

Efficacy Of Synergistic Drug Mixtures In The Mixed Process Of Eimeriosis And Colibacillosis In Chickens

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Abstract – The effectiveness of ferulene isolated from the plant *Ferula assototidae* in the treatment of eimeriosis and colibacillosis in chickens, as well as preparations-premixes of phenytoin and phencid with a synergistic mixture of antibiotics for the treatment of mixed diseases, chicken conservation, percentage live weight gain, The Eimeriosis index (EI), as well as locations that determine the degree of the invasion and the body's tolerance to Eimeriosis, have all been investigated.

Keywords – Chicken, Conservation, Live Weight, Eimeriosis, Colibacillosis, Oocyst, Immunity, Invasive Intensity, Syringe Probe, Group.

I. INTRODUCTION

Poultry farming, this is now a joint-stock company in the Republic of Uzbekistan, eimeriosis, one of the invasive diseases, colibacillosis from bacterial infections, and their co-occurrence, which aggravates the course of the underlying disease while being kept in limited liability companies, farmers, and personal subsidiary plots. As a result, many people perish, wreaking havoc on fields. These include, but are not limited to, the deaths of premature chicks, stunting of the rest, treatment costs, and so on.

Fighting Eimeriosis pathogens is a difficult task;

1. Chickens have several types of oocysts in the mucous membranes of the intestinal tract.
2. Their sensitivity levels and immunogenic properties to coccidiostatics used to treat or prevent disease also vary.
3. Pathogens multiply intensively in the intestinal mucosa, e.g: each egg of the *E. tenella* pathogen multiplies by 88 million in 13-17 days and is excreted in the feces, polluting the environment.
4. Pathogens live in an invasive environment for years. Disinfectants used against them do not work.

Today, the use of coccidiostatics to effectively control them has yielded positive results. Coccidiostatics, on the other hand, are classified into two groups: chemocoxide, sigro, avatec, and others, which alter the immune system's ability to fight the disease. Only broiler chicks are given these coccidiostatics from day one until 4-5 days before slaughter. Coccidin, iralin, amprolium, boycox 2.5%, toltrox, and other antimicrobials that have no effect on the body's immunity to the next disease.

Most hens die from colibacillosis (*Escherichia coli*), an infectious condition that causes diarrhea, dehydration, and poisoning of the body with toxins secreted by microorganisms. [8,10]

Because there are more than 180 serotypes of pathogens, each with varying levels of susceptibility to the medications used, antibiotics used to treat colibacillosis may not have the same impact in each chicken coop. Pathogens are expelled in the feces and can live for 30 days to several months, causing harm to the environment. They are used to treat them when the levels of sensitivity to antibiotics from various chemical groups have been determined.

Eimeriosis and colibacillosis are frequently accompanied with a variety of associative forms, making effective treatment challenging. In light of the foregoing, many types of medicinal plants can be found across the Republic. *Ferula assoftidae* is one among them. The components of *ferula* plants vary due to the fact that there are over 200 species. [7, 9].

Drugs synthesized from them are used to treat many human diseases. Some researchers have suggested that it could be used to treat or prevent parasitic diseases in animals and birds. In view of the above, the efficacy of Ferulen isolated from *Ferula* plant in chicken eimeriosis and its introduction into the synergistic mixture of antibiotics and vitamin premixes with chicken premixes and chicken eimeriosis and in the treatment of its associative course with colibacillosis, we aim to study the effects of disease on the susceptibility of chickens, live weight gain rates, immunity to eimeriosis in the body, and the intensity of the invasion.

Immigrants from other nations are more likely to contract Eimeriosis and colibacillosis, as well as infectious disorders, as a result of closed head cycles. In addition, viral disorders such as Marek (neurolymphomatosis), infectious laryngotracheitis, mycoplasmosis, and others are linked to Eimeriosis. As a result, it causes a variety of clinical and structural alterations in the internal organs, making diagnosis and therapeutic selection challenging.

