

Investigation on effect of dietary organic acids on performance and intestinal microflora of broiler chickens

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ABSTRACT: This study carried out to determine the effects of different level of organic acids and Salgard supplement on microbial population and performance of broilers. The plan was completely random including 7 treatments (0, 0.3% and 0.5% formic acid, 0.3% and 0.5% Propionic acid, 0.3% and 0.5% Salgard in diet) and three replicates that totally includes 21 tests. Ten specimen applied in each and totally 210 Cobb broilers were used. Weighing performed weekly. At the end of rearing period (42 days), one broiler randomly selected from each pen and killed. Microbial investigation, body characteristics and pH rate analyzed in the laboratory using duodenum. In the laboratory two method of drop counting and point counting used in suitable bacteriologic cultures. Data analysis carried out by SAS using G.L.M and the means compared by Duncan's test. Applying organic acids leads to significant change in aerobic bacteria and Coliform population, Escherichia coli and Lactobacil in cecum ($P < 0.05$). Also, there is no significant difference in population of the bacteria which produce lactic acids in treatments ($P < 0.05$). But, there is significant difference in mean weight increase in (initial and end of rearing period) which are as follow: mean weight increase during rearing period, daily mean weight increase, mean consumed feed during growth period, mean consumed daily feed during (third and sixth weeks), feed conversion rate in 7, 35 and 42 days of rearing, feed conversion rate in 7, 28, 35 and 42 days of period, weight of body prepared for consumption, weight of breast, weight of wing, weight of thighs, weight of liver, percent of cecum, percent of thighs, percent of breast and decrease of pH in duodenum ($P < 0.05$). The results of the recent study shows that adding organic acids specially Salgard supplement 0.5% in the diet effect on performance of broilers and the total number of Lactobacil bacteria and coliforms, Escherichia coli and whole aerobic bacteria in cecum content.

Keywords: organic acids, Broilers, Cecum microbial population, performance, Salgard.

INTRODUCTION

The bulk poultry feed costs are allocated to the . Therefore, producers should be closely monitored for feed efficiency . Mucosa of the gastrointestinal tract from the mouth to the anus , to be considered as a layer separating livestock from the outside . The absorption capacity of the intestine should be sufficient protection against bacterial diseases causing provided . This task considering there are 10¹² bacteria Drhrgrm the contents of the digestive tract (Barnes, 1979). Maintain a healthy digestive tract ensures that nutrients can be absorbed at affordable rates , in addition, to control and limit the number of bacterial colonies to place by their nature are in the bowel . If jeopardize the continuity of the intestinal mucosa , nutrients will also be reduced . As part of the absorbed nutrients to repair damaged areas and support the immune system can lead to removal damage eBay intestinal interruption to the activities . This inflammatory process , the bulk of energy consumed is empowered to allocate tissue to grow normally . Due to these reasons, using all the tools available to get the best FCR would be prudent. However, the number of anti that antibiotics for non- therapeutic purposes breed bans are on the rise and new tools such as organic acids, , Fytvzhnyk and probiotics to control or remission poultry is introduced (Lorenzoni and wideman, 2008).

THEORETICAL FRAMEWORK

Use of Organic Acids

Today, dense breeding animals , especially poultry diseases due to its sensitivity toward intestinal rise . Poultry than being colonized potentially harmful micro-organisms such as rotavirus - Ashyrshyakvly - Salmvnlav species of Clostridium are sensitive (Izat et al, 1990). Mnzvrkntrl Some problems

of the transmission of horizontally (Food - Water - bottom) or vertically transmitted to the next generation of breeders cause of anti antibiotics in feed for the treatment of disease -causing bacteria in the intestinal tract and reduces resistance to diseases such as salmonella will (Cavazzoni and castrovilli, 1998). So that the anti inflammatory bowel hens consuming greater amounts of salmonella has been found (Clifford, 1999).

