activity. All desk areas should be clean. Place a clean napkin or paper towel on the desk or table top to avoid any contamination of the food materials.

There are no safety hazards associated with the materials used in this experiment.

Disposal

Generally, all waste materials in this experiment can be disposed in the trash. All disposal must conform to local regulations.

Procedure

The potato chips should be placed in bowls or baskets lined with a clean, white paper napkin. Each brand should be identified.

Obtain samples of each type of chip available. Place them on a clean, white napkin or paper towel and identify each by writing on the paper napkin or towel.

Compare appearance of the various chips. Can you tell them apart?

Take a small taste of each chip. Note the crispness, flavor, saltiness, texture, and mouth feel. It is best to compare within a specific brand such as Pringles, Pringles Right Crisps and Pringles No Fat first, then compare different brands.

Compare the ingredients of the different kinds of chips.

Compare the nutritional information of the different kinds of chips. Note: Since serving sizes tend to vary among brands, it is best to compare nutritional information on a per

gram basis. To do this, divide the nutritional value (such as grams of fat per serving) by the number of grams in a serving size.

After all the tasting is complete, check the napkins lining the bowls of the chips. What do you observe?

Olestra, a no-fat fat.

Olestra, called a no-fat fat, has been used for the preparation of snack foods. Olestra is a sucrose polyester, that is, it is a modified sucrose molecule (See Figure 1) with 6 to 8 long chain fatty acids attached to it by an ester linkage. (See Figure 2). Such a molecule is too large for the enzymes in the body to break down, so it passes through the digestive system without being absorbed. Foods cooked with Olestra have the same mouth-feel as foods cooked in regular fats and oils.

Although it is a no-fat material, Olestra is not totally free of problems and controversy nor does it mean that an individual can consume a large quantity of Olestra made snack food without consequences.

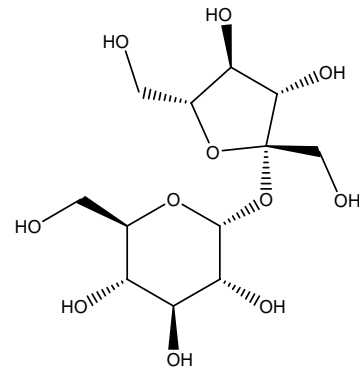


Figure 1. The structure of sucrose

One criticism is that Olestra products have a distinct after-taste. The author has found this to be true, but the after-taste does vary with the particular product.

Olestra does dissolve vitamins A, D, E, and K which are fat-soluble and can deprive the body of those vitamins in foods consumed with Olestra products. (Olestra will not dissolve those vitamins from body tissues.) To counteract this, Olestra has been fortified with vitamins A, D, E, and K to limit their solubility and to allow the body to absorb these nutrients. Also, since Olestra passes through the digestive system undigested, it can have a lubricating effect resulting in loose stools and a problem called anal leakage. Some individuals have complained of stomach cramps. Overall, the author's experience with potato chips made with Olestra has been a positive one, experiencing none of the problems described above. It should be noted, however, that only moderate quantities of Olestra products were consumed at any one time.

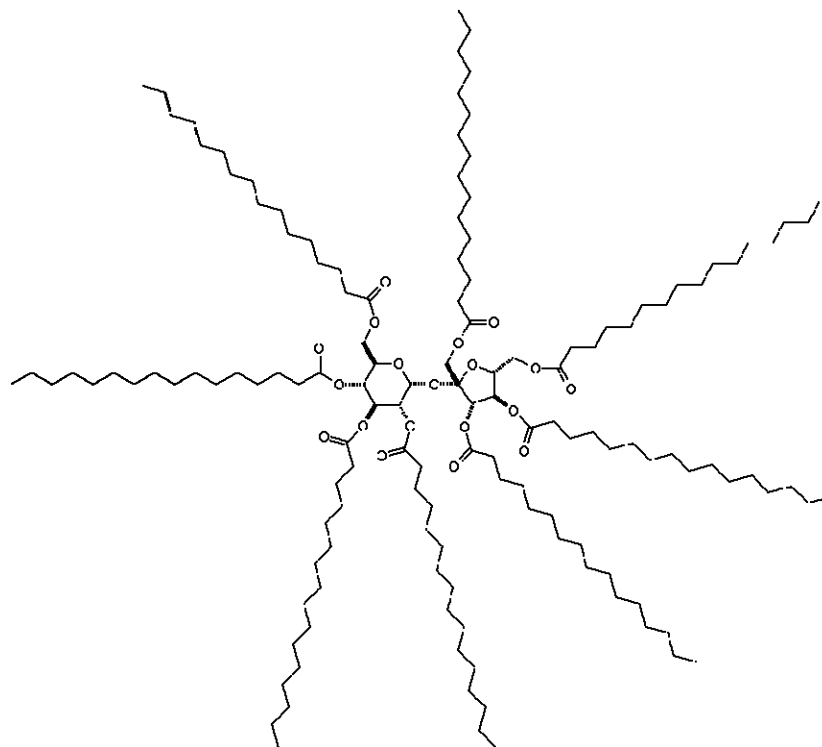


Figure 2. The structure of olestra