Soy in Food: What is that doing in there?
Soy as an Ingredient

1. Based on your results from the macromolecule analysis, what did you find to be unique about soybean composition?

2. What vegetarian/vegan foods are made out of soy? Why do so many vegetarian/vegan foods include soy?

3. Tofu is essentially made the same way as cheese. Below is the protocol for making both tofu (from soymilk) and a soft cheese (from dairy). How does adding acid to milk impact the proteins? How does this play a role in making tofu/cheese?

Protocol for making soymilk:

a. The day before making soymilk, take 4 cup water and add 1 cup of soybeans to soak overnight
b. The next day, transfer the water and soybeans to a food processor and blend until smooth
c. Strain liquid through cheesecloth.
d. Collect the liquid and refrigerate

Protocol for making tofu/cheese:

a. This protocol is the same for either tofu or cheese. Transfer the milk to a pot over a burner and bring to just below boiling (160-180 F) with stirring
b. Once heated, slowly add ¼ cup lemon juice or vinegar (the acid)
c. Coagulated protein (curds) should start to separate from the liquid
d. If coagulation is not observed, continue to add acid by the Tablespoon until curd forms
e. Spoon the curds into a cheesecloth and wrap tightly, pressing the water from curds
f. Continue pressing until a tight block begins to form, then unwrap

4. Observe the ingredient label demos. Which foods contain soy? Why is soy in so many foods?

5. What is the protein content in those foods? Did you expect the protein content to be different knowing that soy is an ingredient?

6. What type of molecule is lecithin and what role does it play in product formulations?

7. What quality differences do expect to observe between dough prepared with and dough prepared without lecithin?

Bread Recipe:

a. Each group should prepare two versions of this recipe, one with and one without the liquid lecithin listed as an ingredient
b. In a mixing bowl, combine 1.5 cups flour, 1/6 cup sugar, 2 tsp salt, 1 heaping Tbs instant yeast and mix until evenly dispersed
c. Add 1 Tbs liquid lecithin to one dough
d. Add 1.25 cups hot water from the sink
e. Mix completely and knead if necessary for a total of 5-7 minutes
f. Transfer dough to a parchment-lined baking pan and shape into a loaf
g. Cover with a dish towel and let rise in a warm place for 20-45 minutes
h. Bake at 350ºF for 25 minutes

Results:

Describe the differences in consistency between the two DOUGH formulations. Which was easier to handle?

Describe the differences in bread (shape, texture, air pockets) between the two BREADS. Which is more appealing as a consumer?

Describe the staleness of the two BREADS one day after baking.