However, since Report of the Salmonella resistance , Kamylyvbaktr resistant enterococci anti Chndnv resistant to antibiotics existed, mostly due to the practice of anti inflammatory stimuli , especially Rshddr poultry diets , which lead to bacterial resistance that some bacteria are classified as human pathogens (Langhout, 2000). In line with the precautionary principle , the Commission Europe 1999 order banning the use of anti antibiotic growth promoters issued (Ibid). Also shown is a close relationship between the performance and the efficiency of domesticated livestock ration consumption on the one hand and the qualitative and quantitative microbial load imposed by a Dygrvjd . This time Yavaml environmental microbial feed Tvandaztryq reach breeding sites (Kummerer, 2004). Hodder the collection of microorganisms are gastrointestinal microflora . , Which has about 400 species of bird diversity Vjmyty is about ten trillion . Including the role of the normal microflora of the gastrointestinal tract that is that help digest food consumption through a symbiotic relationship with their host, Khvdayjadmy . Mlkrddygranha excitation immune response is BrabrbymaryHamy . Their gut microflora organisms that are less marked , like newborn animals, creatures of the intestinal flora completed more Azgama globulin levels are low (Lawhon, 2002). Use the practices Azanty antibiotics stimulus Rshdbas because pH intestine into alkaline and thus favor the proliferation of bacteria illness causing reduction of lactobacilli shunted triggered bird evolution and failure mechanisms regulating gastrointestinal and so they face -causing pathogens in the gastrointestinal tract than ASA a Mstqrmly - formation. Disadvantages of the use of anti only increase bacterial resistance to antibiotics Mvadvnyst . But today it Khtrbqayay in livestock products and poultry is raised as an important issue in human health . Adverse effects of oral treatment Baanty - Manndas-hal antibiotics increases the risk of sepsis caused by overgrowth of toxic bacteria antibiotic resistant Brabranty led to efforts to develop new therapies to be developed (Long, 1967).

So the starting point of the anti antibiotic resistance problem Drrastay reduce the driving ban, a gradual and step antibiotic and anti -growth alternatives for them. Including alternative methods to use nonpharmacologic acid - organic noted in poultry diets . organic acids such as formic acid or propionic acid by European nations largely in food and feed in order to prevent the growth of microbes that cause diseases such as Salmonella cared use of formic acid inhibiting the growth of E. coli is considered the most prestigious (Dhawale, 2005). It has been reported that the acid - decreased production of organic compound reduces intestinal bacterial colonization and morphological changes in the intestine and reduce injury -causing pathogens to epithelial cells in this region is (Langhout, 2000).intestinal microbial populations as a result of organic acid to be (Ibid). Therefore, we hypothesize that organic acids on performance and microbial flora host are synergistic effects .

Tract of poultry

The digestive system is a conduit to the outside environment, metabolism related to animals . Development of the gastrointestinal tract , particularly in terms of the type of food that you eat a variety of useful is determined (Dibner and Butin, 2005).

Foods high in digestible AzqablytTyvrbaydBrkhvrdarbashdzrya :

1. along the gastrointestinal tract of poultry is short Azsaryhyvanat more .
2. speed is DrtyvrsryBvrghza gut .
3. Drdstgah digestive activity of micro -organisms it aids in the digestion of the low.

Speed food through the digestive DrdstgahTyvrthkmgzar faster pace of growth and development of chickens Drtyvrghyrthkmgzarvnyz faster than the brood fowl . Quickly Bvrghza gut to factors such as the type of ration , presence or absence Vjvdmvadmlyn , animal health and the environment depends on temperature . So secrete enzymes to digest food depends Drmrgh sectors of the gastro Dardtamtaqb action , a complex food molecules simpler and more absorbent material , are analyzed . enzyme digestion of the food operation NtvandbvsvylhShvdbh used as a source of nutrients for poultry not - be (Ibid). gastrointestinal health , the most important factor affecting the performance Tyvrast progress , so DrtvlydaqtsadyTyvrsnty plays an important role . normal birds , balancing the crowd symbiotic microflora (gram - positive) Vmykrvflvray disease -causing (gram negative) Brqrarast appropriate pH conditions . Drdstgah healthy digestive bacteria, Gram-positive , is totally include bacterial populations are dominant . Harmful chemicals are used so If the pH or chemical agents or dietary changes Drmsrf may change , the situation will disrupt the balance argument. Vbaghalb gram-negative bacterial populations , which provides conditions for disease occurrence . proliferation of harmful bacteria don Azchynh may be initiated. Don Drchynh food stay good for a long time , heat and Tksyrbaktry In this section , the Azdyadmykrvflvray disease -causing This region is . The intention

is to maintain a balanced pH to maintain healthy microbial balance in the digestive tract is important (Dhawale, 2005).

Defining Organic Acid

The definitions Dibner and Butin (2002) as carboxylic acids, organic acids, the by a holder of fatty acid and amino acid Basakhtarand R-COOH is considered . of all organic acids on intestinal microfloraMvsrnystnd . In fact, the organic acid of contribute to antimicrobial activity , including mono-carboxylic acids and acid Znjyrkvta h s - simple Nzyrfrmyk , acetic , propionic and butyric acid or a carboxylic acid with a hydroxyl group on the carbon alpha such as lactic , Malic , citric acid . Shown beneficial effects on the function of the salt of this acid Tyvrdarnd . carboxylic acids with double bonds also AsydfvmarykNzyrasydsvrbyk and antifungal activities are defined based on Lueck (1980) and acids , organic acids, weak squeezed fruit Drsarh often found in fermented food , and, as held by will be added to the rations of the holder . these compounds are widely found in nature as the main component of natural plants or animal tissues are . theyTkhmyrmykrvby through the carbohydrate part Tyvrtvlyd are some great Azrvdh (Galib and Ageel, 2009).

