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# Summary

A total one hundred of freshly slaughtered meat samples [ 40 samples infected with sarcocysts , 30 samples infected with cysticercous bovis and 30 non infected samples ] were collected from Mahalla , Kotour and Kafr El-Sheikh abattoirs and subjected to microbiological , chemical (determination of pH values and chemical analysis of meat ) parasitological , and Histopathological examinations .

## ● Microbiological examination of meat samples:

The aerobic bacterial count ranged from  $3.1 \times 10^4$  to  $9.45 \times 10^6$  cfu/g with a mean value  $1.414 \times 10^6 \pm 2.49 \times 10^5$  for samples infested with sarcocysts;  $1.01 \times 10^5$  to  $1.64 \times 10^7$  cfu/g, with a mean value  $2.215 \times 10^6 \pm 6.30 \times 10^5$  cfu/g for samples infected with cysticercous bovis while non infected samples ranged from  $1.8 \times 10^4$  to  $2.03 \times 10^6$  cfu/g, with a mean value  $7.41 \times 10^5 \pm 1.36 \times 10^5$  cfu/g.

While the *Enterobacteriaceae* count ranged from  $1.2 \times 10^4$  to  $9.7 \times 10^5$  cfu/g with a mean value of  $2.50 \times 10^5 \pm 4.3 \times 10^4$  cfu/g, for samples infected with sarcocysts;  $1 \times 10^4$  to  $9.65 \times 10^5$  cfu/g with a mean value  $3.05 \times 10^5 \pm 5.57 \times 10^4$  cfu/g for samples infected with cysticercous bovis ,while non infected samples ranged from  $1 \times 10^4$  to  $9.4 \times 10^5$  cfu/g ,with a mean value  $1.15 \times 10^5 \pm 1.62 \times 10^4$  cfu/g.

Results also revealed that *Staphylococcus aureus* count ranged from  $1 \times 10^4$  to  $9.65 \times 10^5$  with a mean value  $9.82 \times 10^4 \pm 3.1 \times 10^4$  cfu/g. for samples infected with sarcocysts;  $2 \times 10^4$  to  $8.1 \times 10^5$  with a mean value of  $1.21 \times 10^5 \pm 3.15 \times 10^4$  cfu/g. for those infected with cysticercous

bovis while non infected samples ranged from  $1 \times 10^4$  to  $7.1 \times 10^5$  with a mean value of  $5.96 \times 10^4 \pm 2.56 \times 10^4$  cfu/g.

*The total yeast and mould count* ranged from  $1.11 \times 10^4$  to  $1.52 \times 10^6$  with a mean value  $3.12 \times 10^5 \pm 5.75 \times 10^4$  cfu/g for samples infected with sarcocysts;  $4 \times 10^4$  to  $8.1 \times 10^5$  with a mean value  $3.25 \times 10^5 \pm 4.96 \times 10^4$  cfu/g. for samples infected with cysticercous bovis while non infected ones ranged from  $3 \times 10^3$  to  $9.2 \times 10^5$  with a mean value of  $2.09 \times 10^5 \pm 4.97 \times 10^4$  cfu/g..

#### • **Chemical examination of meat samples :**

Chemical examination was done to determine the effect of these parasites on meat quality.

The chemical analysis of meat determination of protein percent in samples infested with sarcocysts was ranged from 13.21% to 17.84% with mean value of  $16.22 \% \pm 0.132$  and in samples infested with cysticercous bovis the protein % was ranged from 15.73% to 17.92% with mean value of  $17.42 \pm 0.0901$  while in non infested samples protein percent was ranged from 16.99% to 18.02% with mean value of  $17.97\% \pm 0.0339$ .

The fat percent for meat samples infested with sarcocysts was ranged from 0.31 to 3.22 with mean value of  $1.50 \% \pm 0.134$ , and the fat percent for meat samples infected with cysticercous bovis was ranged from 0.32 to 3.64 with mean value  $1.79 \% \pm 0.159$  while in non infected ones the fat percent was ranged from 0.93 to 4.39% with mean value  $2.33 \% \pm 0.215$ .

