

Dept. of Vet .Public Health //MEAT HYGIENE Course:

pH-measurement:

- ❖ The pH-value or acidity of meat is important in relation to the meat's microbiological and keeping quality. In the live animal the pH-value of the muscular tissue is about 7.0 to 7.1. Very soon after slaughter a drop in the pH-value is observed and after several hours (24 hours or less) the pH-value reaches its lowest level of about 5.6 to 5.8.
- ❖ The increasing acidity is because of the post-mortem formation of lactic acid from glycogen, a sugar-like substance stored in the live animal's muscles for energy supply.
- ❖ In meat lactic acid causes a decrease in pH-value which is favourable for keeping quality (low pH inhibits bacterial growth) and for flavour (acidity is one of the components of meat flavour). the pH of meat is not uniform either in different carcasses or in different muscles of one carcass..
- ❖ There are two type of abnormal reaction with regard to the pH in meat .First the pH value may drop too fast and second it may not reach the normal low level several hours after slaughter ,but remain in the range of(7)

- ❖ Both abnormalities can easily be detected by pH-measurement in the meat. A too fast pH-value decrease is evident, when one hour after slaughter low pH-values in the range of 5.6 to 5.8 are already
- ❖ An insufficient decrease of pH value,which occurs both in pork and beef, is of hygienic significance because of not

have ascertain degree of acidity and suppressing microbial growth. This meat also remains near to pH value 7 after several hours, and is **dark, firm and dry(DFD)**. It should not be used for meat and meat products which have to be stored over longer period.

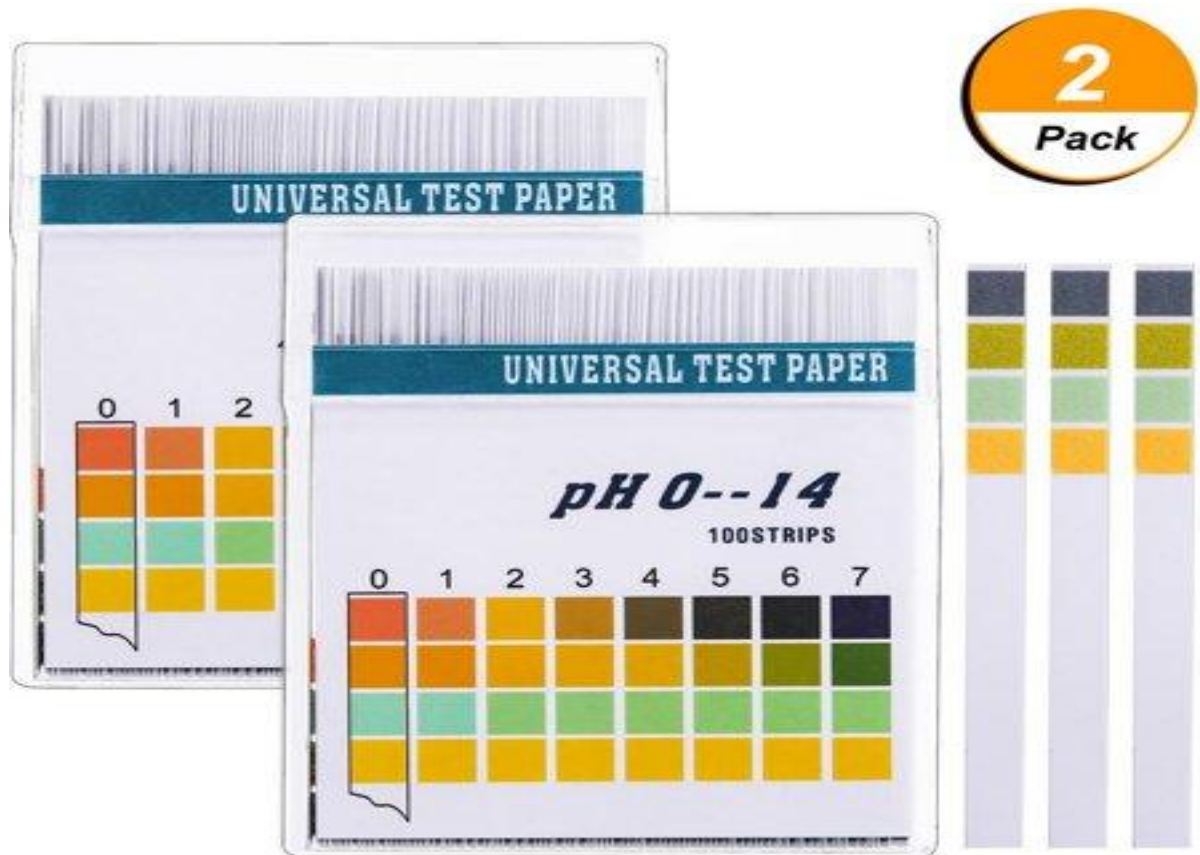
- ❖ the pH-measurement is of particular importance for the selection of the raw material for meat processing purposes. Hence, portable electric pH-meters are widely distributed and utilized in the meat industry ,The pH is measured on meat surfaces or in the meat itself,

