

EFFECT OF L-47 PROMOTER ON THE BROILER CHICKS PERFORMANCE

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ABSTRACT: This experiment was conducted at College of Agricultural Studies (CAS), Sudan University of Science and Technology (SUST). The trail was planned as complete randomized design during a period of 42 days. The study was carried out to investigate the effect of L47 growth promoter compared with antibiotic on the performance of broiler chicks. A total of ninety day- old unsexed, Ross 308, broiler chicks were used. The study was conducted at farm of Department of Animal Production, College of Agricultural assigned into three treatment groups (A, B and C), and each group was subdivided into three replicates with ten chicks per each replicate. The basal diet was formulated to meet the nutrient needs suggested by the NRC (1994). Group A chicks were supplied with L47 growth promoter through drinking water, (1 ml promoter per 1 liter clean water), while group B was administrated 0.2 gm antibiotic per one liter of tap water, although chicks in group C received clean water without any treatment. Supplementation of antibiotic promoter was stopped at 7 days before slaughter. Body weight and feed consumption were recorded weekly, feed conversion ratio (FCR) was calculated and mortality was recorded when occurred. Collected data revealed that chicks supplied with L47 growth promoter had significantly ($P<0.05$) higher body weight gain and best feed conversion ratio than those in antibiotics or control groups, although chicks in control group consumed significantly ($P<0.05$) more feed. Moreover the addition of L47 growth promoter to broiler drinking water improved the dressing percentage of chicks. It would suggest that the supplementation of broiler chick's drinking water with L47 growth promoter improved broiler performance.

KEYWORDS: L47 growth promoter, drinking water, broiler performance.

INTRODUCTION

It is well known that feed additives were important to improve the efficiency of feed and animal performance. It is well documented that using artificial of these additives for animal feeding as growth promoter become refused, due to their adverse and side effects on both animal and human health ([Manning et al., 1994](#)). However; the animal nutritionist and feed manufacturers have been looking for alternatives to antibiotics promoter ([Bywater, 2005](#); [Abaza et al., 2008](#)). They recorded many alternatives, such as herbs and spices, essential oils extracted from aromatic plants, probiotics and prebiotics ([Boulos et al., 1992](#); [Seleem et al., 2006](#); [Griggs and Jacob, 2005](#); [Tabidi et al., 2013a](#); [Al-Fadil et al., 2013](#)).

It was reported that L47 promoter benefits the host animal by stimulating synthesis vitamins of B-groups, improve the immunity stimulation, providing digestive enzymes, increasing the production of volutite fatty acids and general health of birds. Several studies ([Babiuk et al.,](#)

[2003](#)) demonstrated that the supplementation of L47 promoter to broiler chick's water increased the growth performance and reduced occurrence of diseases.

Therefore, the aim of this study is to detect the effect of a commercial growth promoter (L47) on the performance of broiler chicks compared with antibiotic (Neomycin).

MATERIALS AND METHODS

The present study was conducted in the poultry department farm, College of Agricultural Studies, Sudan University of Science and Technology. The study aimed to evaluate the performance of broiler chicks as affected by supplementation of L47 promoter in the drinking water, (the promoter-L47 is a normal liquid supplement containing 12 hypo and liposolubles vitamins and in the L-chemical form, allowing rapid absorption, assimilation and bioavailability.it acts like biostimulant being recommended when the feed intakes decrease, in nutritional deficiencies,

in the faces of greater stress, and in situations where an increase in production is required). Ninety day- old broiler chicks were randomly distributed in a complete randomized design into three groups (A, B, and C) each having three replicates with ten chicks per each – chicks were reared in an open house for 42 days. The basal diet was formulated to meet the nutrient needs as recommended by [NRC \(1994\)](#). Body weight and feed consumption were monitored weekly and feed conversion ratio (FCR) was calculated. Mortality was recorded daily. Feed and water were provided *ad-libitum*.

Chicks in group were supplied with L47 growth promoter through drinking water (1 ml promoter per 1 liter clean water), chicks in group B was administered 0.2 gm antibiotic (neomycin) per one liter of tap water, while chicks in group C received clean water without any treatment.

At the end of six week experiment period; three chicks from each treatment were selected, weighed individually, slaughtered, and then the dressing percentage was determined. The collected data were tabulated and subjected to one way analysis of variance; the differences in means were compared for significance by Duncan Multiple Range test with 5% probability ([Duncan, 1955](#)).