The ash percent in samples infected with sarcocysts was ranged from 1.15 to 1.72 with mean value of  $1.53\% \pm 0.0171$  and the ash percent for meat samples infected with cysticercous bovis was ranged from 1.01 to 1.45% with mean value  $1.23\% \pm 0.021$  while in non infected sample the ash percent was ranged from 0.99 to 1.23 with mean value  $1.17\% \pm 0.0106$ .

The moisture percent in infected meat samples with sarcocysts ranged from 77.13 to 82.39 with mean value  $79.62\% \pm 0.23$  and the moisture percent in infected meat samples with cysticercous bovis ranged from 76.01 to 81.74 with mean value  $78.33\% \pm 0.301$  while the moisture percent in non infected ones ranged from 75.99 to 81.59% with mean value  $77.91\% \pm 0.297$ .

The results of pH value ranged from 5.69 to 6.09 with a mean value  $5.93 \pm 0.021$  for samples infested with sarcocysts; 5.57 to 6.02 with a mean value  $5.81 \pm 0.0231$  for samples infested with cysticercous bovis while non infested samples ranged from 5.01 to 5.56 with a mean value  $5.31 \pm 0.0191$ .

Parasitological examination revealed presence of macroscopic sarcocyst in the esophagus and tongue of 40 buffaloes . And cysticercus bovis present in heart of 30carcasses.

On the other hand, the histopathological examination of infected meat samples with sarcocyst revealed slight esinophilic miositis and slight infiltration of eosinophils.

The histopathological examination of infected meat samples with Cysticercous bovis showing suppurative nodule and completely necrosed cardiac muscle except small parts have a core of inespissated and scattered neutrophilic masses .

# **Conclusion and Recommendation**

## **Conclusion**

It concluded that the presence of parasite (sarcocyst and *Cysticecrus bovis*) in meat, affects the bacteriological quality of meat (increase the *Total aerobic bacterial count*, *Enterobacteriaceae*, *Staphylococcus count*, and *Yeast & mould count*). Also, it affect the chemical analysis of meat (high pH of meat, low protein and fat % and high ash and moisture %). The histopathological examination revealed slight esinophilic miositis and slight infiltration of eosinophils.

So, the infested meat samples had inferior quality and shorter shelf life than non infested ones.

## **Recommendation**

The favorable climate conditions, like in Egypt, complicate and branch the control of parasitic diseases. The economic factors, the poor and badly instructed abattoirs help in spreading of parasitic diseases, the unhygienic effluent system leads to contamination of pastures with eggs of parasites which in turn infect animals and man.

The recommended procedures to control parasites are:

- 1- Education programs in school about the life cycle and mode of transmission of parasites and their importance as well as methods of control.

- 2- Hygienic disposal of condemned carcasses and offal away from dogs and wild carnivorous to interrupt the life cycle of the parasite at this stage.
- 3- Improving hygiene practices in the farm.
- 4- Destruction and eradication of the snail as an intermediate host of parasite.
- 5- Avoidance of infection by keeping livestock off from infested pasture.
- 6- Periodical fecal analysis of animal and regular treatment with suitable drugs.
- 7- Personal hygiene as thorough washing of hands, vegetable and fruits before eating.
- 8- Avoidance of bad habits of children such as handling and playing with infected dogs.
- 9- Before feeding cattle meat to dog, should be treated by either freezing ( $-10^{\circ}\text{c}$  for 7days) or cooking (internal temperature of  $72^{\circ}\text{c}$ ).
- 10-Home slaughtering of animal should be carried out in a dog proof area.
- 11- Control of dogs and cats in abattoir.
- 12- Sanitary disposal of fecal matter.
- 13- Hygiene education through TV programs.
- 14- Treatment of infested persons with suitable drugs.
- 15-Correct inspection of each slaughtered animal to protect meat handlers and consumers.
- 16-Efficient and complete cooking of meat to destroy possible contamination and hygienic manipulation of ready to eat food to prevent any contamination.