

CHARCUTIERE - BRINES, CURES, MARINADES & SMOKING

A) BRINES

The larder uses a number of marinades and brines, most of which have been known for hundreds of years. Whereas the marinades are always used to give a certain distinctive flavour and /or to tenderize in some cases, the pickles and brines were originally used to preserve food. In modern times of refrigeration and deep-freezing , pickling and brining may be thought to be unnecessary but this is not so.

Although pickling and brining does preserve, the foods treated in this way attain a certain colour in the case if brine and, what is more important , flavour in the case of pickles and marinades; people have become accustomed to this and would not care to miss it. This does not imply, however that pickle and brine is not also and to preserve; under certain circumstances , this purpose still exists today.

1. Raw Brine
2. Red Brine
3. Spice Brine
4. Cooked Brine

As for Raw Brine but the liquid is brought to a boil for about 2 hrs 20 minutes and cooled overnight before being used.



Brine is water saturated or nearly saturated with a salt. Salt concentration is nearly 25%.

Brining can be achieved by any of the following:

- Steeping
- Injecting
- Spraying
- Steeping

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In Brining, the food is completely immersed in the brine solution for a period of time. The food should be turned over occasionally to achieve even brining.

Injecting

Injecting involves the use of brine pump wherein the brine is injected directly into the muscle fiber.

Spraying

Spray brining is when the brine solution is sprayed by injection at several points in the muscle at the same time.

Even faster than injecting.

Salting and Pickling Brine

Meat contains around 75% water in the form of inter and intra cellular liquids distributed all over the tissues. These liquids contain several substances such as minerals, salts, proteins, amino acids and lactic acids.

When meat is exposed to brine, osmotic exchange happens between meat and the brine. The meat absorbs brine and brine receives some of the meat liquids.

pH in meats

Low pH

Ideal for uncooked meats

Helps in colour retention

High pH

Ideal for cooked meats and meat products

Gives darker colour

Sugar in brines

Enhances taste

Acts as meat tenderizer

Encourages the growth of Lactobacillus which further retards the growth of other harmful bacteria which may increase the acidic level of the food.

B. CURES

Curing is a process of surrounding meat, fish, game or poultry with salt, sugar, nitrates or nitrite. This helps in dehydrating the meat and hence retards microbial growth.

It also refers to various food preservation and flavoring processes, especially of meat or fish. Concentrations of salt up to 20% are required to kill most species of unwanted bacteria.

Many curing processes also involve smoking.

Curing agents

Salt

It consists of 94% table salt and 6% of Sodium Nitrate/ nitrite or Potassium Nitrate/ nitrite.

Salt Petre

It is also known as potassium nitrate and reacts with colour pigments in meat to give pink colour.

Sugar

Reduces strong flavour of salt, lowers the pH and enhances flavour and taste.

Anti Oxidants and other chemical preservatives

Types of Curing

Dry

In this process the cures are directly applied on the surface of food by rubbing it. It is a prolonged process and the cure needs more time to penetrate. When ready the excess cure is rinsed off.

Wet curing

In this the curing salts are added to a water and hence resulting in BRINE formation. This process is much shorter due to osmosis and penetration is more faster.

METHODS OF CURING

The various methods of curing are:

1. Smoking
2. Pickling
3. Salting



C. MARINADES:

A marinade is a seasoned liquid used for macerating (steeping) certain kinds of meat, especially game such as hare and venison, prior to cooking. Its purpose is to impregnate the piece with flavour and tenderize the meat. In some cases a marinade may be used to preserve the meat for a short time. The time taken for marinating depends on the nature and size of the piece. In winter large cuts such as thick roasts may take up to 6 days; in summer 2-3 days is normal. Smaller cuts such as meat for sheek –kebebs may only require a few hours marinating time. Do not discard the marinade after use since it may be required for making a sauce as part of the recipe.