BrdstgahDigestion Of OrganicTasyrasyd

The most important factor to monogastric animals produced Hdakstrvan it is the management of gastrointestinal microbial population Aznzrrshdvt dyl .DrsdbalayyAzrshdavlyhDrdstgah tractVandam first week attach it happen - . Agrrrshddstgah digestive Takhyrbyftdbrrshdkly the time to put together Asrmy . Most important factor Tvandsbb to Khtraftadn or loss that healthy digestive system are: diseases , various poisons, toxins , stress , nutritional deficiencies a , the Flvrtbyy intestinal microbial balance and reduced feed intake for various reasons . Dietary diversity has a significant impact on the morphology of Willie (Sklan et al, 2003). The inclusion of pectin diets based on corn in broiler chickens caused morphological changes Peres will be .volatile fatty acids reduce the number of Enterobacteriaceae in the cecum of broiler chickens to . of disease-causing microorganisms in the digestive tract causing shortening of villi and deep Kryp getting a gut - are (Chaveerch et al, 2002). Acid organicDrrvdh Direct Mvrdtghzyh located Vmvjbrshdvtmym it s - Shvndvsbb decay pathogens causing Mvjvdrdstgah digestive decline in pH could come (Barton, 2002). Thus adding the compound to the diet Tyvrdrsnyn initial growth, the have Tvandmzayay supply is below .

1 - Create a favorable pH Drdstgah GI 2 - Increase Rshdvtmayzslvl epithelial intestinal 3 - AsrzdalthabyBrprz intestine 4 - increase rate Tksyrbaktry Helpful 5 - reduce the population of bacteria illness causing 6 - improving enzyme activity 7 - Increased protein digestibility become acidic due to diet, digestion Drdstgah 8 - increased secretion of pancreas its impact on gastrointestinal mucosa .

RESEARCH METHODOLOGY

This study was designed to investigate the effect of organic acids on performance and intestinal microflora broiler chickens was conducted . Focus on research from October 2012 to December 2012 in a single twenty poultry in the city of Ramsar village functions were Ganksr . The city is the most western city in Mazandaran Caspian Sea to the north, south and west of the central Alborz mountains to the East of the city and province Chaboksar functions Branch is leading .

The designs on the side of 210 Cobb 500 chicks were female sex determination by the Company that were purchased were performed perineal Wide Web ,Amol . As of 3 replications and 7 treatments that are cor 21 and 10 chickens in each experiment . 10 chicken coop individually in a pen made of metal mesh that had been reared . 1 cubic meter is about the size of pen After this number were placed randomly in the hall . Poultry capacity is about 10,000 pieces including two Hall 5000 fragment that has two floors . Each room of 540 square meters and 560 square meters of roofed room to store food and feed rooms and rooms as labor is considered . Each room has a window of 10 to 120 meters in 120 cm is . Vhrsaln with 140 × 140 cm 3 air meter is.

The test procedure is as follows :

- Preparation of the hall before hatching
- room temperature
- Plan and blackout lighting
- vaccination program
- routine work during the breeding
- treatments tested
- compound feed consumption
- nutrient composition of the diet during the breeding period
- Characteristics of the test

STATISTICAL RESULTS

Effect of organic acids broiler chicken diets on cecal bacterial population at the end

Effect of organic acids on the total population of bacteria lactobacillus

The results of the comparison in the cecal lactobacilli on day 42 showed that the mean treatment difference was statistically significant ($0.05 > P$). The highest average supplement the Salgard 5/0 is the percent .Salgard supplement 5/0% of the numerically greatest effect on the bacteria Lactobacillus bacilli. The second, fourth and fifth treatments were third and sixth. And lowest in the control treatment and the effect is weakest.

Brjmyt total organic acid bacteria by Escherichia coli. The results of the comparison showed that the mean Akvlay in the cecum in 42 days All treatments were significantly different ($0.05 > P$). The highest average obtained from formic acid / 5 is 0 percent .Treated with formic acid, 5/0% of the minimum number of bacteria on the Akvlay. The difference is not significant compared to the control treatment. After the second treatment I and IV and VII were. And the minimum value of the supplement Salgard 3/0 per cent, has had the greatest effect, reducing the population of the cecum is Akvlay.

