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COMPARATIVE ESTIMATION OF CHOLESTEROL CONTENT IN THE EGGS OF LOCAL BREED HEN, GUINEA FOWL, QUAIL, DUCK AND DOVE

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ABSTRACT

This research was aimed at comparing the level of cholesterol present in the eggs of five different breed of birds which include quail (salwa), guinea fowl, local breed hen, duck and dove. The cholesterol level was determined using enzymatic method (spectrophotometer), ***the result showed that, the cholesterol level was significantly higher (P<0.05) in quail eggs compared to that of duck, dove, guinea fowl and local breed hen. While local breed hen contains low level of cholesterol (P<0.05). It was concluded that local breed hen egg has lowest cholesterol content and it is the recommended be taken by human due to its less danger to the health as indicated in the study result.***

Keywords: Chicken, ducks, quail, dove, guinea fowl and cholesterol.

INTRODUCTION

Poultry are groups of domestic bird, these include chickens, turkeys and ducks among others. They are kept for food, meat and eggs as well as fiber, Poultry egg consist of three main parts; shell, albumen and yolk (Aratz, 1979). Egg yolk of poultry contains about 50% solid with lipids to protein ratio of about 2:1 (Haines, 2001). The major component of yolk lipid is triglycerol (neutral lipids), followed by various types of phospholids and cholesterol (Bran and Allan, 1982). Cholesterol is a steroid hormone and play a vital role in body metabolism such as bile metabolism, synthesis of biological membrane and it's the precursor for the synthesis of steroid hormone. High level of cholesterol is associated with atherosclerosis, Hypertension heart attack, and stroke (Thankachan, 2011). This study aimed to compare the cholesterol contents in the eggs of local breed hen, guinea fowl, quail, duck and dove

METHODOLOGY

Preparation of Samples

A total of 30 eggs of local chickens, guinea fowl, Dove, Duck, and Quail were used in the experiment, six (6) eggs were randomly selected from each group of birds. The eggs were procured from Gusau central market and were utilized for the study, the cholesterol content (mg/g yolk) was estimated according to (Wybenga, ***Pileggi, Dirstine, Giorgio,*** 1970). The egg albumen adhered to the yolk membrane was removed by rolling the intact egg yolk over a filter paper carefully without breaking the yolk membrane. The egg yolk was then transferred into a glass container and homogenized using a glass stirring rod. 2.5ml of each sampled egg yolk was taken and mixed with 5ml of methanol. The mixture was vigorously shacked and kept for five minutes in the test-tube. The samples were analyzed using spectrophotometer.

Estimation of Total Cholesterol

Serum total cholesterol (TC) was estimated by enzymatic method using Randox kit (Allain, Poon, Chan, & Richmond, 1974).

Three test tubes were set up and labelled blank, test and standard. In to test tubes labelled test, standard and blank, 10 µl of serum, standard (200 mg/dl) and distilled water were respectively pipetted in to the test tubes. Each test tube is then followed by 1000 µl of the reagent as shown above. The test tubes were mixed, incubated at 37^{o}C for 5 minutes and the absorbance of the standard and test were read against the blank at 500 nm against the reagent blank.

Calculation

Cholesterol concentration was obtained using the relation:

$$\text{Serum total cholesterol (mg/dl)} = \frac{Absorbance of\ Test}{Absorbance of\ Standard} \times \text{Conc of Standard}$$

