Study on the addition of natural pigment from local agricultural products in the ration for improving the coloration of the ISA egg yolk [1]

Shen-Shyuan Yan [2] Pi-Hua Chuang [2] Ho-tsung Chu [3] and An-Kuo Su [2] [4]

Received: Jun. 25, 2018; Accepted: Mar. 7, 2019

Abstract

The purpose of this research was to evaluate the effects of chive sheath and breadfruit leaf on the egg production and yolk color in ISA layer hens. 90 ISA layer hens were carried out in the cages from 45 to 70 weeks of age and randomly allotted into 3 different treatments, which were basal feed with 5% fresh chive sheath chopped (group A), basal feed with 5% fresh breadfruit leaf chopped (group B) and basal feed (group C), respectively. The number of egg production and the weight of the egg were recorded; moreover, the quality of the egg was evaluated at 49, 54, 59, 64 and 69 weeks of age, respectively. The results showed that no significant difference was observed among groups on the mortality, daily feed intake, egg production rate, egg weight and egg shell quality of the experimental hens. Both the scores of Roche yolk color fan and the a values of yolk color in group A and B were higher than those in group C ($P < 0.05$) at 49 weeks of age. In the analysis of yolk content, both the concentrations of lutein and β-carotene were higher in the groups of chive sheath and breadfruit leaf than those of the control group ($P < 0.05$). It was suggested that adding 5% fresh chive sheath chopped and 5% fresh breadfruit leaf chopped in hen diet could improve the color of the yolk and enrich the contents of lutein and β-carotene in yolk efficiently.

Key words: Natural pigment, Chive sheath, Breadfruit leaf, Yolk color.

(1) Contribution No. 2600 from Livestock Research Institute, Council of Agriculture, Executive Yuan.
(2) Hwalien Animal Propagation Station, COA-LRI, Hwalien 97362, Taiwan, R. O. C.
(3) Hualien, Forest District Office, Forestry Bureau, Council of Agriculture, Executive Yuan.
(4) Corresponding author, E-mail: aksu@mail.tlri.gov.tw.