RESULTS AND DISCUSSION

Performance parameters of experimental chicks were given in the table (1 and figures 1-4). Results showed that body weight gain and feed conversion ratio values of chicks treated with L47- promoter improved significantly ($P < 0.05$) compared to control and antibiotic groups, although chicks treated with L47- promoter exhibited higher body weight gain and the best value of feed conversion ration compared to other experimental chicks. This might be due to the distinctive composition of L47 -promoter (vitamins + amino acids). These results were in agreement with the findings of [Gunal et al. \(2006\)](#); [Miles et al. \(2006\)](#) and [Tabidi et al. \(2013b\)](#) who recorded that administration of probiotic and antibiotic as growth promoters in broiler diets significantly affected in body weight gain, FCR and final body weight, and with results of [Al-Fadil et al. \(2013\)](#) who found that the use of gum Arabic as a natural prebiotic in chicks diets apparently improved the general performance of broiler chicks. Also with findings of [Mukhtar \(2011\)](#); [Mukhtar et al. \(2013a\)](#) and [Amal et al. \(2013\)](#) who used essential oils as natural growth promoters in the broiler diets. Chicks treated with L47- promoter consumed numerically more feed compared to control and

antibiotic groups, this might be due to that L-47 promoter with its high content of thiamine maintains the appetite and the natural conditions of the digestive tract. The results were in accordance with the finding of [Ismail \(2011\)](#) and [Tabidi et al. \(2013b\)](#). They were also supported with findings of [Mukhtar \(2011\)](#) and [Amal et al. \(2013\)](#) who reported positive effects of essential oils on feed intake of broiler chicks. The experimental chick's health was good although out the experimental period; the mortality rate was negligible with no significant differences among all treated groups. This result was in agreement with the reports of [Babiuk et al. \(2003\)](#); [Chen et al. \(2003\)](#); [Ismail \(2011\)](#); [Mukhtar et al. \(2013a\)](#); [Mukhtar et al. \(2013b\)](#) and [Tabidi et al. \(2013b\)](#), although chicks treated with L47- promoter showed good health compared to antibiotic and control groups. This might be due to that L47- promoter could stimulate a protective for its constituents of vitamins and amino acids which help to maintain an active physiological state and stimulate the immune system/or it could stimulate immune response sufficiently to enhance resistance to microbial pathogens. The result was in agreement with report of ([Cross, 2002](#) and [Lee et al. 2003](#)).

Moreover, the results exhibited that addition of L47-promoter improved the dressing percentage of chicks. It would suggest that L47-promoter can administrated in broiler chicks drinking water as alternative to antibiotics.

Table 1: Effect of L47- promoter on the performance of broiler chicks

Parameter	L47promoter	Antibiotic	Control
Body weight gain/g/b	2280	2260	2181
Feed intake g/b	3764	3730	3753
FCR	1.65	1.65	1.72
Mortality rate %	0.3	0.33	0.32
Dressing %	72.6	72.42	72.2