These diseases are especially common in combination with Eimeriosis. Many scientists recommend the use of drugs in different regimens for their prevention or treatment. Including: Coxidiovit 1000 g, neomycin 30 g/ton with food for 5 days with a break for 3 days until recovery or regigoxin 125 g, tylan 600 g, vitamin C mixed with 500 g/ton of food for 5 days with a 3-day break They recommend that it be given until recovery, and coccyxol according to the same schem.

In order to overcome the above problems, the drug Ferulen derived from the plant *Ferula assoftidae*, which grows in the territory of the Republic of Uzbekistan, and synergistic compound preparations in the form of antibiotics and vitamin premixes prepared on its basis and their efficacy in the treatment of mixed conditions, and their effects on the body's immune response to Eimeriosis and the intensity of the invasion.

120 heads of rooster Loman LSL Classic chickens were brought from the Nargiza Parranda poultry farm in Samarkand region to carry out laboratory experiments and at 14 days, 6 groups of 20 heads were weighed on a normal scale, with an average live weight difference of ± 2 grams. The first of these, comparative control group chickens, was fed a diet based on a drug-free diet until the end of the experiment.

In the second group of control and untreated chickens in the control and experimental group, previously $OD_{50-75}\%$ titrated, sporadic (*E. acervulina* 12000, *E. maxima*-10000 and *E. tenella*-25000 in 1 mm³ suspension) oocysts were injected into the herd in 1 ml by syringe probe and a suspension of O₂, O₇₈, O₁₁₁ serotypes of colibacillosis pathogens was injected into the abdomen in a volume of 3 ml. They were also fed a drug-free diet during the experiment. (Group 2).

Chickens of the third experimental group were suddenly infected with pathogens Ferulen 40 mg/kg for 8-10 days, fourth, 288 mg/kg of fencidic synergistic mixture (ferulene 30 mg, chloramphenicol 188 mg, phtholazole 70 mg/kg) for 10 days, The chickens in the fifth experimental group also received 1000 mg/kg of fencidal vitamin premix for 8-10 days as soon as they were infected, and the chickens in the sixth experimental group received 500 mg/kg of chemircock for 8-10 days as soon as they became infected with eimeriosis and colibacillosis.

The efficacy of the coccidiostatics used was assessed based on the disease resistance of the chickens, the average percentage increase in live weight of the chickens at the end of the experiment, the Eimeriosis Index (EI), and the presence or absence of pathological changes in the internal organs.

On the 21st day of the experiment, D.V. Porter and S.A. Johnson and M.V. Krilov studied the number of surviving chickens re-infected with $2OD_{100}\%$ of the first infected oocyte species through a syringe probe in order to determine the extent to which the coccidiostatics used in the body's immunity to the disease determined in an improved manner.

Intensity of invasion on days 5,7,10,15, and 20, the number of oocytes in 1 g of feces GOST 25383-82 (CT CEV -2547-80) Methods of laboratory diagnosis of coccidiosis.

II. METHOD AND MATERIALS

The laboratory experiments were carried out in a special small chicken house. For the experiment, 120 one-day-old roosters of the Loman LSL Classic breed were brought from the “Nargiza Parranda poultry” farm in Samarkand region and kept for a total of 14 days. In fourteen days, they were weighed on a normal scale and formed into 6 groups, each with 20 heads. In particular, the first was a comparatively harmless clean control group, which was fed a drug-free diet until the end of the experiment. The second is a comparatively untreated control group. They were previously injected with 1 ml of a syringe probe with sperm oocysts (E. acervulina 12000, E. maxima-10000 and E. tenella-25000 in 1 mm³ suspension) with the ability to kill OD₅₀₋₇₅ and a suspension of O₂, O₇₈, O₁₁₁ serotypes of colibacillosis pathogens was injected into the abdomen in a volume of 3 ml. They were also fed a drug-free diet during the experiment. The remaining chickens in the 3-4-5 and 6 experimental groups were also infected with the same amount of Eimeriosis and Colibacteriosis pathogens and were immediately given drugs. That is, ferulene 40 mg/kg for 8-10 days (third group), fencid 288 mg/kg for 10 days (fourth group), and chickens of the fifth experimental group were also exposed to 1000 mg/kg of fencid vitamin premix for 8-10 days as soon as they were infected. Chickens in the group also received 500 mg/kg of chemirock for 8-10 days as soon as they became infected with eimeriosis and colibacillosis.

