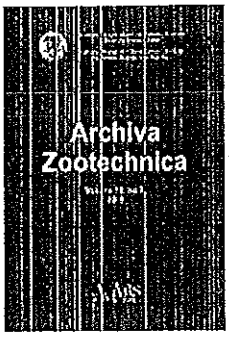
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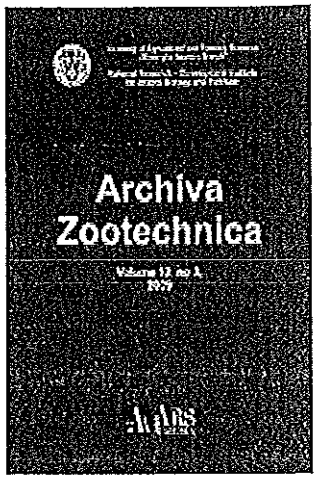
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Effects of probiotic and organic acid on performance and organ weights in broiler chicks

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ABSTRACT

This experiment was conducted to study the effects of probiotic (I[3]) and organic acid (OA) on performance and some organs in broiler chicks. Seventy two 1-d-old (male and females) broiler chicks (Ross PM) consisted of 4 groups (Control, 02 % Probiotic *(Sacchawmyces cerevixiae),* 04 % OA and 02 % P + 04 % OA, each of which had 25 chicks. The analysis of the data indicated that no significant effect between the groups was found in body weight, feed intake, hot carcass, gizzard, liver and large intestine weight, but a significant difference in small intestine weight was obser\fed ($P<0.001$). According to the results of this study, it was found that the provision of mentioned probiotic or organic acids to 'he diet of broiler throughout 42 days had no effect on performance.

Keywords: Chicken, probiotic. organic acid, organ weight, performance

INTRODUCTION

Antibiotics have been used to protect the animal health and to improve growth for many years. Aim of using antibiotics in feed sector was to get advantage from feeding and increasing protection against some diseases, toxins, and making belter the absorption of nutrients in intestines. Confidence has diminished about antibiotics used for improving performance and reducing stress factors because of the risk development of bioresistance against bacteria in human. Consumers are being sensible about this matter. New regulation therefore taking into account public health restricts to use of antibiotics as a feed and foodstuff supplement Turkey, especially after EU decisions has restricted the use of antibiotics in feed-foodstuff supplement though regulation from the Ministry Agriculture since 30 Sept. 1999. (Nir and Şenköylü 2000, Saygıcı and Gi'mal 2004. Özlürk and Yıldırım 2004).Currently, probiotics and the organic acids seem the most interesting alternative supplement in regard of minimizing economic loses.

Probiotics effect can affect the microbial stabilization in gastrointestinal system like antibiotics. The organic acids might work as stimulant of the immune system and prevent natural residents, pathogenic microorganisms. *(Streptococcus, Enterobacteria Clostridia,* etc.). Probiotics and organic acids might modify the microflora which can be at the origin of some gastrointestinal sickness or favor the

hand supply of probiotics to the feedstuffs carried out to erase fluctuation under stress circumstances, to renew intestinal system and to favor growth of the animals. Therefore, the objectives of the present study were to investigate the performance and **organ weights of broilers supplemented with some probiotics and organic acids as alternative of antibiotics.**

MATERIAL AND METHODS

Seventy two 1**-d-old (male and females) broiler chicks (Ross PM) of commercial strain were individually weighed and distributed randomly into 4 groups** (1 **control and 3 treatments), each group has 18, using two days chicks live weight average. Environment was warm up by electrical heater at 30 °C for the first** 2 **days then reduced progressively to be 22 °C at day 10. Room was lightened. Broiler chicks were fed from day 1 to 28 day with starter diet *"adlibitum"*. Control group was feed on neither basic food without probiotics (P) nor organic acid (OA), treatment group were fed with feed supplemented with probiotics and organic acid. (Supplemented Biotronic SE Forte-OA, Probiotic 2 % + Organic Acid 4 %) till end** }f **the experiment.**

'able 1. **Composition in organic acid of the additive (Biotronic SE Forte) (%)**

onnic Acid	17.4
immonium Format	14.1
ropionic Acid	12.4
mmonium **Propionate**	8.4
11 inK Materials	47.7

ible 2. Composition of the experimental diet

oups	Starter	Finisher
mi	550	655
nflower Meal[1]	47	35
ybean Meal[1]	281	255:
h Meal[2]	55	
\flowerOil[4]	40	40
P ,	12	5
>und limestone	10	5
Methionine	1.5	1.5
imin mix	2.5	2.5
eral mix	1.0	1.0
position		
kcal/kg	3077	3187
:in, %	22.02	17.9

aining 44 % crude protein [2] Containing 65 % crude protein [3] Containing 37 % crude protein
taining 8800 ME, kcal/kg

Body weight and feed consumptions were measured per group and individually every week, to evaluate changes in Teed intake and live weight. Weights of small intestine **(full**-empty), gizzard *(Pars niuscularis)* and liver were measured at slaughter day 43.

