

## EFFECT OF SUPPLEMENTATION OF ALOE VERA EXTRACTS ON GROWTH PERFORMANCE IN COMMERCIAL BROILERS

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### ABSTRACT

An experiment was conducted in commercial broilers to study the effect of supplementation of Aloe vera (crude and standardized) extracts on growth performance. The data on growth parameters (weekly body weight, weekly body weight gain, cumulative feed consumption and feed conversion ratio) were analyzed. The results of the study revealed that the Aloe vera supplemented groups gained higher body weights than untreated group. Aloe vera crude extract supplemented group consumed more feed than other groups with resultant poor FCR. Aloe vera standardized extract supplemented group showed better FCR.

**KEY WORDS:** Aloe vera; Broilers; Growth performance.

### INTRODUCTION

For many decades, antibiotics are widely used as growth promoters in poultry and livestock production. The use of antibiotics especially at sub therapeutic levels as growth promoters has led to the development of bacterial resistance, cross resistance and multiple resistance (Gould, 2008). As a result search for alternatives to antibiotic growth promoters (AGP) started. The phasing out of AGPs will affect the poultry and animal industry widely. Herb spices and various plant extracts have proven candidates to replace AGP in animal diets. Aloe vera is the medicinal plant found in tropical region of India and is commonly incorporated in most of the poultry herbal medicines like liver tonics, anti-stress, antioxidant, antitoxic and growth promoting preparations. Aloe vera also possesses antibacterial, antiseptic, anti-inflammatory, nematocidal and immunomodulatory property (Nadkarni, 1996). The potential growth promoting effects of Aloe vera alone in broiler production is not well documented so far. Hence, the present study was designed in broilers by supplementing crude and standardized extracts of Aloe vera to study the growth promoting potential.

### MATERIALS AND METHODS

A total number of fifty four day old unsexed broiler chicks belonging to a single hatch of "cob" strain obtained from local commercial hatchery were used for the study. The chicks were weighed, wing banded, randomly allotted to three treatment groups with three replicates of six chicks each. One group served as control, T1 (fed only with basal diet) and two groups served as Aloe vera treated groups, T2 (basal diet supplemented with 1% Aloe vera crude extract powder) and T3 was fed with basal diet supplemented with 0.1% standardized extract powder from day one. They were reared in broiler cages in gable roofed, open sided house under standard and uniform management conditions throughout the experimental period of six weeks. The broiler starter and finisher mashes were fed *ad libitum* to the birds. Body weight and feed intake were recorded every week and feed conversion ratio was calculated. The data on growth parameters were analyzed as per the methods of Snedecor and Cochran (1994).

### RESULTS AND DISCUSSION

The influence of supplementation of Aloe vera extracts on growth parameters (weekly body weight, weekly body weight gain, cumulative feed consumption and feed conversion ratio) of commercial

