

Flash Pickling

Low pressure cooking

Materials

vegetables cut into small pieces

cucumber, carrot, or your favorite raw veggie

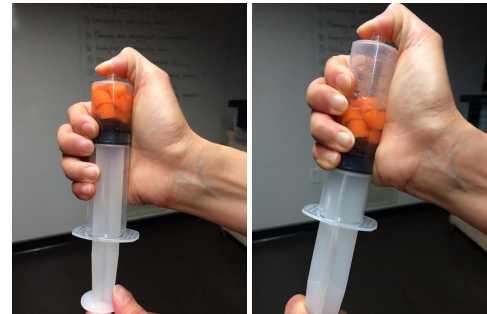
pickling brine - can be as simple as vinegar, salt, and sugar. I like to use seasoned rice vinegar.

a clean plastic syringe – larger ones (60 ml or more) work better
cup or bowl for the brine



To do and notice

1. Remove the plunger from the syringe, and place the veggie chunks in the barrel.
2. Replace the plunger and squeeze out as much air as you can without crushing the veggies.
3. Pour some brine into a cup or bowl and draw up enough into the syringe so that all the veggie pieces are submerged.
4. Point the syringe upward, and push out all of the air. You can flick the syringe to dislodge any air bubbles like you see in the movies.
5. Place your thumb at the opening of the syringe to seal it and pull back on the plunger as hard as you can. Hold it for a few seconds.
6. Release the plunger, and push out any air that may have appeared in the syringe. Repeat step 5.
7. Eject the brine from the syringe back into the cup. Remove the plunger, and shake out the veggies onto your plate.
8. Enjoy your tasty treat!



What's going on?

When you pull the plunger back on the syringe you may have noticed an air gap in the syringe, even though you tried to get rid of all the air. Pulling the plunger back reduces the pressure inside the syringe, and any small amount of air increases in volume proportionally, as described by Boyle's law. This includes any air trapped inside the vegetables, which will get pushed out into the brine. When you release the syringe and the pressure increases around the submerged vegetables, liquid gets pushed back into the spaces where the air was, thus quickly infusing the vegetables with brine.

Technically, the vegetables you prepared are not officially pickles, which are defined by bacterial fermentation in a brine. This method is just a rapid way of infusing brine into food, so really this should be called flash marinating.

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Julie Yu...Exploratorium Teacher Institute...jyu@exploratorium.edu
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Going Further

You may have noticed that in addition to an air gap forming when you pull on the plunger, there are some small bubbles that form inside the brine. This is actually the brine boiling! The temperature at which water will boil goes down as the pressure goes down. It's hard to measure how low the pressure actually gets when you pull on the syringe, but if the brine is boiling, it's probably below 0.03 atm, the pressure below which water will boil at room temperature (25°C). You can check this at more in the Boyle-ing Water activity by Paul Doherty, which can be found at: www.exo.net/~pauld/activities/boilingwater/boilingwater.html

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