III. RESULTS AND DISCUSSIONS

The efficacy of the coccidiostatics used is assessed based on the percentage of disease survival during the experiment, the average live weight gain per 1 chick at the end of the experiment, and the Eimeriosis Index (EI).

The experiments revealed that the chickens in the experimental group Eimeriosis and colibacillosis pathogens with a dose of OD₅₀₋₇₅ for 8-10 days in the form of premixes with ferulene, fensid and fensid vitamins, as well as with the use of chemirock drugs, their safety is 60-100%. At the end of the experiment, the average live weight gain of 1 chick was 83.2%. 152.15%. 49.2%, while the anti-eimeriosis index is 122.2. 195.5. 197.4 and 121.2 points, respectively.

Chickens in the second comparatively untreated control group showed clinical signs of colibacillosis from the third day of the experiment, From the fifth day onwards, clinical signs of Eimeriosis were observed, the survival rate was 45%, and the average live weight gain per hen at the end of the experiment was 20.3%, EI-58. 0 points (Table 1).

Table 1. Specific activity of fencid synergistic mixture and fencid vitamin premix in mixed course of chicken eimeriosis and colibacillosis.

№ T/r	Name of groups	Name of drugs	Quantity (mg/kg with food)	Number of chickens in groups	At the beginning of the experiment, the average live weight of one head of chicken (gr)	Conservation (in%)	At the end of the experiment, the average live weight of 1 chick (gr)	Percent increase in live weight	EI (200 score)
1	Undamaged comparative group	-		20	120	100	311.0	159.2	200
2	Comparative control of untreated lesions	-		20	118	45	142.0	20.3	58.0

3	Experience	Ferulen	40	20	119	70	218.0	83.2	122.2
4	Experience	fensid	288	20	120	100	302.0	152.0	195.5
5	Experience	Fensid premix	1000	20	120	100	306.0	155.0	197.4
6	Experience	Chemircoc k	500	20	120	60	179.0	49.2	121.2

Effects of laboratory tests of ferulene, phencid, fencid premix, and chimeric coccidiostatics on the body's immune response to eimeriosis and on the 21st day of the experiment, all chickens in 6 groups were re-infused with a syringe probe with 2 OD₁₀₀% sporulated oocytes to determine whether or not to do so, and the results were as follows. Chickens in groups 2-6 had a 100% chance of survival without clinical signs of eimeriosis. Chickens in the first comparatively pure control group developed clinical signs of eimeriosis 4–5 days after the experiment and had a survival rate of 20% (Table 2).

Table 2. In the mixed course of chicken eimeriosis and colibacillosis, fencidal synergistic mixture and aencidic vitamin premix effect on the development of immunity to the disease in the body.

№ T/r	Name of groups	Name of drugs	Quantity (mg/kg with food)	Number of chickens re-infected	Number of chicks killed by Eimeriosis	Conservatism (in%)
1	Undamaged comparative control	-		20	16	20
2	Damaged comparative control	-		7	-	100
3	Experience	Ferulen	40	14	-	100
4	Experience	Fensid	288	20	-	100
5	Experience	Fensid premix	1000	20	-	100
6	Experience	Chemircoc k	500	12	-	100

In order to study the effects of ferulene, fencid, fensid premix- and chemircoc drugs used in the experiment on the intensity of the invasion, the average number of oocysts in 1 g of feces on days 5-7-10-15 and 20 of the experiment was determined by Goryayev's count.