Effect of organic acids on the total population of bacteria lactic acid-producing

The results of the comparison of lactic acid producing bacteria in the cecum in 42 days In the mean treatment difference was not significant ($0.05 < P$). The highest average supplement the Salgard 5/0 is the percent . These treatments have the greatest impact on the number of lactic acid producing bacteria . The treatments were fourth and fifth, second, third and sixth. And the minimum value of the control plants and the effect has been weak .

Effect of organic acids on the total population of bacteria generic form

Results from the overall mean of the cecum in 42 days form of treatment means showed significant differences be ($0.05 > p$). The highest average obtained from formic acid / 5 is 0 percent . And formic acid using 5/0 of the form reduce the total count of cecal contents was found. The average minimum supplement Salgard 5/0% and supplements Salgard 0/5% decrease in total count form of cecal contents were.

organic acid effect on the total population of aerobic bacteria

The results of the comparison of the mean total aerobic bacteria in the cecum in 42 days showed that treatment means are significantly different from that is ($0.05 > P$). The highest average supplement the Salgard 5/0 is the percent . And the number of aerobic bacteria treated cecal contents increased in comparison with controls. And lowest in the control treatment.

Effect of dietary organic acids on the average weight gain per chick (g per chick) in the early period

The test results showed that the organic acid, a significant effect on weight gain in the early rounds of the averaged parameters of broiler chickens have ($0.05 > P$). The treatments were third and fourth, second and sixth and seventh. The most effective control showed weak . Treated with formic acid, 5/0% of the control mean you can be. The second, fourth, sixth and seventh treated and did not show a significant difference compared to control.

Effect of dietary organic acids on the average weight gain per chick grower

The results of the comparison of the mean treatments were not significantly different ($0.05 < P$). The highest average obtained Asydprvpyvnyk 3/0% of this treatment was not significantly different than in control - the ($0.05 < P$). The third, fifth, sixth and seventh treatments and controls were. Second, the treatment effect is weak no treatments are not significantly different from control ($0.05 < P$).

Effect of dietary organic acids on the average weight gain per chick final period

The results of the comparison show that treatment means were significantly different ($0.05 > P$). The highest average supplement the Salgard 5/0% and showed no significant difference in comparison to . After the third and sixth, fourth and fifth treatments were observed. Second, the treatment effect is weak .

Effect of dietary organic acids on the average weight gain per chick from zero to 42 days

The results indicate that the effect of organic acids have significant effects on the parameters of zero to 42 days, mean weight gain of broiler chickens have ($0.05 > P$). The highest average supplement the Salgard 5/0% and is significantly different from the control is . After the third and sixth, fourth and fifth treatments were observed. Second, the treatment effect is weak . The third, fourth, fifth and sixth treatments each significantly different from the control and treated nd show no significant difference compared to control ($0.05 < P$).

Effect of dietary organic acids on average daily gain of broilers during the entire period
Effect of organic acids in broiler diets on average daily weight gain (g per chick) in the early period

The results indicate that the effect of organic acids, a significant effect on average daily gain during the initial parameters of the Chickens - Meat is ($0.05 > P$). Highest mean Propionic acid treatment of 5/0% and is significantly different from the control is . The treatments were third and fourth, second and sixth and seventh. The most effective control is weak formic acid and treated with 5/0% is significantly different than control ($0.05 > P$).

Effect of dietary organic acids on average daily gain in growing chicks

comparison of the mean treatment difference was not significant ($0.05 < P$). The highest average obtained from propionic acid 3/0% and no significant differences were observed using formic acid out and minimum 3/0 per cent.

Effect of dietary organic acids on average daily gain per chick final period

The test results show that organic acid, a significant effect on average daily gain value parameters are in the final period ($0.05 > P$). The highest average supplement the Salgard 5/0% and is significantly different than control. After the third and sixth, fourth and fifth and control treatments and treatments with formic 3/0% of the effect is weak .And not significantly different from controls ($0.05 < P$). The third, fourth, fifth and sixth treatments and no significant differences compared to control ($0.05 < P$).

Effect of dietary organic acids on average daily gain per chick from zero to 42 days

The results of the comparison show that treatment means that are significantly different ($0.05 > P$). The highest average of supplement Salgard 5/0% and differed significantly from controls and after treatment, fifth, third and sixth, fourth and control quartiles and treated with formic acid 3/0% weak most effective and mean ing with no controls ($0.05 < P$). Third, fourth and fifth and sixth treatments show a significant difference compared to control ($0.05 > P$).