. Statistics Analyses

Live weight were analyzed using Variance Analysis in Repeated Measurement Design-RMD Feed intake, fresh carcass, gizzard (full-empty), liver, large intestine, small intestine measurements were evaluated according to one way Variance Analysis using SPSS Statistic Package Program.

RESULTS AND DISCUSSION

The effects of probiotics (P) and organic acid (OA) on broiler performance (BW, FI, Carcass and organs weights) are shown in Tables 3 and 4.

Table 3.The Effects of P and OA on body weight in broiler chicks

	Groups			
	Control	**P** (Sc)	**OA**	**P+QA**
Weeks	X ± Sx	X ± Sx	X x S x	X x S x
1	88 ±3	87 x 3	88 i 3	88 = 3
1	192 ±9	181 ±7	1760 ± 8	178 x 7
3	373 ± 14	376 x 13	3S4 = 12	386 x 13
4	665 ± 16	664 x 19	685 ± 19	681 ± 23
5	1101 *26	1101 x 23	1 146± 31	1 155 ± 38
6	1570 ±34	1553 ± 27	1641 ±37	1576 ±48
7	1903 ±40	1933 ± 36	2039 ± 63	2014 ±64

Heaviest BW tends to be observed in the group supplemented with organic acid at age of slaughter. (Table 3). The BW changes were not however statistically significant but, of course, the differences due to age are significant (PO.001). Interaction between age (P =().205)'and treatment (P=0.424) were not statistically significant.

Table 4. Feed intake of broiler chicks during the experiment.

	Groups			
	Control	***V*** (Sc)	**OA**	**P+QA**
Weeks	X ± Sx	X ± Sx	X ± Sx	X ± Sx
1	219 ± 7	214 ±12	207 ± 9	197±8
2	404 ± 11	441±18	428 ± 14	423 ±13
3	905 ± 15	944± 25	958 ±18	938 ± 20
4	1658 ±24	1717 ±27	1752 + 30	1692 ±38
5	2409 ± 33	2452 ±45	2574 ± 48	2381 ±54
6	3174 ± 39	3208 ± 63	33888 ± 59	3194 ±61

Feed intake tends to be higher in the group fed on the organic acid but the differences do not reach statistical significance (Table 4). Age affect was major (PO.OOI). Interaction between age and treatment were not significant (P=0,361) neither the treatment effect (P=0,233). Hot carcass tends to be heavier in the group fed OA but was not significant as observed for BW and FI. Similarly, the slight increases in fresh carcass, gizzards filled weights were not statistically significant). However, emptied gizzard weight reach statistical significance (P<0,001). Liver weights, large intestine and small intestine tend to be slightly increased in chicks "ed P + OA).

Today there is a lot of commercial publication dealing with the supplying of irobiotics and organic acids to replace the absence of antibiotics banned from the feedstuff's. Some of studies show that probiotics do not success to stop diarrhea, peed up the growth, and stabilize the balance between lactic acid bacteria and athogenic bacteria in small intestines. Lots of studies point out that *aciobacilluses* influences the growth of as there is about 450 kinds of acteria. (Nir and Şenköylü, 2000). Probiotics added to feeds for 0-42 days in roiler chicks has no effects on live weight in some studies (Panda et al., 2000). 'ther studies observed positive probiotic effects under stress conditions mostly. uller, 1989, Erdoğan, 1995). Contradiction amongst results suggest to some ithors (Mohan et al.,1996, Jin et al.,1998, Kırkpınar et al.,1999, Midilli and ıncer 2001, Brzoska et al.,1999, Richter et al.,1999, Jin et al., 2000) that the more obiotics are supplied the more gain in live weight is observed. Our study agree ith literature showing expressing no effects on FI when supplying the probiotic to sds (Erdoğan 1995, Samanta and Biswas 1995, Işık 1997, Gohain and Sapcota 98, Eren et al.,1999, Kırkpınar et al.,1999, Wiedmar and Hadorn 1999, Panda et , 2000, Ergiin et al., 2000, Albuz and Ceylan 2001). The supply of probiotic + ianic acid to feeds increased small intestine weight. But Erdoğan's (1995) shows it probiotics in feeds make lighter intestine weight (formic, asetic, propionic, .) to the bacteria with not adequately dissociate acid molecules in environment.

CONCLUSION

The findings from this experiment indicated that the supply of probiotic and ;anic acid to broiler chicks feeds for 42 days have limited effect on chick formance. The study is realized with minimum stress and maximum hygienic iditions, and it would get more positive results under similar circumstances in ctical conditions.

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