**Food Science: Leavener Experiment- Cupcakes**

Each kitchen will prepare cupcakes according to the instructions. Each kitchen will include the \*\*\* ingredient in the recipe as listed below. Each kitchen will complete the observation chart based on the assignment and complete the questions given.

Kitchen 1: \*\*\* is nothing

Kitchen 2: \*\*\* is 1 tsp. soda

Kitchen 3: \*\*\* is 1/4 tsp. baking soda and 1/2 tsp. vinegar

Kitchen 4: \*\*\* is 1/4 tsp. baking soda and 1/2 tsp. cream of tartar

Kitchen 5: \*\*\* is 3 tsp. baking powder

Kitchen 6: \*\*\* is 1 tsp. baking powder

**Cupcake Recipe**

* 3/4 c. + 1 Tbsp. + 1 tsp. flour
* 1/4 c. butter
* 1/2 c. sugar
* 1/4 c. milk
* 1 egg
* 1 tsp. vanilla
* \*\*\* ingredient

Hypothesize which ingredient(s) shall rise best. Preheat oven to 350 F. Mix dry then wet ingredients. Mix till lumpy but fully mixed ingredients. Line four cups of a six cup muffin tin with four muffin papers. Put 1/8 c. water in the two remaining cups. Fill papers 2/3 to ¾ way full. Bake approximately 15 minutes. Cupcakes are done when a toothpick can be inserted and comes out clean, check often past 10 minutes baking to see if they are done. Use caution removing cupcakes.

Prepare cupcakes for data collection: 1 cupcake shall remain untouched to be a display, label the plate with your lab group # and \*\*\* ingredient. 3 cupcakes shall be broke/cut into 32 pieces. When you kitchen is clean you may start going to groups to take data on your cupcakes trying ONE piece of cupcake from each lab group.

Data:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | #1 | #2 | #3 | #4 | #5 | #6 |
| Appearance |  |  |  |  |  |  |
| Texture |  |  |  |  |  |  |
| Taste |  |  |  |  |  |  |

Questions

1. Based on your observations, which leavening agent/s produced the best quality cupcake?
2. Which cupcakes did not raise properly? Explain.(Identify **each** that did not raise properly, and identify WHY they did not raise properly)
3. If you were making a bread or cake recipe using buttermilk, what kind of leavening would you use? Why?
4. Did you notice any difference in the cupcakes made with baking powder and those made with baking soda? Explain
5. What role did water play in this experiment?
6. Reflect on this experiment.