

### Short Communication

## Performance of broilers on furazolidone additive

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### Abstract

One hundred and twenty Anak broiler chicks of both sexes were fed furazolidone (additive) in feed to study their growth/weight gain response. The birds were grouped into four, A, B, C, and D of 30 chicks each. Treatments B, C and D were administered with furazolidone in feed at the following dosage rates: 0.008%, 0.004% 0.002% respectively. Group A served as control in which furazolidone was not added in the feed. All the groups, (except in feed intake where the control differed significantly) had no significant differences in body weight gain, feed efficiency, and feed intake. It was concluded that it is not necessary to use furazolidone as a growth promoter in broiler feeds.

**Keywords:** Broilers, furazolidone, feed additive

### Introduction

Efforts to improve livestock production in Nigeria are some of the major concerns of research scientists in the Nigerian Universities and Research Institutes. Serious efforts are therefore being made to discover new and better additives that would hasten the maturity of broilers to market weight much earlier. To this end, some antibiotics had been involved usefully, for example, chlortetracyclines (Juke and McGinnis, 1949); ampicillin, cloxacillin and tetracycline, (Taylor, 1988); nitrovin, penicillin and zinc bacitracin (Griffin, 1979); anti-fungal antibiotic combination (Wekhe and Taylor, 1992) and many other reports elsewhere (Wekhe and Olowo, 1994; Coates 1955; Pandey *et al.*, 1973). Other non-antibiotic growth promoters reported in literature include, Orabolin by Phimia (1987), Berepubo (1993)

and Wekhe *et al.*, (1994). Positive growth effects on livestock have also been reported about methionine supplementation in feed (Babatunde *et al.*, 1976) and copper sulphate (Cromwell *et al.*, 1980).

Furazolidone is a broad spectrum antibacterial and antiprotozoal nitrofurantoin active against *Eimeria tenella* and *Eimeria necatrix*. In the chicken it is used for the treatment of *Salmonella* infections, given in the feed at the concentration of 0.004% for 10 days (Brander and Pugh, 1975). For its double action against two pathogenetic enteric entities (bacteria and protozoa) furazolidone was thus administered to broiler in their feed to test its effect on growth and feed efficiency.

## Materials and methods

The experiment was a completely randomized design in which one hundred and twenty Anak strain of broilers with an average initial weight of 40g at day old were randomly distributed into four treatment groups, A, B, C and D of 30 birds/treatment. Each treatment was replicated three times with ten birds in each. The ten birds in each of the replicates were weighed together as one unit at the end of every week. Measured dosages were added to the feed at the following level; A (control); B, 0.008%; C, 0.004% and D, 0.002%. Drug administration in feed started at day old until the end of the experiment at the eighth week. They were fed *ad libitum* with the same brand of commercial starter feed in the first four weeks and finisher in the last four weeks.

They were reared in standard deep litter poultry houses with space provision of 80cm<sup>2</sup> / bird, and brooded with incandescent 100 watts electric bulbs and vaccinated appropriately at the third week of life against Newcastle disease. Feed intake was determined daily based on the difference between the served and left over quantities using Avery (Diamond) weighing scale while the drug dosages were weighed using Metter Electro balance, AE 163. The data were analysed at the fourth and eighth weeks using ANOVA and LSD.

## Results

The average values of the data collected for the replicates and the treatment means (in parenthesis) of the production criteria studied are presented in Table 1. Data analysis done in two parts, at the 4<sup>th</sup> and 8<sup>th</sup> weeks of age, using ANOVA and LSD showed that there were no significant differences ( $P>0.05$ ) in all the criteria except in feed intake where the control (A) differed ( $P<0.05$ ) from treatments B, C and D. Linearly, the weight gain and feed efficiencies were significantly lowest in the

control (A) in both parts (4<sup>th</sup> and 8<sup>th</sup> weeks) of the experiment( Table 1).