Effect of organic acids on the average intake in

The average dietary intake of organic acids Hrvjh (g per chick) in the early period

The results of the comparison of the mean treatments were not significantly different ($0.05 < P$). The highest average supplement the Salgard 5/0 percent. This treatment is not significantly different than control. Lowest mean Propionic acid treatment of 3/0% and no significant difference between treatments was significant and not be seen.

The average feed consumption per chick Asrasydhay organic diets (g per chick) in the period

The results show that treatment means that are significantly different ($0.05 > P$). The highest average supplement the Salgard 3/0 per cent. This treatment did not show any significant difference in comparison to ($0.05 < P$). Formic acid is the smallest out of the 3/0% and is significantly different than control ($0.05 > P$).

Effect of dietary organic acids on average feed consumption per chick (g per chick) in the final period

The results of the comparison of the mean treatments were not significantly different ($0.05 < P$). The highest average of the control and treatment after the third quarter, fifth, and sixth are at least supplement Salgard out of 5/0 percent and is no significant difference between treatments.

Effect of dietary organic acids on feed conversion ratio of chickens per week

Effect of dietary organic acids on feed conversion ratio of chickens in 7 days

The results show that is a significant difference of treatment means ($0.05 > P$). Highest out of complemented Salgard 5/0% and not significantly different from controls ($0.05 < P$). After the second treatment, and control are the third and fourth and sixth. Lowest mean Propionic acid treatment of 5/0 percentage is not significantly different from controls ($0.05 < P$).

Effect of dietary organic acids on feed conversion at 14 days

The results show that treatment means are not significantly different ($0.05 < P$). Highest out of complemented Salgard 5/0% and then in the second, third, fourth and fifth treatments and lowest mean obtained Salgard 3/0 per cent.

Effect of dietary organic acids on feed conversion ratio of chickens in 21 days

The results indicate that the effect of organic acids have significant effects on feed conversion value is 21 days ($0.05 < P$). The comparison of the mean showing the greatest effect on the control of numerical FCR at 21 days, and then the second, fourth, fifth and sixth treatment is. Formic acid treatment, the mean minimum 5/0 percent.

Effect of dietary organic acids on feed conversion ratio of chickens in 28 days

The results show that Do not be a significant difference in treatment means ($0.05 < P$). Baatryn out of control and then the second, fifth, seventh, fourth and sixth treatments are. The average minimum Tymarasydfrmyk 5/0 is the percent . This is a significant difference compared to control treatment.

Effect of dietary organic acids on feed conversion ratio of chickens in 35 days

The results show that treatment means that are significantly different ($0.05 > P$). Fifth and seventh treatments showed significant differences in comparison to ($0.05 > P$).

Effect of dietary organic acids on feed conversion ratio of chickens in 42 days

The results of the comparison showed that average feed conversion at 42 days of treatment means were significantly different ($0.05 > P$). Highest out of control and then the second, fourth and sixth, fifth and third treatments are. The average minimum supplement Salgard 5/0 percent. This treatment is a significant difference compared to control ($0.05 > P$). Second and fourth treatments were not significantly different compared to control ($0.05 < P$).

Effect of dietary organic acids on feed conversion ratio of chickens in

Effect of dietary organic acids on FCR during the starter

The results showed that the mean conversion ratio in the initial period of treatment means were significantly different ($0.05 > P$). Highest out of complemented Salgard 5/0% and did not show significant differences compared to control - does. Control and then the second and sixth, fourth and third is located. Lowest mean Propionic acid treatment of 5/0% and is significantly different from the control ($0.05 > P$).

Effect of dietary organic acids on growth, feed conversion period

The results of the comparison showed that the mean FCR in grower treatments were not significantly different ($0.05 < P$). And the minimum value obtained from formic acid, 5/0% and no significant difference be witness ($0.05 > P$).

Effect of dietary organic acids on feed conversion in the final period

The results of the comparison of treatment means that is a significant difference ($0.05 > P$). The highest average obtained from formic acid 3/0% and not significantly different from the control to ($0.05 < P$). Then there is the third, fifth, fourth and sixth treatments Shahdv. The average minimum supplement Salgard 5/0% and significantly different from the control to show ($0.05 > P$).

Effect of organic acids in broiler diets on average daily feed intake (g per chick) of the Week - of the entire course

Effect of organic acids in broiler diets on average daily feed intake (grams per Hrvjvh) from zero to 7 days

The results of the comparison of the mean daily intake in the first week of treatment means showed that the difference was not significant ($0.05 < P$). The highest average supplement the Salgard 5/0 percent. The treatments are second and third and fifth and sixth control. The lowest average obtained Asydrpvpyvnyk 3/0 per cent.

