



Fish pickling for home use

PNW 183
A Pacific Northwest
Extension publication

Preserving seafood with vinegar (acetic acid) is one of the easiest food-preservation techniques known. West Coast and Pacific Northwest states have several species of fish that lend themselves well to pickling—shad and herring are good examples. The fish are plentiful, little work is involved, and the products are delicious.

High-oil-content fish make the best pickled dishes. In addition to shad and herring, the more common West Coast species are Chinook salmon, striped bass, and black cod. Other species are also suitable, depending on individual preferences. These different species may require slight modifications in preparation techniques, but following the basic steps outlined below will be a good way to begin developing your own private recipe.

Safe and tasty fish-pickling recipes all have one thing in common: they use enough vinegar to prevent botulism. Although rare, botulism is an important consideration in all food preservation. By following some simple rules, you can insure that your favorite pickled fish is safe as well as delicious. This publication outlines the basic steps in pickling fish, offers some helpful hints on preparation, and provides a basic recipe that works well on most high-oil-content fish.

The basics—salt curing and brining

Most good fish-pickling recipes call for salt curing prior to brining in the pickle solution. This step kills some unwanted bacteria, firms the protein for good texture, and deactivates some enzymes.

Salt curing also preserves the fish so it can be stored for extended periods without refrigeration before pickling. However, refrigeration will extend this storage period. Once salt-cured fish is placed in pickle brine, it must be refrigerated and has a limited storage life (4 to 5 months).

In recipes that don't call for salt-cured fish, use only previously frozen fish (3 to 4 days in the average home freezer). This will ensure that no live parasites are present in the raw fish—which is particularly important for lightly salted and marinated recipes.

Vinegar will stop bacterial spoilage, give flavor, and soften bones. However, vinegar will not preserve the fish indefinitely; it only slows the spoilage and softening caused by enzyme action. The concentration of acid (from the vinegar) must be high enough to prevent botulism.

The growth of these food-poisoning bacteria will be prevented when the starting pH (a measure of acid strength) is below 3.5. From a practical standpoint, this acid level can be attained when the pickle solution contains at least one or more parts of 5% vinegar to one part water.

The recipe

Most pickling recipes contain sugar, salt, spices, and onions. These really add little to the preservation of the fish, but they are the key to good flavor. The ingredients of the pickling solution offered by this recipe are quite basic and can be modified to individual taste preference (table 1)—but *never* use a solution with less vinegar than water.

If the flavor of vinegar is too strong for your taste, add more sugar to offset it. (Try doubling the amount of sugar as a start.)

Table 1.—Proportions (customary and metric) for the basic pickling solution

Item	Proportions (to make about 1 gallon)	Proportions (to make about 2 liters)
Water	3 pints	750 ml
Vinegar (5% white)	4 pints	1000 ml
Sugar (granulated) ^a	2 cups	240 ml
Salt (table salt)	4 tbsps	30 ml
Spice (mixed pickling spice) ^b	¾ cup	110 ml
Onions (white chopped or rings)	about 2, small	1, small
Garlic (dry, chopped) ^c	¼ tsp	1 ml

^a For sweet, "Swedish style" pickle, add more sugar to taste.

^b Red peppers may be removed for a milder taste.

^c Optional. One or two chopped garlic cloves will replace the dry, chopped garlic.

The procedure

The following are basic steps in pickling fish. Not all fish can, or should, be treated exactly the same, but the steps are similar. This procedure salt cures the fish. If you skip the curing step, use only previously frozen fish.

Preparation

1. Remove the entrails, clean, and remove head and scales from whole fish.
2. Remove backbone in large fish by cutting lengthwise. This is not necessary on small fish such as herring.

Curing

3. Dry salt or brine cure for 5 to 8 days. Salted fish may be stored in a cool place 2 to 3 months before pickling (6 to 12 months under refrigeration).
Dry salt—Cover bottom of large pan with about ¼ inch (0.5 to 1 cm) of fine salt and then lay down fish and salt in alternate layers. Place top layer skin side up. Hold under refrigeration if possible. Do not store above 50°F (10°C).
Brine curing—Place sides of fish into saturated brine (about 1 part fine salt to 3½ parts water) and completely submerge them with a suitable weight. Use about equal volumes of fish and brine. Place top layer skin side up. Hold under refrigeration if possible. Do not store above 50°F (10°C).

Pickling

4. Remove surface brine by rinsing fish in fresh water. Soaking not longer than one day in cool, fresh water (to reduce salt content) may be desirable but is not necessary. The actual length of freshening depends on the salting methods, size of pieces, and amount of salt desired in the finished product.
5. Remove the skin if desired. (Some fish can be skinned easily prior to salting, but storage life may be reduced if this is done.)
6. Cut into “bite-size” pieces or strips, as desired.
7. Place loosely into glass jars (*not cans!*); cover with pickling solution; put on lids; and cure under refrigeration until bones soften (1 to 2 weeks).

The basic pickling solution. Table 1 shows this basic solution. One gallon of solution will pickle 6 to 7 pounds of fish (about 2 gallons of finished product). Two liters of solution will pickle about 1.5 kilograms of fish.

Important: Do not use less than one part vinegar to one part water. Do not pack fish tightly into jars. Do not pickle more fish than the amounts indicated in the preceding paragraph.

Storage

If you follow this basic recipe, you should produce a good quality and a safe product; however, the fish must be stored under refrigeration (38°F, 3°C, or less) as an added measure of safety. This will insure that food-poisoning bacteria will not grow. It will also retard bacterial spoilage, enzymatic softening, and discoloration.

If refrigeration facilities are limited, do not pickle more fish than you can consume in a few weeks—leave the bulk in salted storage in a cool place.

For further reading

OSU Extension publications. In July 1992 the OSU Extension Service publications warehouse was destroyed by fire. We are replacing our supplies. The publication listed below may be available in the office of the OSU Extension Service that serves your county. Check with that office for current prices.

You also may call Agricultural Communications at Oregon State University, (503) 737-2513, to learn its availability and current price.

Raab, Carolyn A., *Canning Seafood*, Pacific Northwest Extension publication PNW 194 (Oregon State University, Corvallis, revised 1990). 25¢

This publication was prepared by Kenneth S. Hilderbrand, Jr., Extension seafood processing specialist, Oregon State University.

PNW 183 • Reprinted January 1993

Pacific Northwest cooperative Extension bulletins are joint publications of the three Pacific Northwest states—Oregon, Washington, and Idaho. Similar crops, climate, and topography create a natural geographic unit that crosses states lines. Since 1949 the PNW program has published more than 400 titles. Joint writing, editing, and production has prevented duplication of effort, broadened the availability of faculty specialists, and substantially reduced the costs for participating states.

Published and distributed in furtherance of the Acts of Congress of May 8 and June 30, 1914, by the Oregon State University Extension Service, O.E. Smith, director; Washington State University Cooperative Extension, Larry G. James, interim director; the University of Idaho Cooperative Extension System, LeRoy D. Luft, director; and the U.S. Department of Agriculture cooperating.

The three participating Extension Services offer educational programs, activities, and materials—*without regard to race, color, national origin, sex, age, or disability*—as required by Title VI of the Civil Rights Act of 1964, Title IX of the Education Amendments of 1972, and Section 504 of the Rehabilitation Act of 1973. The Oregon State University Extension Service, Washington State University Cooperative Extension, and the University of Idaho Cooperative Extension System are Equal Opportunity Employers.

50/0/50