HAEMATOBIOCHEMICAL PROFILE OF BROILERS SUPPLEMENTED WITH *WITHANIA SOMNIFERA* (ASHWAGANDHA) AND *ANDROGRAPHIS PANICULATA* (BHUINEEM).

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ABSTRACT

A study was conducted on broiler chicks to see the effect of Ashwagandha (*Withania somnifera*) root powder and Bhuineem (*Andrographis paniculata)* leaves powder on haematobiochemical profile. The supplementation of Ashwagandha alone in T_1 group and Ashwagandha with Bhuineem in T_3 group of broilers significantly increased haemoglobin concentration, total erythrocyte count, total leucocyte count and lymphocyte count as compared with control . The supplementation of Bhuineem in T_2 group caused significant increase in haemoglobin concentration, total leucocyte count, lymphocyte count, and non significant increase in total erythrocyte, heterophil and monocyte counts as compared with control (T_0) group. Eosinophil count decreased significantly and basophil count decreased non-significantly in all treatment groups as compared to that of control (T_0) group. The supplementation Ashwagandha alone in T_1 group and with Bhuineem in T_3 of broilers effected significant increase in total serum protein and serum globulin level, non-significant increase in serum albumin level and significant decrease in A/G ratio of broilers as compared to that of control (T_0) group. Group T_2 showed significant increase in total serum protein and non-significant increase in serum albumin and globulin levels and non significant decrease in A/G ratio as compared to that of control (T_0) group of broilers.

KEY WORDS : Broilers, *Withania somnifera* **(**Ashwagandha), *Andrographis paniculata* **(**Bhuineem), haemato-biochemical.

INDRODUCTION

Several Indian medicinal plants have been reported to possess adaptogenic , antistress , and immunomodulating activities. Large number of herbal feed additives have been tested in broiler chicken to improve their body weight gain economically. But the work on haemato-biochemical parameters to asses the health conditions of broilers after feeding herbal growth promoters are scanty. The roots of Ashwagandha (*Withania somnifera*) are being used by various workers for increasing body weight of broilers. Ashwagandha roots contain alkaloid somniferine which is tonic, stimulant, aphrodisiac and narcotic in nature (Dastur, 1962). Another herb, Bhuineem (*Andrographis paniculata*) commonly known as Kalmegh and is being used as a hepatoprotective agent (Kapil *et al.* 1993), which also stimulates formation of antibodies due to presence of Andrographolide in it (Puri *et al.* 1993). Considering the use of Ashwagandha and Bhuineem as an herbal growth promoter and immunomodulator present study was planed to evaluate the haemato-biochemical profile of broilers.

MATERIALS AND METHODS

Day old broiler chicks(120) were purchased from Vekanteshwara Hatcheries Ltd., weighing between 50-55 gm and equally divided into four groups of thirty birds in each group i.e. T_0, T_1, T_2 and T_3. The broiler birds were maintained under standard managerial conditions during the whole experimental period. The birds of T_0 group was provided only standard feed and T_1 group was supplemented with Ashwagandha root powder @ 5 gm , T_2 group with Bhuineem leaves powder @ 2 gm and T_3 group with combination of Ashwagandha and Bhuineem @ 5 gm and 2 gm , respectively per kg of standard feed. Birds were reared on deep litter system and provided fresh drinking water ad-libitum throughout the experimental period.

The blood samples were collected from jugular vein of six birds from each experimental group at an weekly intervals during third to sixth weeks of age. Haematological parameters like haemoglobin concentration, total erythrocyte count , total leucocyte count and differential leucocyte count were estimated within six hours of blood collection and biochemical parameters such as total serum protein, serum albumin, serum globulin and albumin/globulin ratio were estimated from procured serum samples on next day following

standard methods. The recorded data for haemato-biochemical parameters were statistically analyzed as per Snedecor and Cochran (1967).