Effect of organic acids in broiler diets on average daily feed intake (grams per Hrvjvh) from 8 to 14 days

The results of the comparison of the mean daily intake during the second week of treatment means showed that the difference was not significant ($0.05 < P$). The highest average supplement the Salgard 5/0% and can not show significant differences compared to control ($0.05 < P$). Then control and are the fourth and fifth, second and sixth. The lowest average obtained from formic 5/0 percent.

Effect of organic acids in broiler diets on average daily feed intake (grams per Hrvjvh) from 15 to 21 days

The results of the comparison of the mean daily intake in the third week of treatment means showed that the difference was statistically significant ($0.05 > P$). The highest average supplement the Salgard

3/0% of control and then has the third and fourth, fifth and seventh. The lowest average obtained from formic acid 3/0% and showed no significant difference in comparison to .

Effect of organic acids in broiler diets on average daily feed intake (g per chick) from 22 to 28 days

The results of the comparison of the mean daily intake in the fourth week of treatment means showed that the difference was not significant ($0.05 < P$). The highest average obtained from propionic acid, 3/0% and then treatments V and VI, and VII are second and third. Out of control is minimal.

Effect of organic acids in broiler diets on average daily feed intake (g per chick) from 29 to 35 days

The results of the comparison of the mean daily intake in the fifth week of treatment means showed that the difference was not significant ($0.05 < P$). The highest average supplement the Salgard 5/0% and showed no significant difference in comparison to ($0.05 > P$). After the third, fifth, fourth and sixth treatments and controls are located. formic acid treatment, the average minimum 3/0%, which is not significantly different than control ($0.05 < P$).

Effect of organic acids in broiler diets on average daily feed intake (g per chick) from 36 to 42 days

The results showed that the mean DMI in the sixth week of treatment means were significantly different ($0.05 > P$). Lowest out of complemented Salgard 5/0% and no significant difference in comparison to the . The third, fourth, fifth and sixth treatments were significantly different than the control.

Effect of organic acids in broiler diets on average daily feed intake (g per chick) from zero to 42 days

The results of the comparison of the mean daily intake from zero to 42 days of treatment means showed that the mean difference was not significant ($0.05 < P$). The highest average was in the control treatment and subsequent treatments are the fourth and second and third and fifth and sixth. The average minimum supplement Salgard 5/0.

Effect of organic acids in broiler diets on average daily feed intake (g per chick) in the period-different

Effect of organic acids in broiler diets on average daily feed intake (g per chick) in the period

The results of the comparison of the mean daily intake during the growth period indicating that the mean difference between treatment means - do you have ($0.05 > P$). The highest average obtained Salgard 3/0% and did not show significant differences compared to control ing to ($0.05 < P$). Control and then the third, fourth and fifth, and the seventh is located. The lowest average obtained from formic acid / 3 is 0 percent . These treatments were compared with control means that ($0.05 > P$). Significant difference compared to control treatments can be.

Effect of organic acids in broiler diets on average daily feed intake (g per chick) at end of period

The results of the comparison of the mean daily intake in the final period indicating that the treatment means are not significantly different ($0.05 < P$). Highest out of control and then the fourth, fifth, third and sixth treatment is. The average minimum supplement Salgard 5/0.

Effect of dietary organic acids on broiler performance efficiency factor of the Week

Effect of organic acids in broiler diets on performance efficiency factor of 7 days

The results of the comparison factor at the end of the first week performance represents the mean There is a significant difference between treatments ($0.05 > P$). Highest mean Propionic acid treatment of 5/0% and is significantly different from the control. Then the third, fourth and sixth treatments and control is second. Three treatments are significantly different from the control are . II-VI compared to control treatments did not differ significantly be ($0.05 < P$). The average minimum supplement Salgard 5/0%, which is not significantly different in ing.

Effect of dietary organic acids BrfaktvrMlkrdjvjh performance in 14 days

The results of the comparison factor out sometime in the second week of treatment means that There was no significant difference ($0.05 < P$). The highest average number of treatments Asydprvpyvnyk 5/0 percent. The lowest average obtained from formic 5/0 percent.

Effect of dietary organic acids on performance factors Mikrdvjh in 21 days

The highest average number of treatments Asydrpvpyvnyk 3/0% and significantly different from the mean There is a (0.05> P). After the treatments, third, fifth, sixth and seventh second. Out of control is minimal. Four treatments were significantly different compared to other treatments except they do not show.

