

Comparative Experimental Study Between Efficacy Of Coccivac –B Vaccine Versus Diclazuril As Preventive Measure Against Coccidiosis In Broiler chickens

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ABSTRACT

Two hundred, one day old chicks (Hubbard breed) were divided into four groups each 50 chicks. Each group was reared on deep litter in separate pens. The first group is a blank (negative control), the second group received Coccivac – B vaccine in one day old intraocularly, the third group medicated with Diclazuril 0.55%, vaccinated, medicated and infected group was challenged via intracrop route at the 3rd week of age by a field strain of *Eimeria tenella* at a dose of 50,000 sporulated oocysts / chick (LD₅₀). Five chicks from each vaccinated, medicated and the fourth gp. infected only were sacrificed at days 3rd, 5th and 7th PI. The Criteria for evaluation were 1) clinical signs, 2) droppings score, 3) shedded oocyst / gm litter, 4) mortalities, 5) mean lesions score, 6) histopathological examination, 7) performance (mean body weight, mean weight gain, feed intake and feed conversion ratio).

The results revealed that both vaccinated and medicated groups exhibited better results considering all the evaluation criteria .Both groups showed no mortalities, reduced clinical signs, droppings scores and cecal lesion scores of *E. tenella* infection as well as significantly lowered the number of shedded *E. tenella* oocysts per gram of litter, reduced histopathological lesion scores and showed high mean body weight gain, better feed conversion rate in comparing with control group. On the other hand, the vaccinated group showed significant results than the other groups at 3rd, 5th and 7th day PI besides better FCR. on the contrary, better feed intake and mean live body weight gain were recorded in the medicated group.

INTRODUCTION

Coccidiosis is a disease of almost universal importance in poultry production. The protozoan parasite of genus *Eimeria* multiplying in the intestinal tract and cause tissue damage resulting in interruption of feeding and digestive processes or nutrient absorption, dehydration, blood loss and increased susceptibility to other disease agents. It is generally accepted all over the world that coccidiosis in chickens is considered the most important parasitic disease which threatens poultry rearing in general especially under intensive production methods (1). Commercially chicken flocks free from coccidia are extremely rare (2). Therefore, the use of coccidiostats has been considered the best and effective means of controlling the problem and consequently minimizing severe economic loses. Resistance of coccidia has developed to all of the anticoccidial drugs introduced so far (3); there are concerns about drug residue in poultry products. (4,5). In fact, recent regulatory controls by the European Union have already forced the withdrawal of

several brands of anticoccidial drugs commonly used in broiler shuttle programs (6). Therefore, there is a pressing need to move away from chemotherapeutic control of coccidiosis towards vaccination. While anticoccidial vaccine have been used for valuable broiler breeder stock for some years, these recent withdrawal and the cost of coccidiosis in the broiler market make the need for vaccines especially the developed for meat birds more urgent .

The present study was aimed to compare the efficacy of an anticoccidial vaccine versus to Diclazuril for prevention of broiler coccidiosis besides their effect on performance parameters under experimental conditions.

MATERIAL AND METHODS

1. Experimental chicks

Two hundred, one day old chicks (Hubbard breed) had been obtained kindly from Cairo Poultry Company were used in this study.

2. **Ration:-** has been obtained kindly from Cairo Poultry Company.

3. **Anticoccidial drug:- Diclazuril (0.55%) (Curacoxin®)** BatchNO.806/55. White powder premix produced by ARABCOMED(Arab Company For Medical Products), each 1000 grams contained 5 grams Diclazuril, added to the feed at level of 40 gm / 100 kg feed (2 ppm /kg feed) according to (7).

4. **Vaccine:- Coccidiosis vaccine (Coccivac - B ®):-** It is a live oocysts vaccine for broiler vaccination and comprised four species of the wild type of Eimeria species (*E. acervulina*, *E. mivata*, *E. maxima*, *E. tenella*) (Schering Plough Animal Health Corp. Millsboro, Delaware, USA). Coccivac-B was administrated to chicks at 1st day of age through eye drops. Manufacture date: 13 Feb 2010.Expiray date: 13 Feb 2011.Batch no: 94300022.

