

The Effects of diets supplemented with *Lycium chinense* Miller on growth performances and blood biochemical parameters in White Roman geese ⁽¹⁾

Shih-Yi Shen ⁽²⁾⁽⁵⁾ Shih-Chieh Liao ⁽²⁾ Ching-Yi Lien ⁽²⁾ Jhin-Syuan Wang ⁽³⁾
Tsung-Yi Lin ⁽⁴⁾ Po-An Tu ⁽⁴⁾ and Sheng-Der Wang ⁽²⁾

Received: Aug. 13, 2020; Accepted: Mar. 5, 2021

Abstract

The study aimed to investigate the effects of fresh (top section) or dry (lignified stalk) *Lycium chinense* Miller (*LCM*) on growth performances and blood biochemical parameters of White Roman geese. At the first stage, a total of sixty females were randomly divided into the control group and 3 treatment groups, whereas the 3 replicates (5 geese per pen) were set up in the study at the 5th to 12th week of age. The control group was fed with *ad libitum*, and the concentrate of other treatment group limited to feeding based on the average feed intake of the control group in the first 3 to 7 days, and supplemented with 5, 10 and 15% of fresh *LCM* (top section), respectively. After the experiment was completed, the ratio of feed intake of the three fresh *LCM* treatments were calculated as 5.2, 9.9 or 14.9% (fresh weight basis). The results showed that significantly higher body weight (BW) was observed in the control group at the 8 week of age, whereas the higher body weight gain (BWG) at the 5th to 8th week of age was observed in control group, when compared with the treatments supplemented with 9.9 and 14.9% fresh *LCM*. Moreover, the levels of creatinine (CREA), glutamic-oxaloacetic transaminase (GOT), glutamic-pyruvic transaminase (GPT), triglyceride (TG), cholesterol (CHOL), antioxidants (AntiOxs), catalase (CAT) and superoxide dismutase (SOD) showed no significant difference between each group at the 8th and 12th week of age. At the second stage, a total of sixty males were randomly divided into control group and 3 treatment groups. The percentage of 0, 1, 3 or 5 of dry *LCM* lignified stalk powder were supplemented to daily diets, whereas the 3 replicates (5 geese per pen) were set up in the study from the 3rd to 12th week of age. The results showed no significant differences between each treatment for feed intake, BWG and FC. For the blood biochemical parameters, the levels of CREA, GOT, GPT, TG, CHOL, AntiOxs, CAT and SOD showed no significant differences between each group at the 12th week of age. In summary, there were no adverse effects on the growth performances and blood biochemical parameters when feed with concentrate supplement of 14.9% fresh *LCM* (fresh weight basis) and 5% *LCM* lignified stalk powder in geese. The *LCM* can be used as a source of crude fiber in meat-type geese.

Key words: *Lycium chinense* Miller, Growth performance, Blood biochemical parameter, White Roman geese.

(1) Contribution No. 2662 from Livestock Research Institute, Council of Agriculture, Executive Yuan.

(2) Changhua Animal Propagation Station, COA-LRI, Changhua 52149, Taiwan, R. O. C.

(3) Miaoli District Agricultural Research and Extension Station, COA, Miaoli 36346, Taiwan, R. O. C.

(4) Hsinchu Branch, COA-LRI, Miaoli 36841, Taiwan, R. O. C.

(5) Corresponding author, E-mail: f40309@mail.tlri.gov.tw.