Effect of dietary organic acids on the performance of broilers at 28 days of invoice

The results of the comparison of the mean performance factor at the end of the fourth week of treatment means that There was a significant difference (0.05> P).

Effect of dietary organic acids on the performance of broilers at 35 days of invoice

The results of the comparison factor at the end of the fifth week of the treatment means with significant differences you can be (0.05> P). The highest average of formic 5 / 0 % of the controls showed significant differences of the mean to . After the treatment is second , sixth and seventh , fifth and fourth. Fourth , fifth, sixth and seventh treatments than control means that ing . Out of control is minimal .

Effect of dietary organic acids on the performance of broilers at 42 days of invoice

The results of the comparison factor at the end of the sixth week showed a significant difference between treatments in the mean you can be (0.05> P). Highest out of complemented Salgard 5 / 0 % , which is significantly different from the mean ing . After the third and sixth , fourth and fifth treatments were located . The third , fourth , fifth and sixth treatments were significantly different than control stood resort . Formic acid is the smallest out of the 3 / 0 % is not significant compared to the control means (0.05<P).

Effect of organic acids on weight of carcass components of broiler chickens in 42 days

Effect of dietary organic acids on weight

The results showed that organic acids , had a significant effect on the parameters of broiler live weight (0.05> P). Fifth and seventh largest in terms of number of treatments on body weight , and this difference was statistically significant . The treatments were third and sixth , fourth and first . Most of the treatments showed a weak . This treatment can not show a significant difference compared to control .

Effect of organic acids on carcass weight

The test results show that the effect of organic acids had no significant effect on carcass parameters in the ordained (0.05> P). The highest average obtained Asydrpvpyvnyk 5 / 0 percent. This represents a significant difference compared to control treatment to . After the third and sixth , fourth and seventh treatments first place . Most of the second treatment of the weak and does not show a significant difference compared to control (0.05<P).

Effect of organic acids on weight bench

The results indicate that the effect of organic acids had a significant effect on the weight of the chicken breasts (0.05> P). Mean - treated with propionic acid obtained show that 0/5% of the numerically greatest effect on the weight of the chicken breasts , and this difference was statistically significant (0.05> P). The lowest average obtained from formic acid 3 / 0 % and no significant difference compared to control .

Effect of organic acids on weight wing

The results indicate that the effect of organic acids , chicken wings had a significant effect on the amount of weight (0.05> P). The comparison showed that treatment with formic acid, 5 / 0% had the greatest impact on weight Bal though this difference was not significant compared to control . The lowest average obtained Asydrpvpyvnyk 3 / 0 per cent.

Effect of organic acids on femur weight

The results indicate that the effect of organic acids had a significant effect on the weight of chicken thighs (0.05> P). The highest average obtained from formic acid / 5 is 0 percent .And represents significant difference compared to (0.05> P). the most effective treatment to the poor . Tima propionic acid, 5 / 0 % compared to the control group , showing significant difference to .

Effect of organic acids in broiler diets on weight in 42 days chick inner

Effect of organic acids on liver weight

The results indicate that the effect of organic acids have significant effects on the liver weight of broiler chickens (0.05> P). The highest average supplement the Salgard 5 / 0 percent. Show significant differences in comparison to . The most effective control of the weak to .

Effect of organic acids in cecal weight

The results indicate that the effect of organic acids had no significant effect on cecal weight (0.05<P). Salgard supplement 5 / 0 % of the cecum was numerically greatest impact on weight .Although this difference was not statistically significant (0.05<P). Weak - represent the most effective control of that .

Effect of organic acids on small intestinal weight

The results indicate that the effect of organic acids had no significant effect on the weight of the small intestine (0.05<P). Treated with formic acid, 5 / 0 % of the small intestine was numerically greatest impact on weight , although this difference was not statistically significant . The lowest average obtained from formic acid 3 / 0 .

Effect of dietary organic acids on percentage of carcass components of broiler chickens in the end

Effect of organic acids on carcass

The results indicate that the effect of organic acids had no significant effect on net carcass value (0.05<P). Treated with formic acid, 5 / 0 % of the numerically greatest impact on net carcass , even though this difference was not statistically significant . Formic acid is the smallest out of the 3 / 0 per cent.

Effect of organic acids on breast

The results indicate that the effect of organic acids had a significant effect on the amount of chicken breast (0.05> P). The mean Propionic acid treatment showed that 5 / 0 % of the numerically greatest impact on breast of chicken , and this difference was statistically significant . The lowest average obtained from formic acid 3 / 0 % and no significant difference compared to control .

