

# Impacts of Meat preservation on public health and economy

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## Abstract:

The meat preservation has positive effect on economy due to it prolongs the shelf life of the meat and also improve public health due to inhibition growth of microorganisms. In meat preservation Methods there is different methods that are being used for meat preservation. Since the man started to utilize the meat, he started to preserve it for later uses. Means of meat preservation that are used for meat preservation as meat Drying, meat Canning, meat Smoking, meat Freezing, meat Chilling, meat Curing, meat Salting, meat Fermentation and meat Pickling and meat Irradiation. Meat drying is the oldest meat preservation method that is still being used. Meat drying is also known as dehydration. Bacteria and enzymes only multiply at a certain level of moisture content, in meat drying we reduce the moisture content to 10-20% by weight and hence the enzyme remain inactivated. In the past meat was dried by sun meat drying method but now oven and dehydrators in practice. Now it's easy to dry the meat at home with the help of stove and oven. By process, firstly, cut the meat into thin narrow meat strips then boil meat strips at high temperature that's the bacteria could be killed, after boiling for 5-10 minutes' bake in the oven. Through this method of meat preservation we can preserve meat for 1-2 months in the air tight containers.

**Key words:** meat preservation; drying; freezing; smoking; canning

## Introduction

Canning is a popular way of preserving meat is meat canning by the use any type of can or jar. Meat is filled in container then these containers are placed in hot water for 8-10 minutes with lids and immediately cooled to 38° Celsius (108,109,110,111 and 112). For meat canning process, removal of oxygen is important and process of meat canning cause survival of many organisms because of food additives (1,2,3,4,5 and 6). Many food additives that were used in past and still now being used such as sodium benzoate, sodium sorbate, sodium ascorbate ascorbic acid and sulphur dioxide. Bacterial growth can be prevented by acetic acid and lactic acid and growth of yeast by sorbate and acetate (7,8,9,10 and 11). Using high temperature steam can sterilize the meat in canning process. For meat preservation of poultry meat, we use either hot pack or raw pack. During hot pack the meat is first roasted and then stewed in fat, while for the raw pack water or meat broth is placed on poultry (12,13,14,15,16 and 17).

### Meat smoking:

Meat smoking, in this method meat is preserved by smoke of woods or plants. In meat smoking the moisture is removed from the meat surface from hot smoke but this method is only reliable when used with meat salting or use of food additives (18,19,20,21,22 and 23). The meat remains tender if the smoke is not hot enough. By smoking the meat, the outer layer of meat becomes so dry that bacteria face very much difficulty while entering because at low moisture level bacteria don't grow (113,114,115,116 and 117). The methods of meat smoking that is hot meat smoking, smoke roasting and cold meat smoking (98,99,100,101

and 102). In meat cold smoking it is dried quickly so that it will stop or reduce the growth of bacteria (103,104,105,106 and 107). Also one thing to remember while meat smoking that don't directly smoke the meat from plants because it will cause growth of the carcinogenic hydrocarbons (24,25,26,27,28 and 29).

### Meat freezing:

Meat freezing is very good method of preserving edible things, it includes all types of meat and vegetables by slowing the enzymatic activity of bacteria but the main problem of this type of meat preservation is that bacterial growth and enzymatic activity gets deactivated instead of permanent stop, whenever they animal gets suitable for growth they start replicated. Growing activity of bacteria can be reduced significantly by lower the temperature about to 0 Degree Celsius or less than that (30,31,32,33,34 and 35). But when they face extreme low temperature they won't get killed but their activity is reduced and they will cause slow spoilage. -12 Degree Celsius is good for longer shelf life without deteriorating the meat quality and meat flavour. But for meat freezing you must require a good freezer and a good source of electric supply without interruption (36,37,38,39,40 and 41). The meat gets burned if you place meat directly in the freezer without any freezer bag and always make sure the bags are air tight in order to avoid contamination (118,119 and 120). Uncooked meat can be preserved for more than 3-4 months by this method. Different type of meat freezes at different temperature like meat freezer at -18 Degree C (42,43,44,45,46 and 47).

**Meat chilling:**

to reduce the growth and proliferation of microflora on the carcass surface, lamb carcass should be chilled shortly after slaughtering, which is not only encourage in the quality of meat such as colour, weight loss, and tenderness but also increases the shelf life (48,49,50,51,52 and 53). Metabolic activity of pathogens, bacteria and viruses can be reduced by the process of meat chilling. Many types of parasites such as Taenia cysts and many other when placed at 18 Degree Celsius for consecutive 20-30 days they will destroy completely. The temperature of meat chilling is in between 0 Degree to 5 Degree Celsius for meat preservation (54,55,56,57 and 58).

**Meat salting:**

The curing of meat is also an old method of meat preservation. Now modified methods are too much but still use curing in order to keep the taste and flavour in contact (59,60,61,62,63 and 64). In poor countries it is still used for meat preservation its operation in meat production, transport, storage and access (65,66,67,68,69 and 70). For meat salting sodium chloride is used because it absorbs the water content of meat, delays and retards the growth of bacteria. Rubbing of salt on meat is termed as meat salting or placing the meat in salt solution. Moisture of the product can be drawn out by osmosis process with the help of curing technique (71,72,73,74,75,76 and 77). Injecting salt solution in meat is also getting popular these days. Earliest form of curing was dehydration removal of water content from meat that will make difficult for bacteria to grow (78,79,80,81,82,83 and 84).

**Meat fermentation and meat pickling:**

Controlled bacterial reaction in the absence of oxygen is termed as meat fermentation. In pickling higher amount of salt is used that act as barrier for bacteria. For pickling time and concentration of pickling agent is important that could be determined by the type of the food (85,86,87,88,89 and 90).

**Meat irradiation:**

The method of meat preservation is called meat irradiation. Different types of radiation effect the growth of bacteria. The shelf life of meat can be increased with the using of Gamma rays. For sterilization of surface of meat UV rays are used because they have bactericidal effect (91,92,93,94,95,96 and 97).

**CONCLUSION:**

The meat spoilage produced very terrible effect in the past because of poor or no meat preservation methods but now it became extremely easy to prevent meat and meat products from spoilage by reducing or almost inhibiting the growth of bacterial pathogenic organisms by using different types of meat preservation techniques including meat drying, meat canning, meat freezing and meat chilling without deteriorating the shelf life of meat products texture and quality. Most of these methods are still adopted on industrial level to achieve the maximum profit from these meat products. Industries and scientists are working to develop and establish easier and reliable techniques to ensure the safe transportation of meat and meat products.

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**Conflicts of Interest**

The author declare no conflicts of interest

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