Marinades should be made in non-metal containers such as earthenware or glass vessels because of the corrosive action of acids on metal. Nowadays it is no longer necessary to marinate saddle of venison or saddle of hare in order not to change the very fine flavour of these meat cuts. On the other hand one may, although it is not always necessary, marinate the less fine cuts of hare and large game. To enhance the flavour of mutton, the addition of a little rosemary is recommended and for venison, the inclusion of a few juniper berries and basil. Again in any marinade, red wine may supplant white wine and the ratio of wine to vinegar may be varied according to taste.

Marinades may be raw or cooked. The cooked variety makes its flavour more available to the food and should be prepared in advance and used cold.

Marinades

A marinade is a seasoned cooked or uncooked liquid with various aromats in which meat, poultry, fish, game and even vegetables are steeped. Marinades consist of the following components:

Oil: Oil used for marinades can be olive, peanut, salad or refined. Flavoured oils such as garlic oil, chilli oil and herb infused oil can also be used. The oil in the marinade helps to prevent moisture loss.

Acid: Acids like citric acid, citrus fruit juice, vinegar (Plain or flavoured), yoghurt, red and white wine etc. are used in marinades. These help in tenderizing meats and enhance better penetration of aromats.

Aromats: These contribute to the flavour and aroma of the marinated food product. Aromats like herbs, spices, proprietary sauces etc are used for same.

Seasonings: Like salt, sea salt, black salt, garlic salt, rock salt etc are used.

Major Functions

To add flavour and taste to the food.

To act as tenderizer and to mellow the connective tissues.

To act as Preservative.

Duration of Marination

The length of time for marination depends on several factors, such as:

The type and cut of meat or food stuff.

The size of the item.

The temperature. Food marinates best at room temperature however refrigeration is considered safe due to microbial growth.

During winters large cuts of meat can be left in the marinade for 5-6 days

In summers they should not be marinated more than 48 hours.

When the marinade is used for its preserving effect, the food should be completely submerged and not removed until required.

Types of Marinade

Cooked

Uncooked

Cooked Marinades

As the name suggests, the ingredients used for this are cooked together first and then used for marination.

The marination should be cooled completely before use.

Cooking allows the aromats to release their full flavour.

Has a longer shelf life.

Mainly used to marinate large joints of meat.

Uncooked Marinades

These are at times also termed as instant marinades. In this the ingredients are not cooked and mixed together only.

The release of flavour is slow as compared to cooked ones but the tenderizing process is faster due to high acid content.

The quantity of aromates used is more.

Best suited for fish, poultry and vegetables.

D) SMOKING

The smoking process allows cured meats, poultry, game and seafood to be subjected to smoke in a controlled environment. The smoke is produced by smoldering hardwood chips, vines, herbs, fruit skins, or spices. This smoke influences the flavor, aroma, texture, appearance and shelf life of foods. The process can be performed at temperatures that range generally from 65°F to 250°F. The food merely retains the flavor of the smoke at lower ranges (cold-smoke), while the food actually cooks at the higher end of the scale (hot-smoke).

SELECTING FOODS TO BE SMOKED

Virtually any meat, poultry, game or seafood can be smoked, as can hard cheeses, nuts, vegetables, and sausages.

1. Prepare items

- Trim excess fat
- Fish should be gutted and cleaned of gills and all blood; large fish are often filleted
- Poultry should be trussed
- Larger cuts of meat should be boned and cut into smaller pieces
- The rind should be removed from cheese

2. Cure items (optional)

- Dehydrates - low moisture prevents bacteria growth and allows smoke to penetrate the item
- Adds flavor
- Prevents botulism
- Enhances color
- Smaller, thinner pieces cured; larger pieces brined

3. Rinsing

- Stops the curing process
- Removes excess saltiness and excess surface fat

4. Dry Foods Well

- Removes excess surface moisture to form a skin (pellicle)
- A wet surface will not readily absorb smoke
- Removes excess surface fat
- Forms the Pellicle