Effect of organic acids on the wing

The results indicate that the effect of organic acids had no significant effect on the value of Wings (0.05<P). Treated with formic 5 /0% more effective in terms of the number of wings , even though this difference was not statistically significant . The lowest mean Propionic acid 3 / 0 % , which is significantly different from the control is .

Effect of organic acids on hip

The results indicate that the effect of organic acids , broiler chicken thighs significant effect on the value of the (0.05> P). Highest ratio of formic Tymarasyd 5 / 0 % and is significantly different than control . The most effective treatment for weak propionic acid 3 / 0 has a percentage not significantly different from controls .

Effect of dietary organic acids on components of internal organ broiler chickens

Effect of organic acids on the percentage of liver

The results indicate that the effect of organic acids had no significant effect on the amount of liver (0.05<P). Other complementary treatments Lgard 5 / 0 % of the numerically greatest impact on the percentage of the liver . The difference is significant . The most effective control is weak

Effect of organic acids on cecal

The results indicate that the effect of organic acids had a significant effect on the value of the cecum (0.05> P). Highest ratio of formic acid treatment of 3 / 0 % and there was significant difference compared to control . The most effective treatment for weak propionic acid 3 / 0 % and there was significant difference compared to control.

Effect of organic acids in the small intestine

The results indicate that the effect of organic acids had no significant effect on the amount of the small intestine (0.05<P). Treated with formic acid, 5 /0% more effective in terms of the number of the small intestine , although this difference was not statistically significant . Other complementary treatments Lgard 3 / 0 % of the effect is weak .

Effect of dietary organic acids on duodenal pH at the end of broiler chickens

Effect of dietary organic acids on duodenal mean pH at the end

The results of the comparison of the mean duodenal pH represents the mean treatment difference was statistically significant (0.05> P). High pH treatments of formic acid 3/ 0 % and no significant difference compared to control .The lowest pH of propionic acid, 5 / 0 percent. Propionic acid -treated 5 / 0 % compared to the control groups was not significant .

CONCLUSION

Population of bacteria found in the intestinal addition of organic acids on microbial populations, total aerobic bacteria, total microbial population of bacteria form microbial population of bacteria and microbial population of lactobacillus bacteria, means of statistically significant on the left ($5 \ 0/0 > P$).

However, the addition of organic acids by bacteria means of producing lactic acid did not have a statistically significant ($P > 0.05$).

In addition, the performance parameters and carcass characteristics were studied ($P > 0.05$). And no significant effect on meaning weight gain and average daily gain during the growing period did not grow ($P > 0.05$).

The results showed that the addition of organic acids no significant effect on average daily feed intake and average growth during the third week and sixth week, average daily feed intake and average daily feed intake during growth ($P > 0.05$). And no significant effect on the meaning feed intake during the opening and closing and average daily feed intake during the first week, second week, third week, the fifth week and average daily feed intake and average daily opening and closing during the entire period have not ($P > 0.05$).

The addition of organic acids no significant effect on feed conversion at 7 days, 35 days and 42 days and FCR during the starter and has the final period ($P > 0.05$). no significant effect on feed conversion at 14 days, 21 days, 28 days and has been growing in the FCR ($P > 0.05$).

The addition of acid no significant effect on the organics in the efficiency factor of 7 days, 28 days, 35 days and have 42 days ($P > 0.05$). And no significant impact on the efficiency factor functioning in 14 days and have 21 days ($P > 0.05$).

Also on carcass characteristics was observed that the addition of organic acids significantly of on the value of broiler chicken live weight and carcass weight, breast weight, wing weight, thigh weight, liver weight, and percentage of cecum (the weight cecum to body weight) and percentage of thigh and chest and had duodenal pH ($P > 0.05$). And no significant effect on weight cecum and small bowel weight and percent of carcass and wings, and the percentage of liver and small intestine did not ($P > 0.05$).

Since the use of organic acids and complement to Salgard positive impact on the overall average weight gain, feed conversion, as well as the whole course, the effectiveness factor at the end of the performance period, pH of duodenal contents, carcass weight, breast weight, wing weight, thigh weight, liver weight, percent cecum, percent thigh, the percentage of the breast. Also have a positive impact on population levels of lactobacilli bacteria populations of bacteria Akvlay - overall population of bacteria form aerobic bacterial populations found. So we hope that we can apply acids and organic supplements can improve Salgard the performance, carcass characteristics, and the pH of the duodenal contents. Beneficial bacteria also increases and decreases bacteria are harmful. Can use acids - organic dietary supplements Salgard as an additive effect on maize - soybean said.

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