

Effect of dietary supplementation of polyherbal liver stimulant on growth performance and nutrient utilization in broiler chicken

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Abstract

A study was undertaken to assess the efficacy of polyherbal growth promoter and liver tonic product *Superliv* concentrate premix simultaneously on performance of commercial broiler chicks. Sixty day old unsexed commercial broiler chicks were divided randomly into two identical groups of three replicates each. Control group I was given standard basal diet only and no treatment whereas group II was administered *Superliv* conc. @500g/tonne of feed along with basal diet from 0-6 weeks of experimental study. Mean weekly body weight gain, total feed consumption and feed efficiency was recorded throughout the study period. A four day long metabolic trial was conducted at the end of experiment to evaluate nutrient utilization parameters. It was observed that the mean total body weight gain and feed conversion ratio (FCR) were significantly ($P=0.05$) different in treated group compared to control. Percent protein, energy and ether extract retention were significantly higher in group supplemented with herbal liver tonic product than control. It may be concluded that supplementation of *Superliv* concentrate premix @500g/tonne of feed is beneficial for commercial broiler rearing and optimum feed utilization.

Key words: Liver stimulants, Feed consumption, Broiler performance, Metabolism.

Introduction

The health and productivity of poultry largely depends on optimum feed utilization, improved body weight, absence of disease and low mortality (Jogi and Johar, 1997). Seasonal changes manifest a risk of disease and liver is the major organ affected. Rapid and maximum growth in a minimum period with efficient feed utilization is of utmost importance for the profitable broiler production, as the feed itself contributes about 70% of the total expenditure on poultry farming. In recent years, some ayurvedic preparations of herbal origin have been reported to improve overall performance and higher profitability. Ayurveda, an ancient system of Indian Medicine, offers various promising herbal liver tonics and growth promoters. These products have also been indicated to exert immunomodulatory action, which confer birds with greater general immunity from various diseases,

disorders and tolerance against toxins leading to lower mortality, morbidity, adaptability and enhanced productivity. Inclusions of such herbal growth promoters in broilers ration have been shown to give beneficial effects. Better performances were recorded in broilers by feeding herbal products like *Superliv* concentrate, *Livol*, *Liv52* and *Livogen* (Ramappa *et al.* 1975 and Mahorkar *et al.* 1983). In view of the above facts, the present investigation was undertaken to study the effects of herbal liver stimulant *Superliv* concentrate premix on overall growth and performance, feed efficiency, percent nutrient retention in commercial broilers.

Material and Methods

An experimental trial was conducted on 60 day old broiler chick of Vencob strain at university instructional poultry farm, GBPUAT, Pantnagar, India. Chicks were randomly divided into two groups of 30

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Table-1. Effect of dietary addition of herbal growth promoter product on growth and performance parameters in broilers

Parameters	Group I (Control)	Group II (Superliv conc. 550g/tonne of feed)
Mean Body Weight gain (0-42 Days) (g)	1148.00a	1165b
Mean Feed Consumption (g)	2846.66a	2718.00b
Mean FCR	1.54a	1.45b

Means bearing different superscripts differ from each other significantly at (P=0.05)

chicks per group and each group was further divided into three replicates of 10 chicks. Chicks were weighed and vaccinated and were kept under standard managerial conditions in battery brooders. The feeding trial lasted for 6 weeks followed by a metabolic trial of 4 days using collection method. Both the groups were offered standard starter ration (0-3 weeks) and finisher ration from 4-6 weeks. Group I served as control and wasn't given any treatment and group II birds were supplemented with *Superliv concentrate* (M/s. Dabur Ayurved Ltd., India) @500g/tonne of feed. Superliv conc. premix is a poly herbal hepatic stimulant, growth promoter and production enhancer for poultry with a recommended dose of 500g/tonne of feed. The individual herb constituents of *Superliv conc.* namely *Andrographis paniculata*, *Eclipta alba*, *Achyranthus aspera*, *Solanum nigrum*, *Tinospora cordifolia* and *Phyllanthus emblica* are scientifically well proven for its hepatoprotective, anti-hepatotoxic, immunomodulatory, antioxidant, performance enhancing and growth promoting activity (Kapil *et al.*, (1993); Jayathiritha and Mishra (2004) and Mahuya, (2002). The data on mortality, body weight, feed consumption and feed efficiency was recorded in both the groups at weekly intervals. At the end of the experiment, crude protein retention (CP), metabolizable energy retention and percentage retention of ether extract (EE) were recorded during four day metabolic trial. Dry matter of samples was determined according to the method given by VanSoest (1965), CP and EE were determined according to ISI (1962 and 1977). The data was analyzed statistically by the method given by

Snedecor and Cochran, 1976.

Results and Discussion

Mean body weight gain of treated group II birds (1165g) after 6 weeks of age was significantly (P=0.05) higher than the control group I (1148g) (table1). The results of body weight gain of the present study are well in confirmation with those reported by Sundermanna *et al.* (1996) that supplementation of herbal products improve growth rate in broilers. Narahari (1995) and Mujeeb (1997) also reported improvement in weight gains of broiler chicks compared to control by adding Livfit Vet concentrate. The mean total feed consumption data of six weeks in two groups (I&II) depicted a non-significant difference between each other indicating that the supplementation of herbal liver tonic product do not affect overall feed intake in birds (table1). On the basis of total weight gain and feed consumption, the values of feed to gain ratio were calculated. The mean FCR of treated group II (1.45) was significantly (P=0.05) lower than the control group I (1.54) (Table1). Mean FCR values noted from table reveal efficacy of supplementing polyherbal liver tonic product in improving the feed utilization. The results of present study are in concomitance with those reported by Hung *et al.* (1992). Use of herbal growth promoters improved feed conversion ratio and feed efficiency because they have stomachic, aperitive, demulcent and tonic activity in addition to anabolic, adaptogenic, immunostimulant and rejuvenative functions in the body (Narahari, 1995 and Prajapati, 1997). In a metabolic trial conducted at the end of 6 weeks long experimental trial, it was found that there was a significant (P=0.05) improvement in

Table-2. Effect of dietary addition of herbal growth promoter product on nutrient retention parameters in broilers

Parameters	Group I (Control)	Group II (Superliv conc. 550g/tonne of feed)
Percent (%) Crude Protein Retention	70.67	71.73
Percent (%) Ether Extract Retention	77.14	85.27
Percent (%) Metabolizable Energy Retention	76.34	84.26

Means bearing different superscripts differ from each other significantly at (P=0.05)

the percentage (%) retention of crude protein, metabolizable energy and ether extract values in the treated group than control (table-2). Mean metabolizable energy retention value in treated group II (84.26%) was significantly ($P=0.05$) higher than control (76.34%). The data of mean crude protein retention showed an increase of 1.06% in treated (71.73%) group than control (70.67%). Similarly, the mean ether extract retention value was significantly ($P=0.05$) higher in treated (85.27%) group than control (77.14%). Increase in the metabolizable energy, crude protein and ether extract retention values indicate efficacy of herbal liver tonic product Superliv concentrate in the present study were similar to those of Ali *et al.* (1994) who observed higher feed efficiency in terms of energy retention in Livol fed broilers.

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