Methods:

1. Lyphan paper



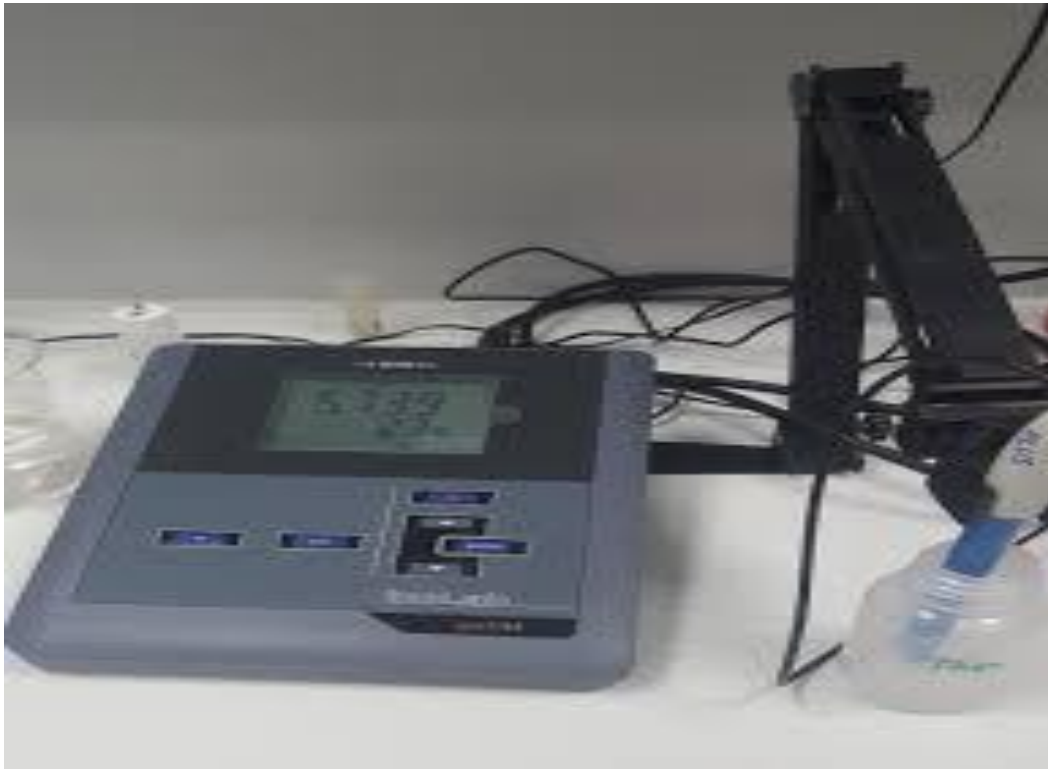
2. Litmus paper



Procedure:

- ❖ Few drop of meat extract on the indicator area and leave 1 min(or immerse in meat extract in test tube)
- ❖ Compare the Colour with standard colour as on both sides of indicator area

3. Electrometric method(pH meter)



4. Nitrazine-yellow test:

Requirement: glass rod, Nitrazine –yellow indicator, petri plate

Procedure:

- ✓ **Take a piece of meat free of blood and connective tissue in petri dish**
- ✓ **Add nitrazine yellow indicator(1:10000) sufficient to cover the meat piece**
- ✓ **Mix with stirring rod**
- ✓ **Note colour change with standard chart provided**

Interpretation:

<u>PH</u>	<u>Colour</u>	<u>inference</u>
6.8 incipient spoilage	bluish	suspect on sign of
6.4	olive green	not having same good keeping quality
6.0	yellow	good keeping quality