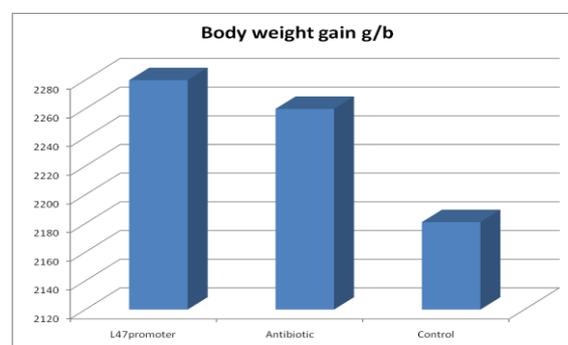


Figure 1: Effect of L47- promoter on the body weight gain

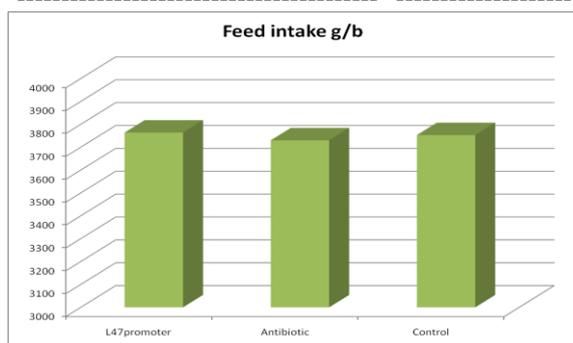


Figure 2: Effect of L47- promoter on the feed intake

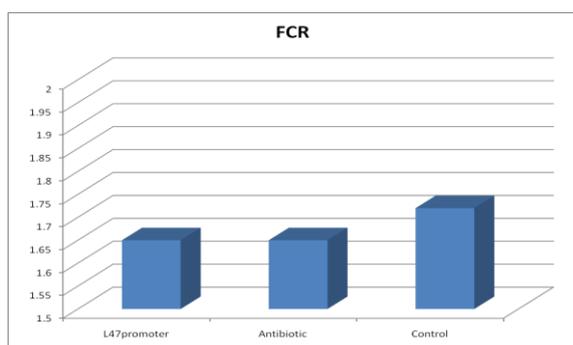


Figure 3: Effect of L47- promoter on the FCR

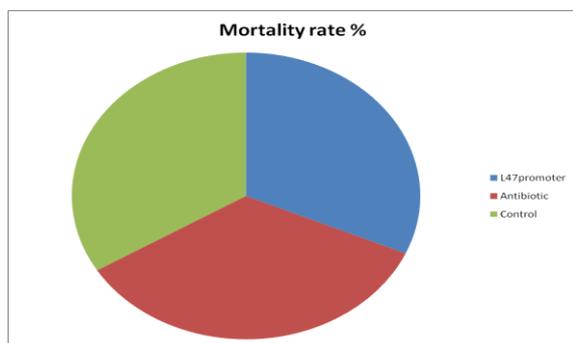


Figure 3: Effect of L47- promoters on the mortality rate

REFERENCES

- Abaza IM, Shehata MA, Shoieb MS, Hassan II. Evaluation of some natural feed additive in growing chick's diets. *International Journal of Poultry Science* 2008;7(9):872-879.
- Al-Fadil S, Mukhtar MA, Tabidi MH. Response of broiler chicks to diets containing Gum Arabic as a natural prebiotic. *Journal of Current Research in Science* 2013;1(4):247-253.
- Amal OA, Mukhtar AM, Mohamed KA, Ahlam AH. Use of Halfa Bar Essential Oil (HBO) as a Natural Growth Promoter in Broiler Nutrition. *International Journal of Poultry Science* 2013;12(1):15-18.
- Babiuk LA, Gomis S, Hecker R. Molecular approaches to disease control. *Poult Sci* 2003;82:870-875.
- Bywater RJ. Identification and surveillance of antimicrobial resistance dissemination in animal production. *Poult Sci* 2005;84:644-648.
- Boulos NZ, Shalash MA, EL-Skeikh HM, Abdella HM, Hattaba NA. Effect of the biogenic enhancer Ascogenr on laying hen performance. *Egyptian Poultry Science* 1992;12:679-695.
- Chen C, Sander JE, Dale NM. The effect of dietary lysine deficiency on the immune response to Newcastle disease vaccination in chickens. *Avian Dis* 2003;47:1346-1351.
- Cross MI. Microbes versus microbes: immune signals generated by probiotic lactobacilli and their role in protection against microbial pathogenesis. *TEMS Immunol. Medicine Microbiology* 2002;34:245-253.
- Duncan DB. Multiple Ranges F-Test 10. *Metric Approach* 1955;11:1-42.
- Griggs JP, Jacob JP. Alternative to antibiotics in organic poultry production. *J Applied Poult Res* 2005;14:750-756.
- Gunal M, Yavli G, Kava O, Karahan N, Sulak O. The effects of antibiotic growth promoter, probiotic or organic acid supplementation on the performance intestinal microflora and tissue of broilers. *International Journal of Poultry Science* 2006;5(2):149-155.
- Ismail ZSH. Effects of dietary black cumin growth seeds (*Nigella sativa* L.) or its extract on performance and total coliform bacteria count on broiler chicks. *Research Article ANIMAL Production Department, Faculty of Agriculture, South Vally University, Egypt* 2011.
- Lee KW, Everts H, Kappert HJ, Frehner M, Losa R, Beynen AC. Effects of dietary essential oil components on growth performance, digestive enzymes and lipid metabolism in female broiler chickens. *Br Poult Sci* 2003;44: 450-457.
- Manning JG, Hargis BM, Hinton A, Corpier CR. Effect of selected antibiotics and anticoccidials on salmonella enteritidis cecal colonization and organ invasion in leghorn chicks. *Avian Dis* 1994;38:256-261.
- Miles RD, Butcher GD, Henry PR, Littell RC. Effect of antibiotic growth promoters on broiler performance, intestinal growth parameters, and quantitative morphology. *Poultry Science* 2006;85(3):476-485.
- Mukhtar MA, Mohamed KA, Amal OA, Ahlam AH. Response of Broiler Chicks to different Dietary Levels of Spearmint Oil (SPO) as a Natural Growth Promoter. *University of Bakht Alruda Scientific Journal* 2013a;6:175-183.

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- Mukhtar MA, Mohamed KA, Amal OA, Ahlam AH. Response of Broiler Chicks to Different Dietary Levels of Clack Cumin Oil as a Natural Growth Promoter. University of Bakht Alruda Scientific Journal 2013b;7:185-191.
- Mukhtar MA. The Effect of Dietary Clove Oil on Broiler Performance. Australian Journal of Basic and Applied Sciences 2011;5(7):49-51.
- NRC. Nutrient requirements of poultry. 9th edition. National Academy press, Washington DC 1994.
- Seleem TST, Abd El-Motaal AEM, El-Kholy KH. Effect of L-carnitine preparation in drinking water on some productive and reproductive performance of NZW rabbits. The 1st Conference on Clean Environment and Safety Food. Ain Shams University, Egypt 2006.
- Tabidi H, Mukhtar AM, El-rashied EL. Response of broiler chicks to diets containing Live Yeast as Probiotic natural Feed Additive. Journal of Current Research in Science 2013a;1(5):316-319.
- Tabidi MH, Mukhtar MA, Hassan IM. Effects of Probiotic and Antibiotic on Performance and Growth Attributes of Broiler Chicks. Global Journal of Medicinal Plant Research 2013b;1(1):136-142.