Experiments and observations have shown that when groups 3,4,5,6 are given ferulene, fencid and fencid vitamin premix, chimircoc drugs with the prescribed amount of food according to the instructions, 5 days of the experiment with 1 g of waste 359, 275, 227 and 597 thousand isolated oocysts. Chickens in the comparative control group that were not treated treated 928,000 oocysts with 1 g of feces (group 2).

On the 7th day of the experiment, the chicks of groups 3, 4, 5 and 6 isolated 586, 394, 351, 758 oocysts with 1 g of feces, while the chickens of the untreated comparative control group (group 2) isolated 1678 thousand.

By the 10th day of the experiment, the chickens in the 3rd, 4th, 5th, and 6th experimental groups had averaged 65, 52, 43, and 96,000 oocysts per gram of feces, and the second group had 219,000 oocysts.

On the 15th and 20th days of the experiment, chickens in the 3rd experimental group received ferulene, with an average of 10-2 thousand chickens per 1 gram of feces, and 5-1 thousand chickens in the 4th group, according to the instructions for the drug Fencid synergistic mixture, 4-2 thousand chicks with phencidic premixes and 7-2 thousand oocysts with 1 gram of feces were separated from the external environment (Table 3).

Table 3. Effect of fencid and fensif premix drugs on the intensity of invasiveness in the chemoprophylaxis of associative course of chicken eimeriosis and colibacillosis.

№ T/r	Name of groups	Name of drugs	Quantity (mg / kg with food)	Number of chickens in groups	Conservatism (in%)	Intensity of invasion (thousand oocysts in 1 g of feces)				
						Inspection dates				
						5	7	10	15	20
1	Undamaged comparative control	-		20	100	-	-	-	-	-
2	Damaged comparative control	-		20	45	928	1.678	219	8	4
3	Experience	Ferulen	40	20	70	359	586	65	10	2
4	Experience	Fensid	288	20	100	275	394	52	5	1
5	Experience	Fensid premix	1000	20	100	227	351	43	4	2
6	Experience	Chemirock	500	20	60	597	758	96	7	2

High efficacy is achieved through the use of coccidiostatics for the prevention and treatment of chicken pox.

Eimeriosis in chickens was often associated with colibacillosis, making treatment of the underlying disease difficult. Therefore, ferulen from *Ferula asofotidae*, which grows in the Republic of Uzbekistan, is highly effective in chicken eimeriosis, but has no effect on colibacillosis. Given the urgency of the problem, the preparation of a synergistic mixed phencidic drug with antibiotics based on Ferulen for the prevention of both diseases and 8-10 days with 288 mg/kg of food for therapeutic purposes, the survival rate of chicks reached 100%, live weight gain 152.0% and EI -195.5 points. It reduced the intensity of the invasion by 4-5 times without adversely affecting the body's immunity to the disease. In order to treat or prevent both diseases at the same time, cochicol, colic, and colic oxide synergistic mixtures have been shown to be as effective in treating the associative course of eimeriosis and colibacillosis [2, 3, 4, 5, 6].

IV. CONCLUSION AND RECOMMENDATIONS

Based on the results of laboratory experiments, it is concluded that preparations containing premixes of fencide and fenside vitamins premixes in chickens and *Clibacteriosis* increased the survival rate to 100% in the mixed course, and the average live weight gain per hen at the end of the experiment increased by 152.0-155.0% to EI-195.5 and 197.4 points. It does not adversely affect the body's immune system against Eimeriosis. Reduced the intensity of the invasion by 4-5 times. Ferulen and chemococcus act only positively on eimeriosis and have no effect on colibacillosis. Given the high efficacy of ferulen-based fencid and fencid premix-type antibiotic, vitamin synergistic compound in the associative course of eimeriosis and colibacillosis, it can be used in the poultry sector for the prevention and treatment of these diseases.

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