5. Samples

a. Dropping samples

One hundred and forty dropping samples were collected from the four groups of the experiment for detection of oocyst in dropping.

b. Litter samples

One hundred and forty litter samples were collected from the four groups of the experiment for counting oocyst in litter.

c. Intestinal samples

Freshly dead and sacrificed chicks were collected from the groups of the experiment for P.M examination, recording lesion scores of suspected coccidiosis as well as determination of any developmental stages of different *Eimeria* species.

d. Tissue samples

Cecal tissue samples were used for recording of histopathological lesion scores.

6. **Challenge strain:** A local strain of *E.tenella* was isolated from outbreaks of broiler coccidiosis and identification based on site of infection, pathognomonic lesions and shape of oocysts (8) and used for challenge

test at a dose of 50,000 sporulated oocysts / chick (LD₅₀ (9)).

7. **Direct wet smears and concentration floatation technique:-** Was carried out for diagnosis of coccidiosis(10) .

8. The Evaluation Criteria

The Evaluation Criteria were observed as the following:

a- Recording of Clinical signs and dropping score (11) (from + to +++), Counting of the shedded oocysts / gm litter (12), Daily mortalities and Recording of lesion scores (13) (from + to ++++) and Histopathological examination and histopathological lesion score (14) (from + to ++++)

b- Performance: - it was carried out by (15).

- Mean body weight = gross live weight of birds ÷ total number of birds.

- Average weight gain per bird = average final weight of live birds in a pen – average initial weight of all birds in that pen.

- Feed consumption or intake per bird = total feed consumed ÷ total number of birds

- Feed conversion rate = feed consumption ÷ average weight gain.

9. **Counting of Eimeria Oocysts using McMaster technique :** The technique was carried out for counting of oocysts per gm litter (12), in the dropping (10) and in suspension (per ml) (9).

10. **Experimental design:-** Two hundred day old chicks were randomly divided into equal four groups each of 50. The chicks were housed in completely separated pens which previously disinfected, good lightened, Watering of all chick groups ad libitum. All chicks were vaccinated against ND,IB,AI and IBD following the vaccine manufacturer's instructions. The experimental four chick groups were treated as follow:

Blank group: Fed on commercial balanced ration without feed additives from day old

till 42 days of age and kept as negative control (gp.1).

Vaccinated group: Vaccinated with Coccivac - B (anti-Coccidial vaccine) at day old of age via eye drop instillation and fed on commercial balanced ration without feed additives from day old till 42 days of age.(gp.2)

Medicated group: Fed on ration medicated with Diclazuril 0.55 % (Curacoxin®) at 2ppm (20gm/50kg) in ration continuously from day old till 42 days of age.(gp.3)

Infected group (positive control group) Fed on commercial balanced ration without feed additives from day old till 42 days of age and kept as positive control.(gp.4)

Gp 2, 3 and 4 were challenged via intra crop route with local isolate of *E.tenella* at a dose of 50,000 sporulated oocytes / chick (LD50) at 21st day of age .

At 3rd, 5th, 7th days P.I, five chicks were sacrificed from each experimental group to record the lesion score (0-4) and mean lesion score was calculated.

11. Statistical analysis: Statistical analysis was performed with the statistical package SPSS © (Statistical Package for Social Sciences) version 16.0. SPSS (originally Statistical Package for the Social Sciences) was released in its first version after being developed (16).

RESULTS AND DISCUSSION

1.Clinical signs and dropping score: Results illustrated in Table 1, Fig 1-3.

Our results revealed that, in the infected group the clinical signs and the dropping scores started at the 4th day post-challenge, reached the peak at the 6th and 7th day (+++ for each) then subsided till the 10th day (+ for each) and disappear from the 11th till the 14th day post-challenge.

In the medicated group, the clinical signs and the dropping scores started at the 4th day post-challenge, reached the peak at the 6th day (+++) then subsided till the 9th day (+ for each) and

disappear from the 10th till the 14th day post-challenge.