COMPARATIVE EFFECTS OF FEEDING BASAL DIET AND ALOE VERA SUPPLEMENTED DIETS ON GROWTH PERFORMANCE IN BROILERS												
Age (weeks)	Weekly body weight (in g)			Weekly body weight gain (in g)			Cumulative feed consumption (in g)			Feed conversion ratio		
	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>
0	48.33 ± 0.21	48.50 ± 0.22	48.67 ± 0.21									
1	162.83 ± 2.52 <sup>B</sup>	165.67 ± 1.63 <sup>B</sup>	173.00 ± 0.26 <sup>A</sup>	114.50 ± 2.64 <sup>B</sup>	117.17 ± 1.78 <sup>B</sup>	124.33 ± 0.33 <sup>A</sup>	112.00 ± 0.58	113.00 ± 0.58	112.33 ± 0.33	0.96 ± 0.023	0.98 ± 0.035	0.94 ± 0.017
2	388.67 ± 1.12	388.50 ± 3.42	382.17 ± 1.33	225.83 ± 1.87 <sup>A</sup>	222.83 ± 2.10 <sup>A</sup>	209.17 ± 1.45 <sup>B</sup>	409.00 ± 1.53 <sup>B</sup>	419.33 ± 0.88 <sup>A</sup>	412.00 ± 0.58 <sup>B</sup>	1.22 ± 0.012	1.20 ± 0.010	1.21 ± 0.003
3	750.00 ± 11.91	752.67 ± 3.05	745.00 ± 2.66	361.33 ± 11.64	364.17 ± 3.52	362.83 ± 1.35	910.00 ± 2.89 <sup>B</sup>	926.33 ± 1.20 <sup>A</sup>	916.67 ± 0.88 <sup>A<sup>B</sup></sup>	1.31 ± 0.007	1.30 ± 0.026	1.30 ± 0.007
4	1166.33 ± 18.61 <sup>A</sup>	1162.50 ± 3.97 <sup>a</sup>	1117.50 ± 4.02 <sup>b</sup>	416.33 ± 12.25 <sup>A</sup>	409.83 ± 1.68 <sup>A</sup>	372.50 ± 1.36 <sup>B</sup>	1571.67 ± 4.41 <sup>b</sup>	1590.00 ± 2.89 <sup>a</sup>	1585.33 ± 4.67 <sup>ab</sup>	1.46 ± 0.009	1.49 ± 0.012	1.45 ± 0.007
5	1552.67 ± 17.32 <sup>b</sup>	1604.67 ± 5.19 <sup>a</sup>	1565.00 ± 5.53 <sup>b</sup>	386.33 ± 15.29 <sup>B</sup>	442.17 ± 2.55 <sup>A</sup>	447.50 ± 1.52 <sup>A</sup>	2486.67 ± 4.41 <sup>B</sup>	2516.33 ± 4.10 <sup>A</sup>	2480.00 ± 2.89 <sup>B</sup>	1.62 ± 0.003 <sup>B</sup>	1.66 ± 0.003 <sup>A</sup>	1.59 ± 0.003 <sup>C</sup>
6	1966.33 ± 12.23 <sup>C</sup>	2092.00 ± 15.83 <sup>A</sup>	2033.83 ± 7.25 <sup>B</sup>	413.67 ± 9.23 <sup>B</sup>	487.33 ± 10.80 <sup>A</sup>	468.83 ± 1.72 <sup>A</sup>	3563.33 ± 6.01 <sup>B</sup>	3601.33 ± 4.41 <sup>A</sup>	3563.33 ± 1.67 <sup>B</sup>	1.81 ± 0.003 <sup>B</sup>	1.86 ± 0.013 <sup>A</sup>	1.78 ± 0.001 <sup>B</sup>

Values are Mean ± SE

Means with different alphabets as superscripts (Small alphabets – p<0.05; Capital alphabets – p<0.01) between columns differ significantly

broilers is presented in the table.

No clear effect of supplementation of Aloe vera crude extract and standardized extract were noticed on growth parameters in the early stages.

The results as shown in the table have revealed that the mean body weight at the end of the experimental period is highest with the group supplemented with Aloe vera crude extract (2092 g) followed by group supplemented with Aloe vera standardized extract (2033g) and control group (1966 g). Though the results are non significantly different, relative numeric increase in body weights was observed with the Aloe vera supplemented groups. Weekly body weight gain increased significantly ( $p < 0.01$ ) in the finishing stages particularly in the 5th and 6th weeks. Aloe vera crude extract supplemented group and Aloe vera standardized extract supplemented group did not differ significantly among themselves in improving body weight gain. Aloe vera crude extract supplemented group consumed highest quantity of feed (3601 g) among the groups, which differed significantly ( $p < 0.01$ ). The other groups (control and Aloe vera standardized extract supplemented group) did not differ significantly. Poor feed conversion ratio (1.86) was noticed with Aloe vera crude extract supplemented group followed by the control group (1.81) and Aloe vera standardized extract supplemented group (1.78) and these values differed significantly ( $p < 0.01$ ). This poor feed conversion ratio is in correlation with highest cumulative feed intake in Aloe vera crude extract supplemented group with highest body weight. The higher body weight, increased weight gain and increased cumulative feed intake all could be attributed to increase in liver functions and the resultant better digestion and assimilation of nutrients and increase in protein synthesis. Mehala and Moorthy (2008) recorded no significant differences among the treatment groups due to dietary inclusion of Aloe vera and Curcuma longa and its combinations in body weight, weight gain, feed consumption and FCR except numerically higher body weights in treated groups at sixth week of age compared to control. Similarly Dongjean et al. (2011) observed no significant differences in body weight gain between Aloe vera supplemented and unsupplemented groups with or without *Eimeria maxima* infections.

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