Be a Food Scientist

Protein testing

Standard Laboratory Operating Procedure #201

Laboratory: Biotechnology	Location: Food Science Lab
SOP prepared by: R. Sanders	Last Revision: 03/23/21

General: Proteins have many important roles in organisms. Structural proteins such as collagen or elastin, provide support. Regulatory proteins such as enzymes control cell processes. Proteins also play an important part in the immune system (antibodies), oxygen transport (hemoglobin), movement (muscles), etc.

Safety: Safety Glasses

Materials
distilled water
microwell plate
2 mL food sample solution
disposable pipettes
vortex
protein test strips

Procedure

Prep of Solid Sample for Testing

1. Weigh out 5g of food/plant sample using electronic balance, add sample into a mortar.
2. Add 20mL of distilled water to food/plant sample in mortar, grind sample with a pestle to make into a slurry.
3. Filter slurry using filter paper and funnel, to collect filtrate into a small graduated cylinder or beaker.
4. Use the filtrate to complete the Protein Indicator Test.
5. Repeat steps 1-4 for each sample.

Protein Indicator Test

1. Transfer 1mL of food sample solution to a microwell plate.
2. Dip protein test strip into the solution.
3. Compare color change to color scale on package.

Protein Indicator Standard Test (Bradford Method):

1. Add 0.03mL (30µL) of sample into appropriately labeled test tubes.
2. Add 1.5mL of the Coomassie Reagent (Bradford Solution) to each tube and mix well.
3. Cover test tube with parafilm and invert to mix, then allow samples to incubate for 5 minutes at room temperature.
4. Rate the precipitate color change as 0=no color change/negative, 1=weak/positive, 2=strong/positive, 3=very strong/positive.
5. To complete quantitative evaluation of the samples in the spectrophotometer set to 595nm.