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Effect of Ciprofloxacin on Feed Intake and Body Weight In Ranikhet-*La sota* Inoculated Broiler Chicks

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Abstract: Ciprofloxacin was orally administered at 1.25, 2.5, 5 and 10 mg kg^{-1} b.w. doses to different groups of Ranikhet La Sota inoculated broiler chicks. Ciprofloxacin in all dose levels tested did not produce any significant effect on cumulative feed intake, cumulative feed efficiency and body weight gain.

Key words: Ciprofloxacin, feed intake, body weight

INTRODUCTION

The use of fluoroquinolone group of antimicrobial compounds have gained importance in recent days in veterinary practice. Though their usage is mainly intended for their antimicrobial action, they also influence the complex entities of digestive system and growth in livestock and poultry. Earlier studies have shown that the use of quinolones at certain dose level increases body weight gain in chicken.(Fang Bingllu *et al*., 1998). Since the use of this group of compound is increasing day by day, understanding the influence of these compounds on growth and feed intake in broilers with normal vaccination procedures would be of great practical value. In this context, Ciprofloxacin, one of the important members of this group was chosen for the study with a view to know it's effect on cumulative feed intake, cumulative feed efficiency and body weight gain in broilers inoculated with Ranikhet-*La sota* vaccine.

MATERIALS AND METHODS

Day old sexed male broiler chicks of 'cobb' strain were randomly divided into groups of six chicks each. The chicks were leg banded and reared in three-tier individual cages (12×12×18) and reared for 8 weeks. Feed and water were provided individually ad libitum under standard managemental conditions. The broilers were fed with standard broiler starter mash and finisher mash from 0-4 weeks and 5-8 weeks, respectively.

Ciprofloxacin was orally administered at 1.25, 2.5,5 and 10 mg kg^{-1} body weight doses to different groups of roiler chicks on day 7, 8, 9, 28, 29 and 30 after the priming and booster inoculation with Ranikhet-*La sota* on day 7 and day 28, respectively.

Production parameters such as cumulative feed intake, cumulative feed efficiency and weekly body weight gain were recorded.

RESULTS AND DISCUSSION

Ciprofloxacin when administered orally at doses 1.25, 2.5, 5 and 10 mg kg^{-1} b.w. doses did not produce any significant change over the respective controls in body weight. These results slightly differ from the findings of the earlier studies of Kempf *et al*. (1995) and Jordan *et al*. (1998), who have indicated that enrofloxacin, a fluroquinolone was able to increase body weight in *E. coli* and Mycoplasma infected chicken. But our present study revealed that the quinolone, ciprofloxacin did not have any influence on body weight in healthy broilers. Therefore, it can be presumed that the fluroquinolone has influence in increasing body weight only in infection: not in healthy condition (Table 1).

Table 1: Effect of Ciprofloxacin on body weight of broilers

Dose of ciprofloxacin (mg kg^{-1} bw)	Body weight (G)			
	Day 14	Day 28	Day 42	Day 56
Control	$231+3^{b}$	$646+12^{b}$	$1152+15^{a}$	$1652+25^{a}$
1.25	$227+6^{ab}_{ns}$	$579+13^{ab}_{ns}$	$1203+26^{a}_{ns}$	$1705+24^{a}_{ns}$
2.5	$220+3^{ab}_{ns}$	$620+14^{ab}_{ns}$	$1255+24^{b*}$	$1798+16^{a}_{ns}$
5.00	$208+2^{a}_{ns}$	$561+24^{a*}$	$1198+24^{a}_{ns}$	$1680+13^{a}_{ns}$
10.00	$218+3^{ab}_{ns}$	$622+8^{ab}_{ns}$	$1240+26^{a}_{ns}$	$1730+22^{a}_{ns}$

Mean values within each column bearing atleast one common superscript do not differ significantly *p<0.05; **p<0.01 as compared to the control

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Table 2: Effect of Ciprofloxacin on cumulative feed intake and feed efficiency in broilers

Dose of ciprofloxacin (mg kg^{-1} bw)	Cumulative feed intake (g)				Cumulative feed efficiency			
	0-14 days	0-28 days	0-42 days	0-56 days	0-14 days	0-28 days	0-42 days	0-56 days
Control	273+1^{a}	917+10^{a}	2047+16^{ab}	3576+56^{a}	1.19+0.02^{a}	1.43+0.07^{a}	1.78+0.04^{a}	2.17+0.06$^{a\ ns}$
1.25	269+2$^{a\ ns}$	940+7^{b*}	2018+11$^{bc\ ns}$	3598+32$^{a\ ns}$	1.19+0.03$^{a\ ns}$	1.63+0.02$^{ab\ ns}$	1.73+0.03$^{a\ ns}$	2.12+0.07$^{a\ ns}$
2.50	273+2$^{a\ ns}$	948+5^{b*}	2099+10^{c*}	3658+21$^{a}_{ns}$	1.24+0.03$^{ab\ ns}$	1.54+0.04$^{ab\ ns}$	1.68+0.06$^{a\ ns}$	2.05+0.08$^{a\ ns}$
5.00	271+3$^{a\ ns}$	912+10$^{a ns}$	2085+22$^{bc ns}$	3659+19$^{a ns}$	1.32+0.07^{b*}	1.69+0.15$^{b}_{*}$	1.75+0.07$^{a\ ns}$	2.19+0.07$^{a\ ns}$
10.00	271+2$^{a\ ns}$	915+6$^{a\ ns}$	2030+12$^{a\ ns}$	3560+24$^{a}_{ns}$	1.24+0.02$^{ab\ ns}$	1.47+0.02$^{ab\ ns}$	1.64+0.02^{a*}	2.07+0.6$^{a\ ns}$

Mean values within each column bearing at least one common superscript do not differ significantly *p<0.05 ; **p<0.01 as compared to the control

The present study also showed that ciprofloxacin did not have any appreciable effect in cumulative feed intake, cumulative feed efficiency and body weight gain. These findings are in agreement with the findings of Roura *et al.* (1992) who indicated that antibiotics are known to produce no significant improvement on growth performance under cleaner environment despite continuous administration of antibiotics in low doses (Table 2).

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