In the vaccinated group, the clinical signs and the dropping scores started at the 4th day post-challenge (+ for each), and continue without increase in the severity till the 7th day post-challenge and disappear from the 8th till the 14th day post-challenge. The severity of clinical signs and the value of dropping score were reduced in this group comparing with that observed in medicated group and infected group.

Meanwhile both vaccinated and medicated groups exhibited lesser severity and duration of clinical signs and lowered dropping score than that of infected group. Although there is no available literature to explain our finding, we could suggest that the chicks in vaccinated group which received Coccivac -B vaccine developed a kind of immunity that protects the chicks against challenge.

2. Oocysts count:- The results illustrated in Table 2.

we revealed that both vaccinated group (vaccinated with Coccivac-B), medicated group (medicated with Diclazuril 0.55%) didn't prevent shedding of oocysts and mean of shedded oocysts in vaccinated group are (921oocyst/gm. of litter), medicated group (5527oocyst/gm. of litter) and infected group (11976 oocyst/gm.of litter) from 7th day till 14th day P.I, which mean that both vaccinated group and medicated group reduced oocysts count versus to control group .

Our results concluded that, vaccinated group greatly reduced oocysts count versus to medicated group from 7th day till 14th day P.I.

Pre-challenge results proved that vaccinated gp. showed two peaks of oocysts production ,1st one was at 9th day of age and 2nd one was at 20th day of age that can be explained by recycling of *Eimeria* and building up of the immunity. This results are similar with that recorded previously (17). Post-inoculation there was a single peak of oocysts production at 10th day post-challenge in vaccinated group, medicated group and infected group. Statistically, there was a significant difference in daily oocyst counts from 7th day till 14th day P.I

between vaccinated group, medicated group and infected group, as highest number of mean oocysts was recorded in control positive group (infected group), the lowest number of oocysts production was recorded in vaccinated group. In general our results proved that, vaccinated birds exhibited significant reduction in number of mean shedded oocysts. This results can be explained by developing of early immunity in the vaccinated birds as a result of early vaccination (17). It has been recorded that number of shedded oocysts was very low in vaccinated gp. compared with medicated gp. (18). On the other hand, other study (19) showed that the number of shedded oocysts was very low in medicated gp. compared with vaccinated gp. and the peak of oocysts production in vaccinated gp. was at 9th day P.I but for medicated gp. was at 11th P.I, that could be claimed to the using of different type of vaccine (paracox) and different breed of broiler (Ross).

3. Mortalities and Mean lesion score:- The results illustrated in Table 1 and Fig. 4-7

Showed that no mortalities were recorded among chickens of gp.1,2 and 3. on the other hand, a total of 12 out 35 chickens were died in group 4 with a percentage of 34.2% (the mortalities started at the 5th day till the 9th with a mortality pattern of 2,4,3,2,1)

The mean lesion score in sacrificed birds in vaccinated group was 0,1 and 1 at 3rd, 5th and 7th days P.I., while in medicated group was 0,1 and 2 at 3rd, 5th and 7th days P.I. On the other hand, the mean lesion score in the dead birds of infected group were 3,4,4,2 and 1 at 5,6,7,8 and 9 days P.I. These results proved that both Coccivac-B and Diclazuril greatly reduced the recorded mean lesion score in vaccinated group and medicated group compared with that of the non-treated infected group. Meanwhile, vaccinated group showed lower mean lesion score than that of medicated group.

The results of mortalities revealed that, blank group (non-infected), infected vaccinated group and medicated group showed no mortalities from *E. tenella* infection comparing with control group (mortality rate 34.2%). Coccivac-B significantly reduced the mean cecal lesion score post

challenge with *E. tenella* sporulated oocyst (20). On contrary, it has been recorded mortalities for both vaccinated and medicated groups (21). Vaccinated gp. showed lower mortalities than medicated group.

The results of mean lesion score revealed that, blank group (gp.1) gave mean lesion score 0.0 in comparing with challenged vaccinated, medicated groups and infected group. Our results proved that, both vaccinated group and medicated group reduced mean lesion score of *E. tenella* infection than infected group, infected non-medicated non-vaccinated control group. Our results concluded that, vaccinated group reduced mean lesion score more than medicated group. In control of Avian coccidiosis study also showed that vaccinated gp. decreased lesion score in comparing with medicated one (21).

