



Measuring the Change in pH During Lacto-Fermentation

Fermentation of Food

Background

The purpose of this experiment is to demonstrate how naturally occurring bacteria on food can be harnessed for “wild” fermentation. Presumably, there is a population of Lactobacillium, or Lactic Acid Bacteria (LAB), living on vegetables, and we are going to utilize them for pickling. The underlying philosophy when it comes to wild fermentation is to keep vegetables submerged under liquid, thereby creating a selective environment where molds and other oxygen-requiring microorganisms cannot grow. This is the centuries-old basis behind using lacto-fermentation as a mechanism for food preservation. As long as the food is submerged, it will be protected from harmful microbes.

Material List

- Choose your favorite veggies (cucumber, carrots, onions, peppers, beets, etc.)
- Salt
- Water
- Jar with Lid
- pH Paper
- Triple Beam Balance or Digital Scale
- Weighing Paper
- iPad and projector connector
- Sterile Dropper

Preparation

- Wash and cut vegetables into spears of similar size
- Sterilize jars and lids in dishwasher

Procedure

1. Turn your jar, which has been sterilized in the dishwasher, on its side. Start loading vegetable spears into the jar.
2. Add approximately 20g of celtic sea salt.
3. Fill the jar to the very top with water.
4. Cap the lid, and swish the liquid around a bit to mix the salt in.
5. Remove the lid, and take a small drop of liquid out (using sterile dropper) and transfer to a pH stick. Record pH – this is time zero. Return lid.
6. Continue measuring and recording pH using sterile dropper on a daily basis to understand how pH changes during the lacto-fermentation process.
7. At the end of 2 weeks, the vegetables should be nice and crispy and ready to eat!



Discussion Questions

What conclusions can you draw about change in pH and fermentation?

Describe the changes you observed in your jar over the 2 week experiment.