RESULTS AND DISCUSSION

Haematological studies

The results of the present study (Table 1) showed significant (P<0.01) increase in haemoglobin concentration in T_1, T_2 and T_3 groups of broilers as compared to control (T_0) group. Significantly (P<0.01) higher total erythrocyte count (TEC) was recorded in T_1 and T_3 groups and non-significantly higher TEC was noted in T_2 group of broilers as compared to control (T_0) group. The T_1 and T_2 groups of broilers showed significant (P<0.01) increase and T_3 group of broilers recorded non-significant increase in total leucocyte count as compared with control (T_0) group. (T_1, T_2, T_3) groups of broilers showed non-significant increase in heterophil count and significant (P<0.01) increase in lymphocyte count as compared to control (T_0) group. Significant (P<0.05) decrease in eosinophil count was observed in all treatment groups (T_1, T_2, T_3) of broilers and T_1 and T_2 groups showed non-significant increase in monocyte count and decrease in monocyte count in T_3 group of broilers as compared to that of control (T_0) group. Non-significant decrease in basophil count was observed in all treatment groups (T_1, T_2 and T_3) as compared with that of control (T_0) group.

Results of Ashwagandha fed T_1 group in the present study are in agreement with the findings of Akotkar (2004) and Wanjari (2004) whereas, Mathivanan and Kalairasi (2007) supplemented Bhuineem to broilers and noted similar findings as that of present studies i.e. increase in haemoglobin concentration , total erythrocyte count and total leucocyte count.

Table 1: Mean values of haematological parameters in broilers.

Parameter	Experimental Groups			
	T_0	T_1	T_2	T_3
Haemoglobin (%)	9.37±0.06	9.85±0.10**	9.54±0.13**	9.63±0.12**
TEC(million/cumm)	2.79±0.02	3.04±0.02**	2.87±0.04	2.92±0.06**
TLC(thousand/cumm)	29.07±0.50	30.20±0.34**	30.04±0.59**	29.66±0.58
Heterophil (%)	35.08±0.04	35.29±0.04	35.16±0.13	35.37±0.09
Lymphocyte (%)	54.87±0.04	55.12±0.07**	55.33±0.09**	55.49±0.09**
Monocyte (%)	8.34±0.06	8.37±0.07	8.46±0.20	8.29±0.16
Eosinophil (%)	0.95±0.07	0.62±0.14*	0.58±0.10*	0.41±0.14*
Basophil (%)	0.74±0.04	0.58±0.10	0.45±0.04	0.41±0.15

*(P<0.05) level of significant, **(P<0.01) level of significant.

BIOCHEMICAL STUDIES

The biochemical observations (Table 2) showed that group T_1 and T_3 recorded significant (P<0.01) increase and group T_2 noted non-significant increase in total serum protein as compared to that of control (T_0) group of broilers. A non-significant increase in serum albumin was observed in T_1 ,T_2 and T_3 groups of broilers as compared to that of control (T_0) group. The group T_1 and T_3 recorded significant (P<0.05) increase and group T_2 effected non-significant increase in serum globulin as compared to that of control (T_0) group of broilers. A non-significant decrease in A/G ratio was observed in all treatment groups (T_1, T_2 and T_3) as compared to that of control (T_0) group.

Deshmukh (1998) noted significant increase in total serum protein and Wanjari (2004) recorded significantly higher values for total serum protein, serum albumin and non-significant increase in serum globulin, when supplemented Ashwagandha to broilers. Sarma *et al.* (2003) reported increase in total serum protein level, Mathivanan and Kalairasi (2007) recorded significantly higher total serum protein, serum albumin, serum globulin in broilers on supplementation of Bhuineem. These findings are in agreement with the result of the present experiment.

Table 2 : Mean values 0f biochemical parameters in broilers.

Parameters	Treatment Group			
	T_0	T_1	T_2	T_3
Total serum protein (gm/dl)	4.54±0.18	4.74±0.23**	4.63±0.19	4.67±0.21**
Serum albumin (gm/dl)	2.64±0.19	2.95±0.03	2.75±0.13	2.76±0.13
Serum globulin (gm/dl)	1.64±0.22	1.81±.024*	1.71±0.18	1.76±0.19*
A/G ratio	1.88±0.20	1.82±0.24	1.87±0.14	1.74±0.17

*(P<0.05) level of significant, **(P<0.01) level of significant.

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