4. Histopathological examination: Results are illustrated in Table 3 and Fig. 8-11.

Histopathological lesion score expressed by the following parameters (mucosal degeneration, developmental stages of parasites embedded in mucosal epithelium, edema in lamina propria, inflammatory cells infiltration in lamina propria, and hemorrhage in lamina propria). each parameter score was from 0-4 (Table 3).

We observed that infected group exhibited the most severe histopathological changes followed by medicated group then vaccinated group.

Study for evaluation of Coccivac-B and Sacox for control of *Eimeria* in broiler showed that medicated gp. exhibited lower histopathological lesion score than that of the vaccinated gp. and both are lower significantly than that of non-treated challenged gp. to explain the reasons of such disagreement, we could suggest that the difference in the used drug, breed of experimental birds and strain of the challenge *E. tenella* (20).

The histopathological results revealed that: vaccinated group showed lesser histopathological lesion score and mild inflammatory changes in comparing with medicated group. Meanwhile, both group exhibited lesser lesion score and inflammatory

changes in comparing with positive control group. All experimentally infected or challenged groups showed lesser histopathological lesion score as well as inflammatory changes comparing with negative control group.

Performance :- Results are illustrated in Table 4

In spite of presence of numerical difference in the feed intake and Mean body weight gain between the 4 experimental groups, no significant difference till the 3rd week of life. at the 3rd week P.I (6th week of age), the feed intake and the mean body weight gain of both medicated and vaccinated groups were significantly higher than that of the infected non-treated group, on the other hand, there is no significant difference in the body weight gain between vaccinated and medicated groups in spite of the numerical difference between them toward the medicated group. Comparison between treatment with Salinomycin (22) or Ionophore (18) and vaccination revealed that medicated challenged group exhibited numerical

increase in the mean body weight than that of vaccinated challenged group but non significant.

The results of mean weight gain revealed that, both vaccinated and medicated groups have higher values than infected control group. Medicated gp. have higher values than vaccinated gp. at 3rd, 5th and 6th weeks of age while vaccinated gp. have higher values than medicated gp. at 1st, 2nd and 4th week of age. Vaccinated gp. revealed slight lower value of mean weight gain in comparing with medicated ones (Table 4). The average weight gain was higher in vaccinated gp. than medicated ones at 1st week post inoculation in a field control trial (21).

The results of feed conversion rate: At the end of the experimentation period the feed conversion ratio of the vaccinated group was better than that of the medicated group without significant difference (Table 4). Similar results were recorded during study effect of attenuated live vaccine and Ionophore for controlling coccidiosis in broilers (18).

Table 1. Clinical signs, mortalities, droppings score (0-3) and mean lesion score from 1st day till 14th day P.I:

Group Day P.I	Gp.1 (negative control group)					Gp.2 (vaccinated with coccivac-B)					Gp.3 (medicated group with diclazuril 0.55%)					Gp.4(positive control group)				
	M.	Cl.S	D.S	M.L.S	M.S	M.	Cl.S	D.S	M.L.S	M.S	M.	Cl.S	D.S	M.L.S	M.S	M.	Cl.S	D.S	M.L.S	M.S
1 st	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2 nd	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3 rd	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4 th	0	0	0	0	0	0	+	+	0	0	0	+	+	0	0	0	+	+	0	0
5 th	0	0	0	0	0	0	+	+	1	0	0	++	++	1	0	2	++	++	3	+
6 th	0	0	0	0	0	0	+	+	0	0	0	+++	+++	0	0	4	+++	+++	4	+
7 th	0	0	0	0	0	0	+	++	1	0	0	++	+	2	0	3	+++	++	4	+
8 th	0	0	0	0	0	0	0	+	0	0	0	+	+	0	0	2	++	+	2	+
9 th	0	0	0	0	0	0	0	0	0	0	0	+	+	0	0	1	++	+	1	0
10 th	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+	+	0	0
11 th	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+	0	0
12 th	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13 th	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14 th	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

M= Mortalities. M.L.S = Mean lesion score Cl.S= Clinical signs M.S= mucosal scraping D.S= dropping score

Clinical signs : (0): no clinical signs. +: depression with ruffling. ++: depression, ruffling and off food. +++: huddling, chilling and bloody dropping. (++++): off food, bloody diarrhea and death.

