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## Histological Changes in Liver and Pectoral Muscles of Broiler Chickens Slaughtered with and Without Naming of Allah

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**Abstract:** Sixty six broiler chickens (Ross 308) 60 day of age were selected according to their average body weight (2600 g) from broiler flock. Chickens were divided in 2 groups. The first group were slaughtered according to the Islamic ritual and Allah's name has pronounced. The second group was slaughtered but the name of Allah was not pronounced. Livers and pectoral muscle fragments were collected carefully set in a 10% formalin and sent to the histology laboratory. The main results of the current study could be summarized as follows: Histological changes observed in broilers chickens slaughtered without naming of Allah consist mainly on congestive areas localized in blood vessels of the liver and pectoral muscles in some cases focal edema have been observed. While the liver and pectoral muscles of broilers slaughtered with Islamic method showed normal structure and no congestion have been noticed.

**Key words:** Slaughtering method, pectoral muscle, liver, histology

### INTRODUCTION

Meat is a very good source of animal protein that consists of essential amino acids, minerals, vitamins and essential fatty acids (Lawarie, 1991). Sternum meat in broiler (pectoral muscle) contains about 20,66% of protein and 3,04% of fat content (Hamid, 2008).

Liver is a bilobed organ that lies in the mid-coelomic cavity of avian species (King *et al.*, 1984). The liver has two lobes, the left and right lobes join at the midline, the right lobe is larger than the left lobe. Each lobe is drained by separate bile ducts into the distal ascending loop of duodenum (King *et al.*, 1984). The cranioventral portion of the liver surrounds the heart (King *et al.*, 1984). The avian liver changes in color and consistency during the life of the bird. The liver of the newly hatched chick is very pale and contains a large amount of fat. It changes to a more normal brownish red colour at 5-7 days of age at which time the yolk sac has been completely reabsorbed. Fat again accumulates in the liver of the female chicken when it is starting egg production. This change is physiological and under the control of estrogen. With fat infiltration the liver of a laying hen tends to be larger, paler and more friable than that of a male bird of the same age (Craig, 1999).

The liver is frequently involved in pet bird diseases, either as the primary organ or secondarily to other diseases (Drury, 2005).

According to the Islamic Law (Shariah) unless the Halal (Lawful) animals are slaughtered ritually, their meat does not become Halal for Muslims. At the time of

slaughtering the name of Allah must be invoked by saying: Bismillah-Allahu Akber. If the name or names of someone other than Allah is invoked, the meat becomes Haram (Anonyme, 1999). The aim of our study was to investigate the histological difference between chickens livers and pectoral muscles slaughtered by the name (Bismillah-Allahu Akber) and without the name of Allah.

### MATERIALS AND METHODS

A total of 66 broiler chickens (Ross 308) at 60 day of age were selected according to their average body weight (2600 g) from broiler chicken flock. Chickens were divided in 2 groups.

The first group (33 birds) were slaughtered according to the Islamic method by severing the jugular vein, trachea and the esophagus, the name of Allah must be invoked by saying: Bismillah-Allahu Akber.

The second group was slaughtered by the same way but the name of Allah was not pronounced. Livers and a fragments of the pectoral muscle were collected carefully set in a 10% formalin (Gridley, 1960) and sent to histological study in Agroveterinary institute of Souk Ahras (Algeria) in order to show the histological difference between the two groups levy.

The achievement of blades for histological examination was made according to the technique described below; a successive passage through the different compartments of the automaton, whose goal is dehydration (passages in alcohols of different degrees), the clarification (xylene) and impregnation (infiltration) in paraffin (Bennoune, 2008). The residence time of the

fragments in the automaton is 24 h. blocks were then cut to a thickness of 5  $\mu$  using the microtome (MIC 509, Euromex, Japan) (Luna, 1968). The sections were floated on a warm water bath at 37°C flotation for stretching, then the sections were mounted on clean slides using an adhesive (egg albumin) and dried on a slide warmer. The sections were stained with Mayer's hematoxylin and eosin (H and E). The histological structures of the lymphoid tissues were observed using an optical microscope under low ( $\times 10$ ) and a high magnification ( $\times 40$ ).

## RESULTS AND DISCUSSION

Histological changes observed in broilers chickens slaughtered without naming of god consist mainly on congestive areas localized in blood vessels of the liver and pectoral muscles (Fig. 1) in some cases focal edema have been observed. The existences of such congestive reactions constitute a rich medium for bacterial development. While the liver and pectoral muscles of broilers slaughtered and Allah's name has pronounced showed normal structure and no congestion have been noticed (Fig. 2).

