Prof. Dr. Fahim Shaltout

Professor of Meat Hygiene

Food Control Department, Faculty of Veterinary Medicine, Benha University, Egypt.

Email: fahim.shaltout@fvtm.bu.edu.eg

Chemical examination of meat & meat product

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- Benha University, Egypt.
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list of most chemical tests

1- detection of Ab residues .

2- Estimation of moisture content.

3- Estimation of fat content.

4- Estimation of protein content.

5- Estimation of free fatty acids .

6- Estimation of pig fat (Lard)

7- Detection of animal species .

8- Detection of addition of chemical preservatives

1- Detection of Ab residue in meat & meat product.

★ The principle of this test consist of an Inhibition of growth of an Ab-sensitive Test strain by inhibitory substance in The sample .

★ This detected by formation of an Inhibitory zone.

Test strain used is B. subtilis.
- we perform the test in acid & alkaline medium at pH 6 & 8 as some Ab have greater effect at lowered pH as tetracycline , tylosin & erythromycin .
An inhibition zone around the sample of 2mm or more is positive less than 1mm is negative & 1-2mm is doubtful result .

Determination of moisture content .

There are number of method used in
Determination of moisture content .
There are 2 official methods :
1- Drying to constant weight at 95-100
   Under pressure not exceed 100 mmHg
2- Drying over H2so4 in vacuum desiccator
   At a pressure not more than 10mm Hg to
   A constant weight .

Estimation of fat content .

This done by soxhelt method .

By extraction of meat fat by using of fat

Solvent as ether .

Then calculate fat percent .

Estimation of protein content .

By using Kyldehal method

Estimation of free F.As

As free F.As indicate rancidity .
Thiobarbituric acid test
Saponification number
Reichert meissel number .

Detection of lard .

By making some tests as :

   1- specific gravity .

   2- melting point (42-48).

   3- Refractive index .

   4- Iodine value (51-70) .

   5- Saponification number.

   6- Reichert meissel number.

Detection of animal species

- 😊 By using precipitation test .
  It is biological method for differentiation
  Between meat of different species .
- 😊 It's idea based upon that if foreign protein (Ag) injected into rabbit , specific Ab will be formed against the injected protein .
  - 😊 This test is applied by using un known diluted Ag (meat extract) against known
    Un diluted Ab (serum containing Ab).

N.B

Valuable for identification of fresh , frozen & pickled meat.
In smoked meat or cooked test is useful provided that
Temperature in the center not exceed 70 otherwise
Coagulated & result will be doubtful
But confusion occur in case of meat which are
Close to each other as (Horse- donkey)
(Sheep – goat)

Detection of chemical preservatives

As some chemical which added to meat
To increase shelf life time which may be
Harmful to human .
As :
Sulfite , Nitrate , Nitrite , Nacl , Starch

Detection of Addition of water

By using of Feder's number .

-Not more than 4 in minced meat from cattle

-Or 4.5 in minced meat from pork

Detection of Horse meat .

By using of :

1- Sulphoric acid test.

2- Ehrlich test .

3- Glycogen test .

Thank you