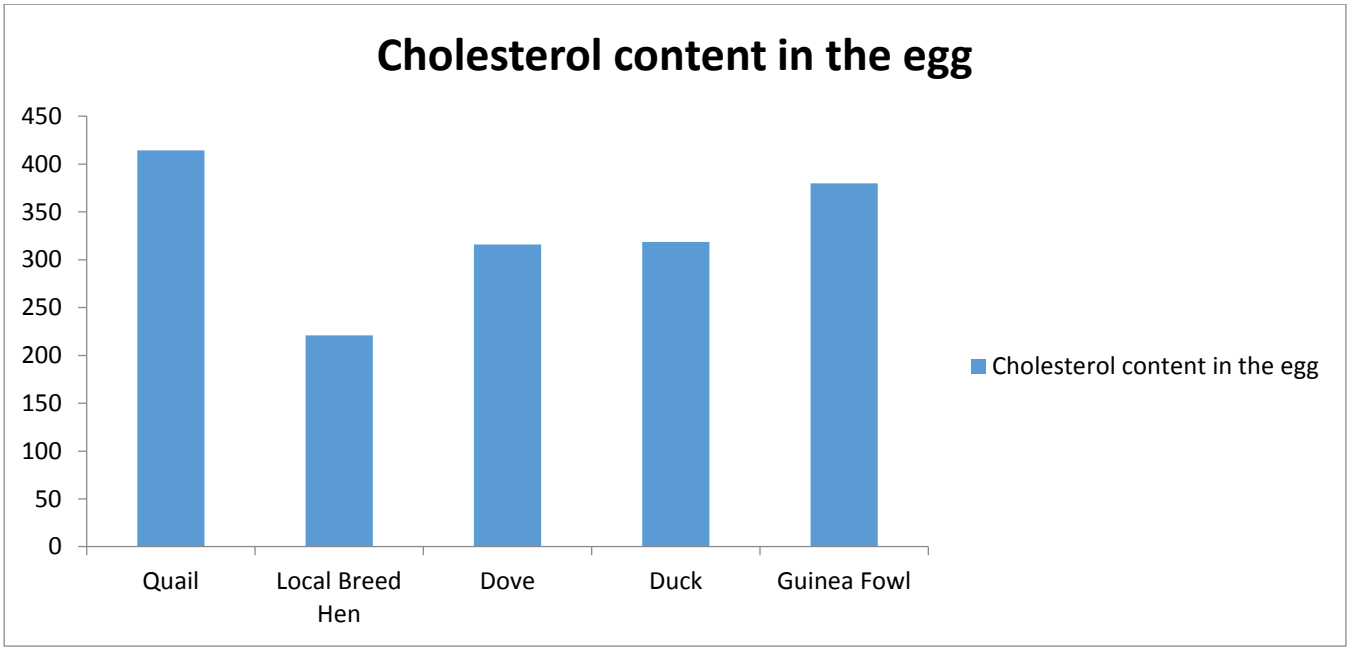
RESULT

The result of this research presented in table 1 has shown that Quail (Salwa) egg has a higher significant ($p<0.05$) cholesterol level (414 ± 17) compared with local breed hen (220 ± 87), Dove (315 ± 83), Duck (318 ± 53) and Guinea Fowl eggs (379 ± 70). While local breed hen (220 ± 87) has the lowest ($p<0.05$) cholesterol content

Table 1.Cholesterol content in the sample selected

S. No	Sample	Cholesterol Content Mg/g
1	Salwa	414 ± 17 *
2	Local breed hen	220 ± 87 **
3	Dove	315 ± 83 **
4	Duck	318 ± 53 **
5	Guinea fowl	379 ± 70 **

*significantly different at $p<0.05$ ** highly significant different



DISCUSSION

The comparative analysis of cholesterol contents in different bird eggs shows a significant differences between them, it was observed that Quail egg has the highest cholesterol level (414+17) compared to Local breed hen, Dove, Duck and Guinea fowl. The higher intake of cholesterol is associated with chronic heart diseases, and stroke, the concentration of cholesterol in guinea fowl is significantly higher ($P<0.05$) compared to duck, dove, and Local breed hen. But there is no significant difference ($P>0.05$) of cholesterol level between dove, and duck. However Local breed hen has the lowest ($P>0.05$) of cholesterol.

CONCLUSION AND RECOMMENDATION

Conclusively quail egg has the highest level of cholesterol while local breed hen has the lowest level. So it is recommended that since local breed hen egg is the one that seems to have low level of cholesterol content and it is readily available, it can be consume by the populace. It is also recommended that another research should be carried out in Oder to see fact about the cholesterol content present in different bird eggs.

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Carcass Traits and Relative Organ Weights of Growing Rabbits fed Graded Levels of Processed Kola nut (*Cola nitida)* Pod Husks

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