بسم الله الرحمن الرحيم

(ربنا افتح بيننا وبين قومنا بالحق وأنت خير الفاتحين)

صدق الله العظيم

Department Of Food Hygiene

(Meat Hygiene &Meat Products)

قسم الرقابة الصحية على الأغذية

(اللحوم ومنتجاتها)

❑Meat technology

- ***Nobbles cut*** **: meat has high amount of muscle& less amount of C.T& less amount of fat (parts of hind Quarter)**
- ***Less Nobbles cut*** **>>high amount of fat & C.T but less amount of muscle (parts of fore Quarter).**

❑Meat technology

- ***Def.*** **: Processing &manufacturing of meat to become meat products .**
- ***Aim :***

1. **To improve or Upgrade the characters of less Nobbles cut to be more Acceptable by the consumer**
2. **Improvement of organoleptic CH. Of meat**
3. **Increase Marketability of meat**
4. **Meat products are easily preserved than raw meat**

❑ Meat technology

- ***Meat products*** **: meat transformed through salting, curing ,fermentation, smoking and other processes to enhance flavor or improve preservation .**

E.g. > minced meat , sausage , canned meat , Hamburger , pastirma , luncheon .

Minced meat

Def.>>

It is the product resulting from chopping of meat with or without addition of soya bean protein ,salt , spices and packed in a suitable packaging material &preserved in chilling or freezing .

❑ Examination of Minced meat

❑ ***Definition***: **it includes >>**

1. **Number**
2. **Market Name**
3. **Weight**
4. **Production &Expired Date**

❑ *Examination of Minced meat*

❑ Findings:

- **Physical Examination >>**
- **Appearance &color : normal color differ acc to animals source , age and nutritional condition.**
- **In cattle is bright red**
- **Minced meat must be inspected for abnormal Appearance &color>>**

❑ *Examination of Minced meat*

1. **Fresh red area with grayish one >>>> Old Minced Meat**
2. **Presence of rosy, glistening and spongy pieces >>>Addition of lung tissue .**
3. **Presence of slimy , sticky , greasy and grayish yellow color area>>>Addition of tissue of salivary gland .**
4. **Presence of papillae of buccal cavity >>>Addition of head meat**
5. **Pieces of brown granules >>> Addition of heart muscle .**
6. **Presence of fresh red color , dryness of surface and moldy smell particularly inside of meat >>> Addition of preservatives .**
7. **Red yellow color and numerous connective tissue >>> Addition of red pepper.**
8. **Diffuse red color >> Addition of blood (Confirmed by Bleeding test)**

Examination of Minced meat

- ***Consistency >>>***

A. **Fresh minced meat is tender**

B. **Decomposed One is soft , slimy and sticky .**

- ***Odor >>>***

A. **In case of fresh meat particular odors (fresh odors according to kind of meat).**

B. **Decomposed one is bad and repulsive .**

Examination of Minced meat

- ***Analysis*** : using U.V Lamp and hand lens >>>

1. Tendon and cartilage >>> Bluish white luster(بريق /لمعان)
2. Fat >> White yellow
3. Liver>> yellow or brown or green luster
4. Porphyrins>> Luminous red color indicate Putrefaction
5. Living Cysticercus>> Fluorescence red color .

Examination of Minced meat

- **Chemical Examination :**

1. Detection of Efficiency of bleeding
2. Detection of meat freshness
3. PH measurement
4. Nitrate& Nitrite Assessment

- **Bacteriological Examination >>**

A. Direct smear

B. Bacterial Count >> using ten fold serial dilutions >>>

1. Less than 10^6>>>very good
2. 4 - 6 X10^6 >>>Good
3. Less Than 50X10^6>>> Acceptable .
4. More than 50X10^6>> Bad

- **Isolation and identification of food borne pathogens .**

Examination of Minced meat

- **Histological Examination >>**
- **To detect presence of foreign tissue as head meat , fat , liver and tendon .**
- **Keeping Quality Test :**

1. **Boiling and roasting test**
2. **Lead Acetate test**

- **Diagnosis .**
- **Judgment .**

Public health significance of minced meat :

- This mean diseases which transmitted to human through consumption of minced meat

1. **Bacterial Diseases >>**

A. T.B>>

- **Source of contamination :**
  - Using of infected carcass
  - Using of condemned meat
  - Using of meat from carcass slaughtered outside Abattoir
  - Using of fetal flesh infected with congenital TB
- **Diagnosis >>>**

1. Film stained by Ziehl-Neelsen stain .
2. Culture on specific media (Dorset egg media)
3. Animal Inoculation

B. Food Poisoning bacteria :

- Salmonella , staphylococcus aureus , Streptococcus fecalis , E_coli and proteus
- **Diagnosis** : by isolation &identification

2. Parasitic Diseases:

- Beef minced meat as Cysticercus bovis that detected by UV .
- Pork minced meat as :

1. Cyst cercus cellulosea that detected by UV .
2. Trichinella spiralis detected by Tricinoscope .

3. *Chemical Hazards :*

- Utilization of chemical as Nitrate &Nitrite Above permissible limit
- **Adulteration Of minced meat>>>**

1. Addition of another animal tissue :

- ✓ **Different tissues may be added illegally to increase the amount of minced meat or to change its color :**
  - **Blood to give red color**
  - **Meat around slaughter wounds**
  - **Lung &Heart &spleen & tendon and salivary gland**
  - **Mucous membrane of buccal cavity**
  - **Skin of pig**
  - **Cattle fat (mesentery & Omentum)**

Judgment : all these tissues are forbidden in minced meat

2. Addition of chemical substances

- **Addition of some chemical illegally for preservation and improve color**
- **Nitrate , Nitrite and red pepper commonly used**
- **Detection by chemical analysis .**
- ***N.B*** **>> In case of spoiled minced meat and contained preservative has only bright red color , moldy odor and Bad taste with high bacterial count .**

3. Addition of water

1. Water May be added directly to minced meat or after dissolving in table salt .
2. Minced meat become >> Moist , Slimy and gray in color .
3. Addition of water estimated by feder's number
4. Feder's number = $\frac{\text{Water \%}}{\text{Protein \%}}$

- Must be not more than 4 in beef minced meat and 4.5 in pork minced meat .
- Foreign water = Water content _ (Protein content X Feder’s number)
- ***Judgment*** : addition of water considered Adulteration if it’s above 10 % and these minced should be rejected .

Thank you for listening.

Goodbye!