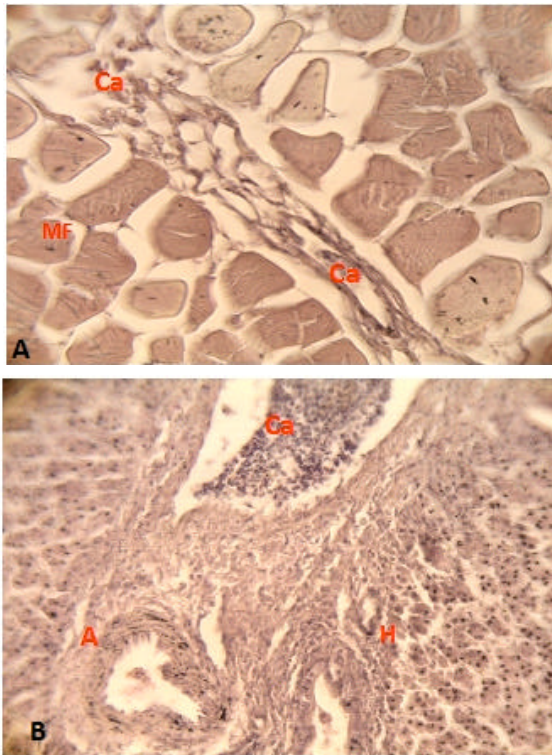


Fig. 1(a-b): Histological changes observed in broilers chickens slaughtered without naming of Allah; (a) Pectoral muscle, (b) Liver (H and E X400). F: muscle fiber, Ca: Congestive areas, A: Artery, H: Hepatocytes

This observation is in harmony with Khalid Halawa (2009), said that laboratory tests proved that the histological aspect of meat slaughtered without naming of god shows that tissues engorged with blood, while the meat slaughtered with naming it completely free of germs and there tissue was not congested. Nabil Sharif (2009), was mentioned the presence of more inflammatory leukocytes in muscle tissue and a greater number of red blood cells in meat were Allah's name has not pronounced.

The congestion participates also in the rapid autolysis of the chicken meat due to the intracellular enzymes of the leucocytes. At the time of the slaughtering of the animal Allah's name must pronounced as Allah said in Surat Al-An'am (118) "So eat of that (meat) on which Allah's name has been pronounced (while slaughtering the animal), if you are believers in His Ayat, etc.". In Al āya (121) "Eat not (O believers) of that (meat) on which Allah's Name has not been pronounced (at the time of the slaughtering of the animal), for sure it is *Fisq* (a sin and disobedience of Allah). And certainly, the *Shayatin* (devils) do inspire their friends (from mankind) to dispute with you and if you obey them [by making Al-Maytatah (a dead animal) legal by eating it], then you would indeed be *Mushrikun* (polytheists) [because they (devils and their friends) made lawful to you to eat that which Allah has made unlawful to eat and you obeyed

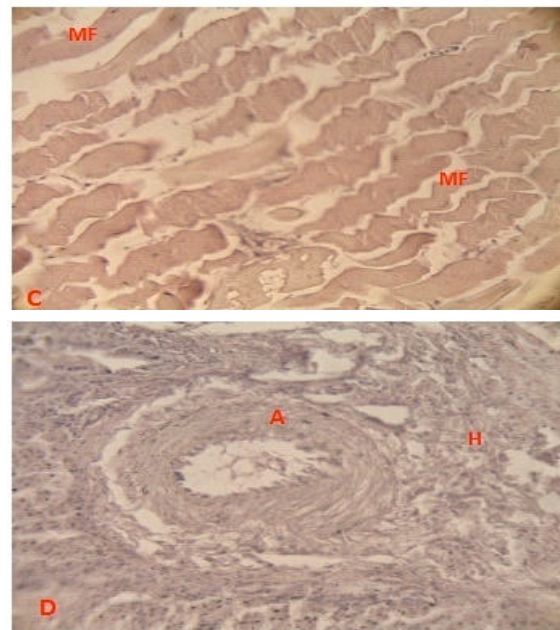


Fig. 2(c-d): Histological aspect of liver and pectoral muscle of broilers slaughtered with naming of Allah (Bismillah-Allahu Akber): (c) Pectoral muscle, (d) Liver (H and E X400). F: Muscle fiber, A: Artery, H: Hepatocytes

them by considering it lawful to eat and by doing so you worshiped them and to worship others besides Allah is polytheism]". And in Other verse (138): And cattle on which (at slaughtering) the Name of Allah is not pronounced, lying against Him (Allah). He will recompense them for what they used to fabricate (Muhammad Taqi-ud-Din Al-Hilali and Muhammad Muhsin Khan, 2013.).

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