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Allometric Relationships Between Composition and Size of Chicken Table Eggs

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Abstarc :

This study investigates intraspecific variation in egg sizes and its component measures and it also estimated the allometric relationships between egg components (albumen, yolk and shell) and egg weight in domestic chicken. A total of 299 eggs from Harco Black strain of commercial layers of five distinct age groups were evaluated for egg weight (g), egg length (mm), egg width (mm), albumen weight (g), yolk weight (g) and shell weight (g). The overall mean values obtained for the six variables are respectively 55.64±0.28, 56.09±0.15, 42.40±0.08, 33.91±0.21, 15.65±0.12 and 6.46±0.04. There was direct (positive) association amongst the six variables studied, albeit at varying degrees and the correlation coefficient ranged from 0.21 to 0.82. The overall mean egg compositions are 60.53%, 27.94% and 11.53% respectively for albumen, yolk and shell. Only age group and egg weight exerted significant ($p<0.001$) influence on egg components, the other two factors investigated (egg length and egg width) were not significant ($p>0.05$) on egg components. The proportion of total variance due to age group was 30.82%, 12.82% and 15.02% for yolk weight, albumen weight and shell weight, while egg weight accounted for 14.46%, 56.09% and 29.77% respectively. There was positive allometry ($b = 1.009$) for albumen weight for most of the age groups and negative allometry for yolk ($b = 0.907$) and shell weight ($b = 0.742$). Albumen weight is more of a function of hen's age.

Key Word :
Egg components, egg size, allometry

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