



## Fermented Hot Sauce

### Salt - The Original Preservation

It's only been a little over 150 years since the advent of vapor-compression refrigeration, and less than 100 years since they were available for residential use. Back in 1922, the cost of a 9 cubic foot refrigerator was \$714. A 1922 Model-T Ford cost about \$450. So how did we keep food fresh when the season wasn't permitting. Salt and Root Cellars.

Adding salt to foods draw moisture from within the food's cell walls by means of osmosis, and will deter certain spoilage-causing bacterial growth. Yet salt encourages the growth of lactic acid producing bacteria. Lactobacillus is a genus of facultative anaerobic or microaerophilic, rod-shaped, non-spore-forming bacteria. They are a major part of the lactic acid bacteria group (i.e. they convert sugars to lactic acid). In humans, they constitute a significant component of the microbiota at a number of body sites.



# Lactobacillus is Our Friend

As the salt draws out the moisture from the food, naturally occurring bacteria that is already living on the food, as well as airborne bacteria find food supplies by means of sugars and starches in the natural occurring liquid. The “lactobugs” feed off these sugar supplies and excrete lactic acid. This is the same acid that gives yogurt it’s “tang.” As these bacteria procreate, and eventually excrete enough lactic acid, the foods pH drops lower, essentially “pickling” the food. This also prevents certain spoilage bacteria from infecting and eventually destroying our food. Think of how vinegar is used in pickling. Lactic acid is the original vinegar.

## What Is Fermented Hot Sauce?

- Hot sauce is a great condiment to spice up almost any dish.
- Using lactobacillus and other natural occurring bacteria found on the vegetables will naturally “cook” the product and lower the pH level to self preserve.
- The majority of commercial hot sauces you purchase are fermented for some time.
- Commercial hot sauce must be pasteurized, killing off all the gut healthy bacteria.
- Different peppers yield different levels of heat. From the common Jalapeno to the fierce Carolina Reaper.

## Brine vs Pepper Mash

Much of the hype around the fermented hot sauce world is talking about brined peppers. This is when you ferment the vegetables in a salt rich brine for days or weeks on end before blending into the final product. This method is safer and easier than a pepper mash, however you can lose a good amount of the capsaicin heat to the brine. The brine can be used as a marinade for meats and vegetables when strained, however much of this will wind up going down the drain.

Pepper mash is more of the traditional and commercial method like Tabasco. This is when you puree the pepper pulp into a thick paste, using salt and storing it for longer periods of time. This results in a much more full flavored product with little to zero waste. This method is a bit more complicated as mold can tend to grow on the top of the mash. If this is the case, you can scrape the mold off, along with ½ an inch of the pepper paste, rinse the sides of the jar with vinegar and cap off with salt. Tabasco is aged for up to 8 years before being blended with white vinegar and strained to produce their world famous sauce.

## Bring Down the Heat

Some of the super hot peppers, like the Carolina Reaper have a wonderful flavor, however as the hottest pepper in the world, it’s hard to use alone. Fermented hot sauce can bring other friendly vegetables to the party. I prefer to use carrots and onions in a 1-1-1 ratio to cut down the heat.

## Pepper Brine Hot Sauce Method

Ingredients	Equipment
<ul style="list-style-type: none"><li>• 3 cups of warm water (filtered or spring)</li><li>• 4 teaspoons of sea salt or kosher salt..</li><li>• 3 garlic cloves</li><li>• 2 medium carrots</li><li>• 1 pound of hot peppers</li><li>• ½ large onion</li></ul>	<ul style="list-style-type: none"><li>• ½ Gallon jar.</li><li>• Blender</li><li>• Hot Sauce Bottles</li><li>• Cheesecloth</li></ul>

### Instructions

- **Make your brine:** Add 4 teaspoons of salt to the 3 cups of water and stir until dissolved.
- **Slice the vegetables:** Cut the tops off the peppers and slice in half. Deseed if you want less heat. Rough cut the carrots and onions.
- **Combine vegetables and brine:** Mix the brine and the chopped vegetables to the jar and stir for 30 seconds or more.
- **Cover the jar with multiple layers of cheesecloth:** Using a rubberband, secure at least 4 layers or more of cheese cloth to the top of the vessel. This will allow gas to escape during fermentation, but will not allow other contaminants in, such as fruit flies.
- **Let it ferment:** Let the jar stand at room temperature for 1 to 5 days. You should see bubbles inside the jar.
- **Check it daily and blend when ready:** Stir the ferment at least once a day. The longer the fermentation, the funkier the flavors will be. Feel free to taste the brine as it fermented. Once you are happy with the ferment, strain out the vegetables, reserving the brine for marinades and other sauces. Add all vegetables to a blender, and blend on high speed. If it looks too thick, add a small amount of the reserved brine until you are happy with the consistency. Remember, it should be slightly thick, but still maintain a pourable consistency.
- **Bottle and Store:** At this point, you can bottle your hot sauce and keep in the refrigerator. It should last for months, and up to a year. If for some reason it smells off, or your not sure about the product, you can dump it and start again. Lesson learned.

# Pepper Mash Hot Sauce Method

Ingredients	Equipment
<ul style="list-style-type: none"><li>• 4 teaspoons of sea salt or kosher salt..</li><li>• 3 garlic cloves</li><li>• 2 medium carrots</li><li>• 1 pound of hot peppers</li><li>• ½ large onion</li><li>• 1 cup or more of white vinegar.</li><li>• Sugar (optional)</li></ul>	<ul style="list-style-type: none"><li>• Quart Jar</li><li>• Food Processor</li><li>• Blender</li><li>• Hot Sauce Bottles</li><li>• Cheesecloth</li></ul>

## Instructions

- **Slice the vegetables:** Cut the tops off the peppers and slice in half. Deseed if you want less heat. Rough cut the carrots and onions.
- **Blend:** Combine all vegetables with 4 teaspoons of salt. Pulse in the food processor until chopped fine. You don't need to make a puree.
- **Pack into a sanitized and clean jar:** Using a spoonfull at a time, pack the pepper mash into the jar being sure to press down to remove any air bubbles. Do this for the entire batch.
- **Cap with salt and cheesecloth:** Pour a generous amount of salt on top of the jar. About ¼ inch is best. This should prevent any mold issues. Then place at least 4 layers of cheese cloth on top and secure with a rubberband.
- **Forget about it:** Place the jar in a dark place for months on end. The longer this sits, the more concentrated the flavors will be. Check it ever few weeks or monthly to check for mold growth. If you see mold, you should scrape the mold off, along with ½ an inch of the pepper paste, rinse the sides of the jar with vinegar and cap off with salt.
- **Blend with vinegar:** When you are ready to finish the sauce, scrape off the top ½ inch of mash, including the salt and discard. Add the remaining to a blender and pour in 1 cup of white vinegar. Blend until smooth. If you're using seeds, you should strain the sauce through a medium sieve before bottling. At this point, you should taste the sauce. Remember, it's a condiment, so it should be salty. If it needs more salt, add more. If it's too strong, adding sugar can mellow the flavors.
- **Bottle and Store:** At this point, you can bottle your hot sauce and keep in the refrigerator. Because of the vinegar, this sauce should also be shelf stable for months without the need for refrigeration. If for some reason it smells off, or your not sure about the product, you can dump it and start again. Lesson learned.