Dropping score: (0): Normal droppings. (+): Few droppings were purplish or brownish in color. (++): More reddish droppings, some dropping mixed with flakes of blood. (+++): Bloody droppings, absence of normal fecal content

Lesion score: (1):- . Few petechiae, reddish or purple in color seen on serosa of ceci., Few petechiae, reddish or purple in color seen on serosa of ceci, Brownish cecal content, no thickening of the cecal wall. (2): Numerous serosal petechiae, bleeding in mucosal surface, and Slight thickening of cecal wall. (3) :- Coalesced petechiae on serosal surface of the cecum., Severe bleeding and sloughed mucosal surface, Clotting appearance in the distal end of the cecum, Marked thickened cecal wall. (4):- Cecal core with whitish castes, and absence of normal cecal contents, Marked thickened cecal wall, Gangrene and rupture of cecal wall may occur

Mucosal scraping: (0) absence of any developmental stage. (+) presence of one or more of developmental stages of E.tenella

The shaded cells represent the Mean lesion score of sacrificed birds

Table 2. Detection of shedded oocysts and its count /gm. of litter /day pre and post-challenge

Group	Days of age	Gp.1 (Blank group)	Gp.2 (vaccinated with coccivac-B)	Gp.3 (medicated with diclazuril 0.55%)	Gp.4 (control group)	
		Counted oocysts	Counted oocysts	Counted oocysts	Counted oocysts	
Pre – challenge	6 th	0	401	0	0	
	7 th	0	450	0	0	
	8 th	0	480	0	0	
	9 th	0	573	0	0	
	10 th	0	501	0	0	
	11 th	0	500	0	0	
	12 th	0	496	0	0	
	13 th	0	842	0	0	
	14 th	0	866	0	0	
	15 th	0	1205	0	0	
	16 th	0	1360	0	0	
	17 th	0	1533	0	0	
	18 th	0	1654	0	0	
	19 th	0	1747	0	0	
	20 th	0	1950	0	0	
	21 st	0	1660	0	0	
	Post – challenge	22 nd	0	1400	0	0
		23 rd	0	1266	0	0
		24 th	0	666	0	0
		25 th	0	600	0	0
		26 th	0	500	0	0
27 th		0	533	0	0	
28 th		0 ^d	795 ± 119 ^c	4770 ± 716 ^b	10335 ± 1550 ^a	
29 th		0 ^d	848 ± 127 ^c	5088 ± 763 ^b	11024 ± 1654 ^a	
30 th		0 ^d	932 ± 140 ^c	5592 ± 839 ^b	12116 ± 1817 ^a	
31 th		0 ^d	1240 ± 186 ^c	7440 ± 1116 ^b	16120 ± 2418 ^a	
32 th		0 ^d	683 ± 102 ^c	4098 ± 615 ^b	8879 ± 1332 ^a	
33 th		0 ^d	892 ± 134 ^c	5352 ± 803 ^b	11596 ± 1739 ^a	
34 th		0 ^d	1029 ± 154 ^c	6174 ± 926 ^b	13377 ± 2007 ^a	
35 th		0 ^d	951 ± 143 ^c	5706 ± 856 ^b	12363 ± 1854 ^a	
		Mean of oocysts count from 7 th till 14 th days post inoculation	0	921	5527	11976

Means with different superscripts (a,b,c,d) within the same row are significantly different at P value \leq 0.05

Table 3. Histopathological lesion score pre and post - challenge:

