CONTENTS

LIST OF ABBREVIATIONS

a.m.	Ante meridiem
BW	Body weight
BWG	body weight gain
CFU	Colony forming units
cm	Centimeter
cu mm	Cubic millimeter
DCHB	3,5-dichloro-2 hydroxy benzyene sulfonic acid
dl	Deciliter
EDTA	Ethylene diamine tetra acetic acid
FC	Feed consumption
FCR	Feed conversion ration
g	Gram
Hg	Mercury
Kg	Kilo gram
mg	milligram
ml	Millimeter
mmol / L	Millimole per liter
nm	Nanometer
PCV	Packed cell volume
ppm	Part per million
r.p.m	Rotation per minute
RBCs	Red blood cells
SD	Standard deviation from the mean
SE	Standard error from the mean
TWBC	Total white blood cells
U / L	Unit per liter
× g	Relative Centrifugal Acceleration
µ l	Micro-lite

SUMMARY

Feed additives are substances added to the poultry ration to perform different functions such as prevent oxidation and rancidity, as antioxidant [butylated hydroxy toluene (BHT)] and affect favorably the performance of birds in good health, as growth promoters (virginiamycin or probiotic).

The present study was carried out to evaluate the effect of feeding butylated hydroxy toluene (BHT), virginiamycin (Virginiamore), probiotic (Bio-Top), BHT with virginiamycin and BHT with probiotic for six successive weeks on economical parameters [body weight, body weight gain, feed consumption and feed conversion ratio (FCR)] , haematological parameters [Erythrocytic count, haemoglobin content, packed cell volume and total leucocytic count] and some biochemical parameters [total protein, serum uric acid and serum creatinine] were also evaluated in growing broiler chickens.

One hundred, one-day old, unsexed Hubbard chicks were used. They are classified by Ranking technique (i.e. using weights of birds in grouping) into six groups of fifteen chicks each. The first group was fed on drug free ration (basal diet) and kept as control. The second group was basal diet mixed with butylated hydroxy toluene (BHT) (130 mg / kg ration). The third group was basal diet mixed with virginiamycin (20 mg / kg ration). The fourth group was basal diet

mixed with probiotic (1 gm / kg ration). The fifth group was basal diet mixed with BHT (130 mg / kg ration) and virginiamycin (20 mg / kg ration). The sixth group was basal diet mixed with BHT (130 mg / kg ration) and probiotic (1 gm / kg ration). The effect of these additives were studied on economical parameters weekly till the end of experiment, while the blood and serum samples were collected at one-day old, the third week and the sixth week of experiment for studying the haematological and biochemical changes. The obtained results are summarized as the following :

1- Economical parameters :

Absolute body weight :

Supplementation of BHT for six successive weeks significantly increased the absolute body weights of broiler chickens. At the sixth week, BHT treated group (1902.73± 63.79) significantly increased than control group (1733.75± 47.37).

Supplementation of virginiamycin (Virginiamore) for six successive weeks significantly increased the absolute body weights of broiler chickens. At the sixth week, virginiamycin treated group (1937.27± 55.46) significantly increased than control group (1733.75 ± 47.39).

Supplementation of probiotic (Bio-Top) for six successive weeks significantly increased the absolute body weights of broiler chickens. At the sixth week, probiotic treated group (1943.18 ± 78.68) significantly increased than control group (1733.75 ± 47.39).

Supplementation of BHT with probiotic for six successive weeks significantly increased the absolute body weights of broiler chickens. At the sixth week, BHT with probiotic treated group (1922.31±39.05) revealed high significant increased than control group (1733.75± 47.39).

Body weight gain :

Supplementation of virginiamycin (Virginiamore) for six successive weeks significantly increased the body weight gain of broiler chickens. At the sixth week, virginiamycin treated group (536.36± 15.58) showed high significant increase than control group (451.25± 18.10).

Supplementation of probiotic (Bio-Top) for six successive weeks significantly increased the body weight gain of broiler chickens. At the sixth week, probiotic treated group (533.18± 17.60) showed high significant increase than control group (451.25± 18.10).

Supplementation of BHT with probiotic for six successive weeks significantly increased the body weight gain of broiler chickens. At the sixth week, BHT with probiotic treated group (549.62± 17.82) revealed very high significant increase than control group (451.25± 18.10).

