

Bile in the small intestine

Purpose: How does bile aid in the digestion of the small intestine?

Background information:

Different milks tend to vary according to the way they are produced and their fat content. Whole milk is milk that contains 4% fat. 2% milk is milk that has a fat content of 2%. 1% milk is milk that has a fat content of 1%. Skim milk is milk that contains about 0.1% fat.

Hypothesis:

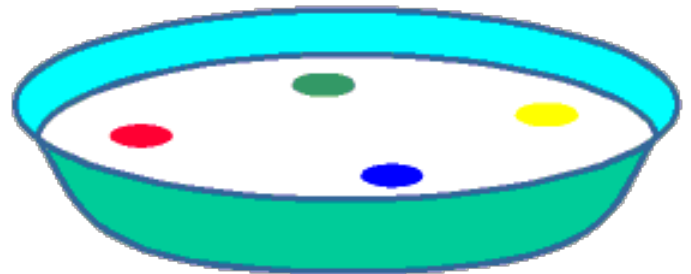
I think that if you add bile to milk with different amounts of fat then . . . _____.

Data Table:

Substance	Rating	Observations
Water		
Skim Milk		
2% Milk		
Whole Milk		

Procedures:

1. First you will do the control (water).
2. Using a graduated cylinder measure out 30 ML of water.
3. Pour the 30 ML of water into the plastic container.
4. Carefully put **two small drops** of each of the four food colors onto the surface of the milk, widely separated, and not in the center of the dish (*less is better than more!*). Something like this:



5. Very carefully drop **one drop** of dish soap onto the surface of the milk in the **center** of the dish. Be careful not to add the soap directly on top of the food coloring.
6. Record your observations.
7. Using a rating scale of 1 – 5 rate how much movement took place in the dish. A rating of a 1 means very little to no movement while a rating of a 5 means heavy movement and ripples.
8. Dump the water solution down the drain and rinse out with water.
9. Measure out and pour 30 ML of skim milk into your container.
10. Carefully put **two small drops** of each of the four food colors onto the surface of the milk, widely separated, and not in the center of the dish.
11. Very carefully drop **one drop** of dish soap onto the surface of the milk in the **center** of the dish. Be careful not to add the soap directly on top of the food coloring.
12. Record your observations in your spiral.
13. Using a rating scale of 1 – 5 rate how much movement took place in the dish. Dump the milk solution down the drain and rinse out with water.
14. Repeat these steps for 2% and Whole Milk.
15. Read the short passage below.

Role of the Liver:

The liver is located in the upper portion of the abdomen. It is the largest and heaviest organ inside the body. You can think of the liver as an extremely busy chemical factory that plays a role in many body processes. For example it helps eliminate nitrogen from the body. As part of the digestive system, the liver produces bile, a substance that breaks up fat particles. Bile flows from the liver into the gallbladder, the organ that stores bile. After you eat, bile passes through a tube from the gallbladder into the small intestine.

Bile is not an enzyme. It does not chemically digest foods. It does, however break up large fat particles into smaller fat droplets. You can compare the action of bile on fats with the action of soap on a greasy frying pan. Soap physically breaks up the grease into small droplets that can mix with the soapy water and be washed away. The droplets can then be chemically broken down by enzymes produced in the pancreas.

Concussion:

Paragraph 1

- Write down your observations about what is happening in each container.
- Explain why you think there was a difference in the reaction?

Paragraph 2

- What substance represented the bile?

How does this lab show what is taking place in the small intestine? (be specific)