Time of examination	Pre -challenge									Post -challenge											
	13 th day of age			15 th day of age			17 th day of age			3 rd day post-infection(P.I)				5 th day P.I				7 th day P.I			
	Gp.1	Gp.2	Gp.3	Gp.1	Gp.2	Gp.3	Gp.1	Gp.2	Gp.3	Gp.1	Gp.2	Gp.3	Gp.4	Gp.1	Gp.2	Gp.3	Gp.4	Gp.1	Gp.2	Gp.3	Gp.4
1-Mucosal degeneration	0	+	0	0	+	0	0	++	0	0	0	++	++	0	0	+++	+++	0	+	++	++++
2-Developmental stages in mucosal epithelium	0	+	0	0	+	0	0	++	0	0	0	0	+	0	0	+++	+++	0	++	+++	++++
3-Edema in lamina propria	0	+	0	0	+	0	0	++	0	0	++	+	++	0	0	+++	++	0	+	+	+
4-Inflammatory cells infiltration in lamina propria	0	+	0	0	+	0	0	++	0	0	0	0	++	0	++	+++	+++	0	++	+++	+++
5-Hemorrhage in lamina propria	0	0	0	0	+	0	0	+	0	0	0	0	0	0	0	0	+++	0	0	0	++

Histopathological lesion score:-

- (0)Nil
- +Mild
- ++ Moderate
- +++ Sever
- (++++)Very sever

Table 4. Mean body weight (M.B.W), mean weight gain (M.W.G), feed intake (F.I) and feed conversion ratio (F.C.R) weekly pre and post challenge:

	Group		Gp.1	Gp.2	Gp.3	Gp.4
	Age / week					
Pre -challenge	1 st week	M.B.W/gm. \pm SD	151.33 \pm 6.45 ^a	147.83 \pm 7.99 ^a	147.17 \pm 8.91 ^a	148.67 \pm 7.11 ^a
		M.W.G/gm.	105.5	102.02	101.35	102.8
		F.I/gm.	178	175	180	180
		F.C.R	1.69	1.71	1.78	1.75
	2 nd week	M.B.W/gm. \pm SD	453.33 \pm 7.45 ^a	464.17 \pm 18.35 ^a	461.67 \pm 21.92 ^a	456.67 \pm 30.37 ^a
		M.W.G/gm.	302	316.33	314.5	308.00
		F.I/gm.	534	550	560	540
		F.C.R	1.76	1.73	1.78	1.76
	3 rd week	M.B.W/gm. \pm SD	883.33 \pm 62.36 ^a	855.00 \pm 54.39 ^a	875.00 \pm 62.92 ^a	896.67 \pm 45.34 ^a
		M.W.G/gm.	430.00	390.83	413.33	440.00
		F.I/gm.	801	735	765	810
		F.C.R	1.9	1.89	1.9	1.85
Post-challenge	4 th week	M.B.W/gm. \pm SD	1.40 \pm 0.05 ^a	1.3 \pm 0.05 ^b	1.28 \pm 0.04 ^b	1.15 \pm 0.04 ^c
		M.W.G/gm.	515.00	411.6	400	253.33
		F.I/gm.	900	800	750	655
		F.C.R	1.75	2.13	1.89	2.6
	5 th week	M.B.W/gm. \pm SD	2.19 \pm 0.03 ^a	1.86 \pm 0.09 ^{bc}	1.91 \pm 0.15 ^b	1.73 \pm 0.09 ^c
		M.W.G/gm.	793.33	591.6	633.3	583.33
		F.I/gm.	985	850	940	713
		F.C.R	1.2	1.43	1.48	1.22
	6 th week	M.B.W/gm. \pm SD	2.73 \pm 0.05 ^a	2.34 \pm 0.13 ^b	2.40 \pm 0.18 ^b	2.00 \pm 0.08 ^c
		M.W.G/gm.	533.33	483.3	491.67	266.67
		F.I/gm.	1340	1080	1250	1513
		F.C.R	2.5	2.23	2.5	5.3
		Cumulative M.B.W/gm. \pm SD	2.73 \pm 0.05 ^a	2.34 \pm 0.13 ^b	2.40 \pm 0.18 ^b	2.00 \pm 0.08 ^c
		Cumulative F.I/gm.	4738 \pm 398.20 ^a	4190 \pm 308.62 ^a	4450 \pm 359.67 ^a	4411 \pm 439.05 ^a
		Cumulative F.C.R	1.73 \pm 0.08 ^a	1.79 \pm 0.08 ^a	1.85 \pm 0.08 ^a	2.2 \pm 0.46 ^b



(Fig. 1)



(Fig. 2)



(Fig. 3)

Fig. 1. Broiler chickens exhibited depression, ruffling, off food and sleepy appearance from gp.4

Fig. 2. Showing brownish pasty dropping from gp.2 with dropping score 1.

