A GLANCE AT INTERNAL AND EXTERNAL QUALITIES OF KUTTANAD, WHITE PEKIN AND COMMERCIAL DUCK EGGS

S. Harikrishnan and P.Ponnuvel

Centre for Advanced Studies in Poultry Science,
College of Veterinary and Animal Sciences, Mannuthy, Kerala

Received 29-11-2011 Accepted 14-2-2012

ABSTRACT

A study was carried out to determine the egg qualities of farm fresh Kuttanad and White Pekin duck eggs of the institute and eggs collected from various shops in and around Thrissur district, Kerala. A total of 42 eggs were subjected to evaluate the internal and external quality parameters. The results revealed that there is no significant difference among mean egg weight, shape index and specific gravity. Kuttanad and White Pekin farm fresh eggs showed significantly ($P<0.05$) superior quality in shell thickness, shell percentage and yolk index. Albumen index and Haugh unit score of Kuttanad duck eggs were significantly ($P<0.05$) superior to White Pekin eggs and market eggs showed the least. Mean shell weight value of White Pekin eggs were significantly higher than market eggs while there was no significant difference between Kuttanad and White Pekin eggs. Yolk score of market egg (8.67 ±0.31) was significantly higher than the farm fresh eggs (6.67±0.24 and 5.33±0.24).

KEY WORDS: Duck egg, Egg quality traits, Breeds.

INTRODUCTION

Duck egg and meat have become an important source of nutrients in human diet and these are gaining momentum as a food item in modern life. Ducks are reared mainly for eggs and meat, even though some might consider them as ornamental birds. In India indigenous ducks contribute about 90% of the total duck population. Total duck population in India holds 6.13% of total poultry production in the country. Duck eggs contain nutrients in a well balanced ratio; it also contains unsaturated fatty acids which help in the control of cholesterol. In addition to its nutritional qualities, people have a belief that it is having inherent medicinal properties. Proper attention to production, distribution and point-of-sale phases are of vital importance in maintaining egg quality. In this connection, a study was designed to assess the external and internal quality characteristics of market duck eggs from Thrissur district and farm fresh Kuttanad and White Pekin eggs.

MATERIALS AND METHODS

Eighteen duck eggs were procured from various retail shops in and around Thrissur district and 12 eggs each of farm fresh Kuttanad and White Pekin ducks were used for the study. On the same day of collection, these eggs were subjected to external and internal quality assessments in Department of Poultry Science, College of Veterinary and Animal Sciences, Mannuthy, Thrissur. External quality parameters such as egg weight, length, width of the egg were recorded and shape index and specific gravity were calculated. Internal quality characteristics such as height of albumen and yolk, length and width of albumen and yolk, yolk colour score, egg shell thickness were recorded and Albumen index, Yolk index, Haugh unit score were calculated.

RESULTS AND DISCUSSION

The mean observations on the external and internal quality parameters of the three groups of egg recorded are presented in the table.

Table: External and Internal quality Parameters of different group of eggs.

Sl.No.	Traits	Retail eggs (Mean± S.E)	Farm fresh White Pekin eggs (Mean± S.E)	Farm fresh Kuttanad eggs (Mean± S.E)
1	Egg weight(g)	65.97±0.88[a]	66.37±1.15[a]	64.03±1.01[a]
2	Shape index	73.75±0.86[a]	71.83±0.58[a]	74.87±0.99[a]
3	Specific gravity	1.06±0.01[a]	1.10±0.02[a]	1.05±0.02[a]
4	Shell thickness(mm)	0.33 ±0.01[a]	0.39 ±0.02[b]	0.36 ±0.01[ab]
5	Shell weight(g)	6.12±0.12[a]	6.93±0.27[b]	6.47±0.17[ab]
6	Shell percentage	9.27±0.13[a]	10.44±0.32[b]	10.11±0.15[b]
7	Albumen index	0.09 ±0.01[a]	0.14 ±0.01[b]	0.16 ±0.01[c]
8	Yolk index	0.30 ±0.01[a]	0.40 ±0.01[b]	0.38 ±0.01[b]
9	Haugh unit score	75.93±0.86[a]	89.05±0.83[b]	95.91±1.30[c]
10	Yolk score	8.67±0.31[c]	6.67±0.24[b]	5.33±0.24[a]

Means within each rows bearing different superscripts differ significantly (P<0.05).

The results revealed that there is no significant difference among mean egg weight, shape index and specific gravity among the three different groups of eggs. The mean egg weight of market egg and White Pekin duck egg recorded in the present study is in close agreement with the findings of Abraham and Ravindran (2009) . Specific gravity values of all three groups were slightly lower than the values reported by Mahanta *et al*. (1993) for indigenous ducks of Assam (1.11±0.006) and Sangilimadan *et al*. (2009) for retail eggs at Chennai metro, (1.13±0.01).

Kuttanad and White Pekin farm fresh eggs showed significantly (P<0.05) superior quality in shell thickness, shell percentage and yolk index than retail eggs which is in accordance with Abraham and Ravindran (2009) , however the present yolk index values of farm fresh eggs are very high. Shell thickness values for White Pekin, Kuttanad and market eggs were 0.39±0.02, 0.36±0.01 and 0.33±0.01 mm, respectively. Shell thickness value of White Pekin duck egg is similar to the findings of Kokoszynski *et al*. (2007) . Albumen index and Haugh unit score of Kuttanad duck eggs were significantly (P<0.05) superior to White Pekin eggs, and market eggs showed significantly (P<0.05) the least value. These values for market eggs were in agreement with Sangilimadan *et al.* (2009) for retail eggs, however farm fresh eggs had extremely high values.

Mean shell weight value of White Pekin (6.93 ±0.27g) eggs was significantly higher than market eggs (6.12 ±0.12g), while there was no significant difference between Kuttanad (6.47 ±0.17g) and White Pekin eggs. Yolk score of market egg (8.67 ±0.31) was significantly higher than the farm fresh eggs (6.67±0.24 and 5.33±0.24) and this may be due to the scavenging feeding habits of the free range ducks in the paddy fields of Kerala. Feeding of prawn waste incorporates a salmon

red colour to the yolk due to the pigment Xanthene (Elizabeth *et al,* 1982). These types of feeding practices are common in free range reared ducks in Kerala which substantiates the result.

CONCLUSION

The study inferred that the duck eggs sold at market level in and around Thrissur dictrict, Kerala are sufficiently poor in their qualities in comparison to the farm fresh eggs.

REFERENCES

Abraham, J. and Ravindran, R. (2009). Int. J. Poult. Sci., **8(8):** 804-807.

Elizabeth,V.K., Ramakrishnan, A. and Reghunathan, N.G. (1982). Kerala J. Vet. Sci., **13:** 95-98.

Kokoszynski. D., Bernacki, Z. and Korytkowska, H. (2007). Poland. J. Cent. Eur. Agric., **8(1):** 9-16.

Mahanta, J.D., Dutta, D.J. and Rahman, H. (1993). Indian . J. Poult. Sci., **28(2):** 147-149.

Sangilimadan, K., Murugan, M., Asha, R.R. and Sheriff, F.R. (2009). IV water fowl conference, proceedings. 514-517.

❑