

Hydrogen ion

PH: is concentration of the hydrogen ions in solution is afforded a quantitative measure of the degree of acidity and alkalinity.

Rigor mortis: is a state of reaction occurs after death as a result of excessive muscular contraction and action or exhaustion of oxidative enzymatic system and accumulation of metallic product (lactic acid) result due to coagulation or connection between muscle protein (actin- myosin coagulation) when the muscle and joint appear in a stiff condition and that what we called rigor mortis.

Signs of rigor mortis:

١. Muscle rigidity
 ٢. Stiffness of joint
 ٣. Dullness of muscle
 ٤. Increase in the temp. of carcass about degree in the beginning and after that its.
- Rigor mortis begin in first in more active muscle which is heart during one hour after that in tongue coma master muscle, neck muscle and four arms and finally end in hind limb.
 - Health and fresh slaughter animals the ph usually will be weak alkaline or natural between (٦,٥-٦,٨) while reach to ٥,٦ within ٤٨hr. after slaughter.

Factors effecting on rigor mortis:

١. The health animals before slaughter.
 ٢. The storage condition of carcasses and the season.
 ٣. The degree of bacterial contamination.
- Normal rigor mortis may develop in ٩-٢٤hr. in beef and about ١٠hr. for lamb ٣-٤hr. for broiler and ١-٢hr for fish.
 - Rigor mortis in normal and for rested and health animal ٥,٣- ٥,٨ PH the degree of PH is stop the spoilage and bacterial action while if PH value start to rise slowly due to autolysis and bacterial growth, when PH degree reach ٦,٤ mean suspected to present of meat decomposition or spoilage become more clear in meat which is change in odor and color and texture.
٤. Cold shortening

Subject	Fresh slaughter	Set meat
PH	٦,٩- ٧,١	٥,٣- ٥,٨
Muscle fiber	Swollen	Shrinkage
Inter fiber space	Small	Large
Inter fiber water	Small	Large
Pickling ability	Bad	Good
Ability to take Foreign water	Good	Bad

Color	Dark red	Light red
Aroma	Not developed not ripe and not palatable	Fully develop Ripeness palatable
Appearance	Glistening	Turbed
Consistency	Tuph and gummy	Tender

- If rigor mortis happen for short time the meat will be not palatable and bad keeping a quality.

Method of PH measurement:

١. Electro metric
٢. Colori metric
٣. PH meter.

١. **Electro metric**

١٠ gm of chopped meat in clean Peaker mixed with ١٠ ml of the distal water shake wall and standing quite for ١٠ min. at the room temp. ٢٠ °C.

Technique of test

Measure PH after adjusting of PH meter using buffer solution are control after that the electrode of probe meter are put and placed directly into the water meat mixture.

The result:

Read directly from PH meter.

2. Colorimetric :

a. Lyphan paper

Its types of sort of PH paper in the middle there is a square we put small drop from ready paper extract.

The result note the change the color and compare develop color with that degree scale.

b. Nitrazen yellow indication test

Equal solution of nitrazen yellow indicator 1-10 thousandth in distal water yellow color for PH 6-7.

Technique:

Play and put 1 gm or small piece of meat free from BVs, fat and connective tissue any a white porsalin dish and cover with the indicator press and squeeze until some tissue fluid skip and mixed the indicator wait for 1 min.

Result:

PH	Color	Judgment
6,3 or low	Yellow	Good for reservation
6,4	Olive green or reddish or violet	Suspected meat
6,8	Bluish violet	Unfit meat

3. PH paper

Is develop on change of pH paper piece of strip in range of PH value between 6,2- 7,2 test occur when incision make into the meat at depth of 2 cm and put PH paper in this incision and leave it for 10 min. the color change darkly and compare with the given color chart.