Food Additives Lab

*The best scenario for this lab is that students bring in various types of cooking pans from home.*

**Materials** Hot Plate 250 ml Beakers Beaker Tongs Goggles

 Iodine Solution Baking Soda Teaspoon Stirring Rod

 Slice of Bread 100 ml Grad Cylinder pH Meter/Paper **Cooking Pans**

# Procedures … THE EFFECT OF BOILING FOOD

1. Add 100 ml of water to a 250 ml beaker.
2. Add 10 drops of iodine solution to the water & stir to make a homogeneous solution.
3. Place a slice of bread on top of the beaker.
4. Heat the beaker on a hot plate set on high and allow the water to boil until clear.
5. Turn off the burner and examine the bread … BE CAREFUL NOT TO BURN YOURSELF!
6. Clean the 250 ml beaker and discard the bread in the waste basket.

# Procedures … INCIDENTAL FOOD ADDITIVES

1. Add 100 ml of water to a cooking pan.
2. Add 1 teaspoon of baking soda to the water & stir.
3. Taste the baking soda solution by dipping your finger.
4. Determine the pH of the solution BEFORE heating … use pH paper or a pH meter.
5. Place the pan on a hot plate and boil the solution for 6-8 minutes in the cooking pan.
6. Turn off the hot plate and pour the solution back into a 250 ml beaker. ALLOW TO COOL.
7. After cooling is sufficient, taste the baking soda solution again.
8. Determine the pH of the solution again.
9. Examine and taste other students results.
10. Clean up the lab.

# Conclusions and Questions

##  See Calculations and Data Sheet

## Place all your observations and Answers on the Calculations and Data Sheet Provided.Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Calculations and Data Sheet

## Date \_\_\_\_\_\_\_\_\_ Hour \_\_\_\_\_\_\_\_\_\_

# Observations and Data

1. What is the color of the water after the iodine solution is added? [*Procedures 1-2*]

2. Make a drawing/sketch below of the slice of bread, showing the results of boiling the iodine solution. [*Procedures 3-5*]

# INCIDENTAL FOOD ADDITIVES

1. What did the unheated baking soda solution taste like? [*Procedures 7-9*]

2. What was the pH of the solution BEFORE heating it? [Procedure 10]

3. Describe anything that may have happened to the non-heated solution. [*Procedures 7-10*]

4. What is the taste of the solution AFTER boiling? Was there any change in appearance after boiling (color, texture, etc.)?

5. What is the pH of the solution AFTER boiling?

6. How do results from other students compare with yours? Does their solution look the same as yours? Does their solution taste the same as yours? Explain any differences.

# Conclusions and Questions

1. How can you relate boiling to food value according to your results in this lab? In other words, what does boiling food do to the food’s nutritional value?

2. Are vegetables, potatoes, etc. boiled in your home? Knowing the results of this experiment, react to the use of boiling?

3. Suggest possible solutions to the problem of losing nutrition through boiling. Is your suggestion practical?

4. Why did the appearance and taste of the baking soda solution differ before and after boiling in cooking pans?

5. What does this experiment indicate about food quality in relation to the cooking utensils that one uses?

6. Why are aluminum, Teflon, and other metals considered incidental additives in cooking?