5. Smoking Process

- Smoke is a seasoning - don't overdo it

Smoke is the complex production of very complicated compounds that occur during the thermal decomposition of wood (chips or sawdust). This process primarily occurs between a temperature range of 390°F and 750°F. Although at the point of generation smoke is a gas, it rapidly separates into a vapor and a particle state. It is the vapor phase that contains the components largely responsible for the flavor and aroma that smoke imparts to foods. More than 300 different compounds have been isolated from wood smoke, but not all of these compounds occur in

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smoked meat products. The components most commonly found are phenols, organic acids, alcohols, carbonyls, hydrocarbons, and some gaseous components such as carbon dioxide, carbon monoxide, oxygen, nitrogen, and nitrous oxide.

SMOKE IS APPLIED TO MEAT FOR THE FOLLOWING REASONS

- **For preservation:** Phenolic compounds and formaldehyde have antimicrobial action; this affects only the surface of the meat as smoke does not penetrate deeply into items.
 - **Acids:** smoke emits a number of acids which cling to the meat and form an outside layer or skin. The acids help the coagulation of the surface meat, and also help preserve the meat by preventing the growth of surface mold and bacteria.
 - **Add aroma & flavor:** Phenols, carbonyl compounds and organic acids contribute the smoky taste. Excessive smoke flavor can become bitter.
 - **Develop appealing color:** Carbonyl compounds combine with free amino groups combined with meat protein to form furfural compounds that are dirty brown in color and translucent; when added with the reddish color of the cooked cured meat, you see a reddish brown color that is characteristic of smoked products.
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- **Creation of new food products:** The addition of a smoky taste results in a product with a longer shelf life and pleasing color.
 - **Protection from oxidation:** Smoke will protect the food from lipid oxidation and eliminate any stale fat tastes.
 - **Formation of a protective skin on meats and emulsion-type sausages:** Acids in smoke help coagulate the protein on the surface of the meat.

SMOKY FIRES ARE CREATED BY CONTROLLING:

- **Oxygen:** decrease in oxygen causes wood to smolder and smoke.
- **Moisture:** damp products smolder rather than burn.

WOODS FOR SMOKING

Hard, fruit or nut woods are preferred. All woods impart a slightly different flavor of their own. Wood is available in sawdust, chip/nugget and chunk form (use the form recommended by the manufacturer of the smokehouse). Hickory is the most common type used and provides good color and flavor. Apple, cherry, mesquite and alder wood are other commonly used woods.

Note: Soft or resinous woods should never be used; they will either flare up and burn (produce no smoke) or add too much color to the product, imparting a bitter taste. They are high in creosote resin which may cause cancer. Woods should be purchased from a reputable purveyor to insure they are free of contaminants such as oil or chemicals. Never use pressure-treated wood; may contain arsenic or other toxic compounds.

OTHER ITEMS USED FOR SMOKING

- Dry herbs and spices can be used
- Jasmine and other teas; also peanut shells are used by the Chinese

TYPES OF SMOKING

Cold smoking: Requires lower temperatures and usually does not need an additional heat source

- 70-100°F - imparts the flavor but doesn't firm proteins
- Items may be cold smoked, then finished in the oven

Note: It is recommended to cure all items that are to be cold-smoked because of possibility of botulism. Items that are hot-smoked can be left uncured if desired.

Hot smoking: Requires additional heat source to raise the temperature of the smokehouse to allow products to cook during the smoking process.

- 160 - 225°F - imparts flavor and cooks the product

THREE SMOKING METHODS

• Conventional:

- More smoke flavor, air does not circulate as much
- Product must be dry

• Convection:

- Less smoke flavor because the air is being circulated
- Product does not have to be dry because of the air circulation

• Pan smoking:

- Pan smoking gives a lot of flavor in short period of time
- Can be done with no special equipment