Fig. 3. Showing bloody dropping from gp.4 with dropping score 4.



(Fig. 4)



(Fig. 5)



(Fig. 6)



(Fig. 7)

Fig.4. Ceci of broiler chickens (27th day of age) from gp.1 exhibited normal cecal content with lesion score 0.

Fig.5. Ceci of broiler chickens (27th day of age) from gp.2 exhibited cecal content tinged with blood and slight thickening in cecal mucosal with lesion score 2.

Fig.6. Ceci of broiler chickens (27th day of age) from gp.3 exhibited severe bleeding, sloughed mucosal surface, marked thickening in the ceca wall accompanied with coalesced petechiae on serosal surface with lesion score 3.

Fig.7. Ceci of broiler chickens (27th day of age) from gp.4 exhibited coagulated blood, thickening of cecal mucosa with lesion score 4.

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الملخص العربى

دراسة تجريبية لمقارنة فاعلية الكوكسى فاك ب و الديكلازوريل للوقاية من مرض الكوكسيديا فى بدارى التسمين

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مانتي كتكوت عمر يوم (سلالة هابرد) تم تقسيمهم الى اربع مجموعات . كل مجموعة تحتوى على خمسين كتكوت . تم تربية كل مجموعة على حدة تربية ارضية . المجموعة الاولى استخدمت كضابطة (بدون اصابة) , الثانية تم تحصينها بالكوكسى فاك ب فى عمر يوم بالتقطير , الثالثة عولجت بالديكلازوريل ٠,٥٥% و المجموعة الرابعة تمت بها العدوى فقط . تمت العدوى بالاياميريا تينيل الموزولة حقليا بجرعة ٥٠٠٠٠٠ كيبسات ناضجة \ كتكوت عن طريق الفم فى عمر ٣ اسابيع . تم ذبح ٥ كتاكت من المجاميع ٢,٣,٤ فى ايام ٣ و ٥ و ٧ بعد العدوى . معايير التقييم هى الاعراض الظاهرية , درجة الاصابة بالزررق , عدد الكيبسات لكل جرام من الفرشة , معدل النفوق , متوسط الاصابة بالافات التشريحية , و معدل الاصابة الهستوباثولوجية , معدل الانتاج (متوسط وزن الطيور اسبوعيا , معدل استهلاك العلف خلال الاسبوع لكل مجموعة , معدل التحويل) . كلا من المجموعتين التى عولمت بالتحصين او مضاد الكوكسيديا اظهرت نتائج جيدة لمعايير التقييم . كلتا المجموعتين لم تظهر اى وفيات , خفضت من الاعراض الظاهرية , معدل الاصابة بالزررق , متوسط الاصابة بالافات التشريحية , عدد كيبسات الاياميريا تينيل \ جرام من الفرشة , معدل الاصابة الهستوباثولوجية , زيادة فى متوسط الوزن , معدل التحويل مقارنة بالمجموعة الرابعة . و من ناحية اخرى المجموعة المحصنة اظهرت انخفاض واضح فى خروج كيبسات الاياميريا و فى شدة ظهور الاعراض الظاهرية , درجة الاصابة بالزررق , متوسط الاصابة بالافات التشريحية , و معدل الاصابة الهستوباثولوجية مع معدل تحويل جيد للطيور المذبوحة فى ايام ٣ و ٥ و ٧ بعد العدوى . و على العكس المجموعة التى استخدمت مضادات الكوكسيديا كانت افضل فى معدل استهلاك العلف و معدل الزيادة فى الوزن.