

# Comparison of erythrocyte and leukocyte profile in white-eggshell and blue-eggshell of female brown Tsaiya duck at laying period <sup>(1)</sup>

Ping-Hung Lin <sup>(2)</sup> Hsiu-Chou Lin <sup>(3)</sup> Shu-Yin Wang <sup>(4)</sup> and Yieng-How Chen <sup>(5)(6)</sup>

Received: Jul. 1, 2014; Accepted: Feb. 6, 2017

## Abstract

The purpose of present study is to compare the erythrocyte and leukocyte profile in white-eggshell and blue-eggshell of Brown Tsaiya duck at laying period. Each of ten white-eggshell and blue-eggshell female Brown Tsaiya ducks at their 9 months of age were used in this study. Birds were kept in individual cage and feed and water were supplied ad libitum. At 10, 11 and 12 months of age, blood of ducks were collected measurements. The results showed that blue-eggshell ducks had higher total red blood cell (RBC) count and packed cell volume than white-eggshell duck during 10-12 months of age ( $P < 0.05$ ). Nevertheless, there are no significant difference in hemoglobin, mean corpuscular volume mean corpuscular hemoglobin and mean corpuscular hemoglobin concentrations were found between the white-eggshell duck and blue-eggshell duck. The total red blood cell count increased with age in both of Tsaiya duck strains during the whole experimental period ( $P < 0.05$ ). The white-eggshell ducks had higher lymphocyte differential count percentage than that of blue-eggshell ducks at 12 months of age; however, there were no significant differences in the differential count percentage of monocytes, basophils and eosinophils between the white-eggshell ducks and blue-eggshell ducks at 10, 11 and 12 months of age. The brown Tsaiya ducks had a highest heterophils/ lymphocyte (H/L) ratio at 10 month-old of age. Based on the viewpoint that H/L ratio interpret as the animal stress indicator, it is suggested that the brown-eggshell ducks is more stressful than the white-eggshell ducks. Moreover, the highest H/L ratio in both strains of ducks at 10 month-old indicating ducks may suffer greater physiological stress while in the hot season.

Key words: Brown Tsaiya duck, Blue eggshell, White eggshell, Erythrocyte profile, Leukocyte profile.

---

(1) Contribution No. 2545 from Livestock Research Institute, Council of Agriculture, Executive Yuan.

(1) Contribution from industry cooperation between Tunghai university and Cargill company.

(2) Department of Animal Science, National Chiayi University, Chiayi, Taiwan, R.O.C.

(3) Ilan Branch, Livestock Research Institute, Council of Agriculture, Executive Yuan, Yilan, Taiwan. R.O.C.

(4) Graduate Institute of Biotechnology, Chinese Culture University, Taipei, Taiwan, R.O.C.

(5) Department of Animal Science and Biotechnology, Tunghai University, Taichung, Taiwan, R.O.C.

(6) Corresponding author E-mail: yh7chen@thu.edu.tw.