

Lecture 7

MEAT PROCESSING

Processed meat products are defined as those in which the properties of the fresh meat have been modified by the use of one or more procedures such as grinding or chopping, addition of seasonings, alteration of colour, heat treatment, drying and other processing /conservation processes.

Recipe

Meat	55 -65%
Seasoning	1-2 %
Additives	1-2 %
Fat	1-15%
Fillers/binders	20-25%
Water	13-15%

Seasoning - Coriander 70g, Nutmeg 40g, Mace 40g, pepper 115g, salt 200g, Monosodium glutamate 5g

It adds to flavour to whatsoever is been prepared. Seasoning are added to sausage to perform function like

- i. Influence the flavour of the product
- ii. Serves as preservatives
- iii. Stimulate the production of digestive juices which aid digestion and absorption
- iv. Influence colour and overall acceptability of the product

Additives

- i. Chemical additives
- ii. Natural additives

i. Chemical Additives

a) Polyphosphate

- i) Increase water binding capacity
- ii) Improve retention of brine
- iii) Improves colour retention
- i) They act as buffers

b) Ascorbic acid

- i) Use to hasten development and stabilize the colour of cured meat by –
 - a) Taking part in the reduction of metmyoglobin to myoglobin, thereby accelerating rate of curing
 - b) React with nitrite to increase the yield of nitric oxide to form nitrous acid
 - c) Excess ascorbate acting as anti-oxidants, thereby stabilizing both colour and flavor

c) Monosodium glutamate:- they are needed to enhance flavour, but are not widely used in the meat industry

ii. Natural Additives:- This could be of protein source e.g. egg powder

Fat:- Back fat, they play major role in texture juiciness and flavour of comminuted meat products

Fillers and Binders:- they are basically carbohydrates and are starchy in nature e.g. wheat flour, cassava flour etc.

- a) To improve emulsion stability
- b) To improve water binding capacity
- c) To enhance flavor
- d) To improve slicing characteristics
- e) To reduce formulation cost i.e. it helps to add to the bulkiness of sausage

Water:-

- a) Increases juiciness and palatability
- b) Lowers the temperature of the product
- c) Aids thorough chopping and mixing
- d) Aids in dissolving salt
- e) Influence the texture of sausage mix.

Sausage Casing

These are containers used in packaging the comminuted meat and hold it together until it gets to the consumer. They determine the size and shape of the sausage. There are two types of casing, the natural and the artificial casing

i.) Natural Casings:- From intestine and bladders of cattle, dogs, sheep, pigs etc.

- a)** These containers protect the meat from sudden loss of moisture
- b)** The container is digestible and shrinks with meat as its water content reduces

Because of rise in demand for sausage meat natural casing could no longer meet the demand

ii.) **Artificial Casing:-** They are either cellulose from cotton inters(cotton by-products) or collagen (from the corium layer of beef hides). These casings can be made more uniform in size and performance characteristics than animal casing

a) **Cellulose:-** it gives sausage and smoked meat the desired uniformity in diameter and length and the stability to withstand modern high temperature and rapid processing conditions .

The advantages of cellulose casing are:

- Easy to handle and stuff
- Posses a high degree of resistance to breakage
- And permeable to smoke when moist
- Requires careful storage
- Humidity is very critical since cellulose becomes quite brittle when very dry.

b) Collagen Casing

It was developed as edible casing similar to animal casing but possessing the uniformity of a manufactured product. Its best kept at a RH of about 40 -45%