Feed consumption :

Addition of BHT with virginiamycin to the basal diet of broiler chickens resulted in high significant increase in feed consumption at the sixth week of treatment (1456.87± 41.64) when compared with control group (1260.26 ± 50.56) while other groups did not affect the feed consumption when compared with control group.

Feed conversion ratio (FCR) :

Supplementation of virginiamycin (Virginiamore) for six successive weeks significantly decreased the feed conversion ratio of broiler chickens. At the sixth week, virginiamycin treated group (2.33±0.07) showed high significant decrease than control group (2.79± 0.11).

Supplementation of probiotic (Bio-Top) for six successive weeks significantly decreased the feed conversion ratio of broiler chickens. At the sixth

week, probiotic treated group (2.32± 0.08) showed high significant decrease than control group (2.79± 0.11).

Supplementation of BHT with probiotic for six successive weeks significantly decreased the body weight gain of broiler chickens. At the sixth week, BHT with probiotic treated group (2.23± 0.07) revealed very high significant decrease than control group (2.79± 0.11).

2- Haematological parameters :

Red blood cells (RBCs) :

Supplementation of feed additives for six successive weeks revealed the following results of RBCs count of broiler chickens at the sixth week, BHT treated group (2.97± 0.15) revealed significant increase than control group (2.50± 0.09). Virginiamycin treated group (3.11± 0.11) showed high significant increase than control group (2.50± 0.09). Probiotic treated group (2.95± 0.17) revealed significant increase than control group(2.50± 0.09). BHT with probiotic treated group (2.85± 0.07) revealed significant increase than control group (2.50± 0.09).

Haemoglobin content :

Supplementation of BHT for six successive weeks showed high significant decrease in haemoglobin content in broiler chickens, at the sixth week (8.62± 0.55) when compared with control group (11.70± 0.45). on the other hand supplementation of BHT with probiotic showed high significant increase in haemoglobin content (13.86± 0.36) when compared with control group (11.70± 0.45).

Packed cell volume (PCV) :

Supplementation of BHT with probiotic for six successive weeks showed significant increase in PCV % in broiler chickens, at the third week only (47.00± 1.41) when compared with control group (41.60± 1.63).

Total Leucocytic count :

Supplementation of BHT for six successive weeks showed high significant decrease in total leucocytic count in broiler chickens, at the sixth week (26.45± 0.74) than control group (30.42± 0.64). Probiotic treated group (32.22± 0.47) showed significant increase than control group (30.42± 0.64). BHT with probiotic treated group at the sixth week (32.68± 0.36) revealed significant increase in total leucocytic count than control group (30.42± 0.64).

3- Some biochemical analysis :

Total protein :

There were significant increase in total protein in group feed with BHT (34.52± 0.88) than control group (29.50± 1.69). BHT with probiotic treated group (34.76± 0.87) showed significant increase in total protein than control group (29.50± 1.69).

Serum uric acid :

There were significant increase in serum uric acid in BHT treated group (10.81± 0.49) than control group (8.65± 0.52) at the third week. probiotic treated group (9.59± 0.49) showed significant increase in serum uric acid than control group (8.06± 0.40) at the sixth week.

Serum creatinine :

There were no significant changes in serum creatinine level in all treated groups at the third and the sixth week when compared with control groups (0.34± 0.03) and (0.37± 0.03) respectively.

From the present study, it could be concluded that :

1. Butylated hydroxy toluene (BHT) significant increase growth performance, erythrocytic count and total protein in broiler chickens.
2. Growth promoter virginiamycin or probiotic significant increase growth performance and blood picture in broiler chickens.
3. The concurrent use of the antioxidant BHT and the growth promoter probiotic improves body weight, weekly body weight gain, feed conversion ratio and blood picture in broilers.
4. The concurrent use of the antioxidant BHT and the growth promoter virginiamycin improves body weight, weekly body weight gain and feed consumption but decrease total leucocytic count.

From the present investigation, it could be recommended that :

1- The using of BHT in standard concentration (130 mg / kg ration) as feed additives to prevent rancidity is safe and improves the bird performance in broiler chickens.

2- Using of probiotic as alternative growth promoter to antibiotic to avoid the main antibiotic problems, drug resistance and drug residue.

3- The using of BHT with probiotic gives superior growth performance than using each one alone.