

Food Processing Workshop

Fermentation (Sauerkraut)

Material:

- Food processor
- Cutting board & knife
- Bowl
- Fermentation vessel
- Pestle
- Sterilized cloth, plate and weight
- Sterilized cans and lids (15x 400 ml)
- Can sealer
- Pressure canner
- 8 kg cabbage
- 120 g table salt (without iodine) 1.5 % (W/W)

Tasks

Produce the Sauerkraut

Methods:

Sauerkraut
Sterilize the cans, lids, cloth, plate and weight 100 °C for 30 minutes
<p>Preparation:</p> <p>Remove the outer leaves of the cabbage and cut the head into eights. Remove the hard core and thinly slice (<2mm) the cabbage use the food processor or shredder</p>
<p>Salting:</p> <p>Place the sliced cabbage into a large bowl. Sprinkle salt (1.5 % W/W) over the cabbage. It is important that the salt has low to none iodine values as it acts antimicrobial. You can also add spices like caraway seeds, garlic to taste. The salt will help draw moisture from the cabbage and create a brine</p>
<p>Kneading:</p> <p>Massage the cabbage thoroughly with your hands. Knead it firmly to break the cell walls and release the juice. Use the pestle to pound the cabbage to release even more juice. This should take about 15 minutes. The cabbage will become softer and releases liquid</p>
<p>Packaging:</p> <p>Pack the kneaded cabbage into the fermentation container. Press it down firmly so that the liquid covers the cabbage. If there's not enough liquid, add some saltwater (2,5 % W/W)</p>
Weighting:

Place a plate and weight on top of the cabbage to ensure it stays submerged in the liquid. This prevents the cabbage from being exposed to air
<p>Covering:</p> <p>Cover the container with a lid or place a clean cloth over the surface of the cabbage and secure it with a rubber band</p>
<p>Fermentation:</p> <p>Let the cabbage ferment at room temperature (18-21°C) for 1 to 4 weeks. During this time, the sauerkraut flavor develops. The longer you ferment it, the sourer it will become.</p>
<p>Canning and Pasteurization :</p> <p>Fill previously sterilized cans and leave a bit of headspace. Seal the cans and pasteurize them in a pot at 100°C for 30 Minutes</p>
<p>Cooling and Storage:</p> <p>Carefully remove the cans from the pot and let them cool. Store them in a cool, dark place.</p>
The product has a shelf life up to one year and above without cooling as it is pasteurized and its pH value is below 4.5

Stages of vegetable fermentation:

Anaerobic Stage: In this initial stage, when cabbage is mixed with salt, it draws out moisture through osmosis, creating a brine. This anaerobic (without oxygen) environment is ideal for the growth of beneficial lactic acid bacteria.

Fermentation Stage: Lactic acid bacteria, naturally present or introduced as a starter culture, begin to proliferate in the brine. They convert sugars in the cabbage into lactic acid through fermentation. This stage is characterized by the tangy flavor development and the preservation of the cabbage.

Maturation Stage: After the active fermentation phase, sauerkraut enters the maturation stage. The flavor continues to develop, and the sauerkraut becomes more acidic and flavorful over time. This stage can last for several weeks to months, depending on the desired taste and storage conditions.

These stages are essential for the transformation of raw cabbage into the tangy, preserved condiment known as sauerkraut.