

# **GDM 412 MEAT TECHNOLOGY**

## **LESSON-10**

### ***CURING IN MEAT TECHNOLOGY AND CURED MEAT PRODUCTS***

**Prof. Dr. Kezban CANDOĞAN**

# Cured meat products

- ✓ Cured meat products are traditionally characterized by incorporation of nitrate and/or nitrite.
- ✓ Of course, other ingredients, particularly salt (sodium chloride) and sugar depending on the product type are important in the manufacturing of these products.
- ✓ But, the unique characteristics of cured meat products are provided by nitrate/nitrite.

# Cured meat products

## Curing treatment

- ✓ “The process of treating meat with salt together with nitrite and/or nitrate (*Türk Gıda Kodeksi Et, Hazırlanmış Et Karışımları ve Et Ürünleri Tebliği, 2019*)
- ✓ Curing is the basic technology applied in the production of mostly all processed meat products.
- ✓ It is effective on product’s color, color stability, texture, flavor and yield.



# Cured meat products

- ✓ Several methods of meat curing are applied in the meat industry.
- ✓ These methods are all modifications of two basic procedures:
  - ✓ Dry salt curing: the oldest method; the use of salt alone, or sometimes in conjunction with nitrite or nitrate
  - ✓ Pickle (brine) curing
    - ✓ Brine soaking (immersion): Brine soaking probably followed dry curing
    - ✓ Injection curing

# Dry cured meat products

✓ Dry curing: is used in the production of whole muscle cured products such as pastirma and dry cured hams, and fermented sausages

✓ Examples of dry-cured hams:

- Country style ham in USA
- Jerky in South America
- Serrano and Iberian hams in Spain
- Parma, San Daniele, Toscano and Nero Siciliano in Italy
- Bayonne ham in France
- Spekeskinke in Norway
- Hangikjöt in Iceland
- Jinhua ham in China, and so on.

❖ Worldwide, dry meat products are manufactured with meat mostly from beef and pork, however lamb, goat, poultry meats, etc., are also used.

✓ Examples of fermented sausages: dry ripened sausages (sucuk, salami, saucisson, pepperoni, salchichon, etc.) and semidry sausages (heat treated sucuk, summer sausage, cervelat) and China Lap cheong.

# Whole (entire) muscle cured meat products

- ✓ Whole muscle cured meat products can be classified into two groups:
  - Raw whole muscle cured meat products
  - Cooked whole muscle cured meat products
- ✓ Pastırma, one of the traditional meat products in Turkey is an example of raw whole muscle cured meat products.

# Whole muscle cured meat products

## Methods of Curing

### Injection curing

- ✓ Injection of curing pickle directly into meat pieces
- ✓ Three basic methods used to accomplish pickle injection:
  1. artery pumping
  2. stitch pumping
  3. multiple needle injection pumping

# **TUMBLING AND MASSAGING IN MEAT PROCESSING**



# Tumbling and massaging

- ✓ Tumbling and massaging are two processes used in the production of meat product in the industry.
- ✓ They provide;
  - The effectiveness of the water retention and protein activation
  - Concomitantly, the quality of the slice cohesion.

# Tumbling and massaging

- ✓ They are effective by mechanically working meat pieces to disrupt the normal muscle cell structure.
- ✓ The effects of these physical treatments on muscle structure:
  - Disintegrating the connective tissues
  - Altering properties of muscle fibers-disruption of sarcolemma
  - Formation of the creamy and tacky exudate from myofibrillar proteins extracted from the meat

# Tumbling versus massaging

- ❑ The tumbling and massaging processes take completely different approach.
- ❑ **Tumbling:** A rigorous physical treatment is applied
  - ✓ The purpose:
    - To promote uniform permeation of brine
    - To promote the exudation of salt-soluble proteins which provide good adhesion and slicing
    - To reduce cooking loss
- ❑ **Massaging:** frictional energy is generated from pieces being rubbed and massaged against each other by rotating paddles.