## Discussion

It was expected that furazolidone having a broader spectrum of antimicrobial activity (bactericidal and protozoicidal than many antibiotics that promote growth in broilers, should engender enhanced weight gain and feed efficiency. However, the reverse was the case. Brander and Pugh (1975), Seigmund and Frazer (1979) noted that nitrofurans depress growth. Furazolidone belongs to the nitrofurans and its behaviour in this experiment tends to support the assertion of Brander and Pugh, (1975) and Seigmund and frazer, (1979) since it did not cause any weight gain advantage over the control.

The dosages of 0.008%, 0.004% and 0.002% in feed are very much lower than the therapeutic level of 0.04% prescribed by Brander and Pugh (1975) but conforms with the 0.0055% prescribed for prevention of coccidiosis given continuously in mash to birds over two weeks of age or 0.011% also in mash in the first two weeks after hatching (Seneviratna, 1969). The doses used in this experiment fall above and below the prophylactic dose (0.0055%) and so are in order. This means that the birds were not administered with ineffective dose levels. This being the case, why should furazolidone not enhance weight gain and feed efficiency like antibiotics such as ampicillin, cloxacillin, terramycin (Taylor, 1988; Wekhe and Olowo 1994, Wekhe *et al.*, 1994)? It is perhaps possible that furazolidone besides killing the pathogens also kills the non-pathogenic enteric organisms which are useful in the digestion of food while the antibiotics that promote growth have some selective and sparing actions on some of the useful enteric organism. Otherwise furazolidone may possess some antigrowth factors that depress growth. The problem and mechanism of growth depression by furazolidone need investigation.

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**Table 1** Feed intake, weight gain and feed efficiency

Treatment/dosage	A(0.00%)			B(0.008%)			C(0.004%)			D(0.002%)				
	Replicates			Replicates			Replicates			Replicates				
Duration of expt. (0-4 wks)	Criteria	1	2	3	X	1	2	3	X	1	2	3	X	
	Feed intake(kg)	1.44	1.47	1.47	(1.46) <sup>b</sup>	1.83	1.96	1.71	(1.83) <sup>b</sup>	1.81	1.86	1.75	(1.81) <sup>b</sup>	1.73
	Wt gain (kg)	0.36	0.34	0.35	(0.35) <sup>b</sup>	0.47	0.47	0.47	(0.47) <sup>a</sup>	0.48	0.48	0.47	(0.48) <sup>a</sup>	0.44
	Feed EFF	0.22	0.20	0.21	(0.21) <sup>a</sup>	0.23	0.23	0.25	(0.24) <sup>a</sup>	0.24	0.24	0.25	(0.24) <sup>a</sup>	0.23
(0-8 wks)	Feed intake(kg)	3.80	3.88	3.87	(3.85) <sup>b</sup>	4.82	5.51	4.49	(4.82) <sup>a</sup>	4.75	4.90	4.60	(4.75) <sup>a</sup>	4.55
	Wt gain (kg)	1.29	1.31	1.31	(1.30) <sup>b</sup>	1.53	1.54	1.55	(1.54) <sup>a</sup>	1.57	1.57	1.58	(1.57) <sup>a</sup>	1.42
	Feed EFF	0.34	0.34	0.34	(0.34) <sup>a</sup>	0.32	0.30	0.35	(0.32) <sup>a</sup>	0.33	0.32	0.34	(0.33) <sup>a</sup>	0.31
														0.33
														0.28
														0.28
														(0.31) <sup>a</sup>

Means (in parenthesis) in each row not bearing the same superscripts are significantly different (P<0.05)

The present finding reveals that birds on treatments B, C and D which were on furazolidone consumed significantly more than those in treatment A (control), but did not gain weight significantly more than the control. This means more cost due to excess feed and the furazolidone added to feed.

### Conclusion

Except for its therapeutic and prophylactic use against protozoal and bacteria infections, furazolidone should not be used as a growth promoting additive in broiler feed, since it did not promote weight gain. It rather incurred more cost by increasing feed consumption in addition to the cost of furazolidone.

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