

NUTRIENT COMPOSITION OF JAPANESE QUAIL EGGS

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Abstract: Cross-sectional study of quail eggs was conducted to evaluate the nutritional composition of the following parameters moisture%, crude protein %, crude fibre %, ether extract %, total ash %, sand and silica %, salt% and gross energy in kcal/kg. The nutritional composition showed that crude protein % and ether extract were higher in quail eggs than chicken eggs whereas the moisture % and crude fibre % was less in chicken eggs. Hence, it is concluded that quail egg is more nutritious in terms of energy and protein. Thus, this study aimed to evaluate nutritional compositions of quail eggs since work in this area is scanty.

Introduction

Quail eggs are the good source of nutrients for human health. Many people especially in Asian countries consume quail eggs. Eventhough quail eggs are small in size, their nutritional value is three to four times greater than chicken eggs and is packed with vitamins and minerals. Regular consumption of quail eggs helps fight against many diseases and strengthen the immune system. The nutritional values of quail eggs is much higher than other eggs and are rich sources of antioxidants, minerals, and vitamins, and give us a lot of nutrition than do other foods (Lalwani, 2011). Since data on nutrient composition of quail eggs is scanty, this study aimed to evaluate carbohydrate, fat, protein and calories in quail eggs. An idea on the nutritive value of quail eggs may solve the world food problem in developing countries.

Materials and Methods

Cross-sectional study of quail eggs was conducted to evaluate the proximate composition in quail eggs. Twenty four quail eggs were collected from the cross bred quails reared in cages from Veterinary University Training and Research Centre, Tiruchirappalli and was send to Animal Feed Analytical and Quality Assurance Laboratory in Namakkal. The

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following parameters moisture%, crude protein %, crude fibre %, ether extract %, total ash %, sand and silica %, salt% gross energy in kcal/kg were analysed as per AOAC, 1990.

Results and Discussion

The proximate composition of quail eggs is presented in Table 1. Dudusola (2010) reported moisture content of 74.26%, crude protein 11.98%, crude fat 11.91% and crude ash of 1.04% in quail eggs reared in farm condition. Tunsaringkarn *et al.* (2013) reported contents of ash, carbohydrate, fat, protein and moisture were 1.06, 4.01, 9.89, 12.7 and 72.25g, respectively from quail eggs collected from local markets. In the present study the moisture content of quail eggs was less and the crude protein % was higher when compared to the results of Dudusola (*loc.cit*) and Tunsaringkarn *et al.* (*loc.cit*). This variation might be due to cross breeding. Ether extract % was comparable with the results of Dudusola (*loc.cit*) and higher in this study when compared to the results obtained by Tunsaringkarn *et al.* (*loc.cit*). Total ash % in this study was comparable with Dudusola (*loc.cit*) and Tunsaringkarn *et al.* (*loc.cit*). Total energy in calories obtained was 156.50 kcal in whole Japanese quail eggs in a study conducted by Tunsaringkarn *et al.* (*loc.cit*). The gross energy of quail eggs obtained in this study was higher when compared to the results of Tunsaringkarn *et al.* (*loc.cit*).

Ogunwole *et al.* (2015) reported 78.42% moisture content, 11.56% crude protein, 7.59% ether extract and total ash of 1.28% in chicken eggs reared under battery cage system. The moisture % and total ash % in the quail eggs was less when compared to chicken eggs. The crude protein % and ether extract % was higher in quail eggs when compared to chicken eggs in comparison to the study conducted by Ogunwole *et al.* (*loc.cit*). The gross energy of quail eggs obtained in this study was higher when compared to the results of Gnanadesigan *et al.* (2014) who reported 108 k cal in commercial layer chicken eggs.

Table 1: Proximate composition of whole quail eggs

Moisture	:	70.94±0.01 %
Crude Protein	:	13.30± 0.08%
Crude Fibre	:	0.63 ±0.07%
Ether Extract	:	11.99± 0.05%
Total Ash	:	1.07±0.12 %
Sand & Silica (Acid Insoluble Ash)	:	0.03±0.22 %
Salt	:	0.31 ±0.14%
Gross Energy	:	1993 ±0.14 kcal/kg

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