

**الفحص الباثولوجي للبرسافايريسى
كوسيلة لتقييم الكوكسيديوستاتس المختبرة ضد الايميريا تينيللا**

للدكتور مدحت . ا . محمد والدكتور . ك . ح . العباس والدكتورة سهر . م . سكر

الملخص

خلال اختبار درجة كفاءة الامبرول سلفاكوينوكزالين ضد عترة محلية من الايميريا تينيللا
ظهرت قيمة الفحص الميكروسكوبى لغدة فايريس كوسيلة لتقييم هذا المقار كواقف لنمو الكوكسيديا .
وقد ثبت أن للامبرول سلفاكوينوكزالين تأثير باهر ويقترح اعادة العلاج بتركيزات اقل وذلك
لتفمية المناهضة .

Alison, Hylberg, and the other people
of the village, they are very good people.

They are very good people, and they are very good people.

Alison

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of the village, they are very good people.
They are very good people, and they are very good people.
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**HISTOPATHOLOGICAL EXAMINATION OF BURSA FABRICI
AS A MEAN FOR THE EVALUATION OF COCCIDIOSTATS
TESTED AGAINST
EIMERIA TENELLA**

(with one Table and 2 Figures)

By

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SUMMARY

During testing the efficiency of Amprol sulphaquinoxaline against a local strain of *Eimeria tenella*, the value of the histopathological examination of bursa of Fabricius aroused as a mean for the evaluation of the coccidiostatic effect of the tested drug.

An excellent effect of amprol sulphaquinoxaline is proved however, a remedication with lower concentration is suggested for development of immunity.

INTRODUCTION

Treatment of coccidiosis was firstly tried using sulfur (HERRICK, OTT and HOLMES, 1936-b). These workers found however that the needed dose for the prevention of symptoms and mortality is toxic. Sulfanilamide was used later by LEVINE (1939) who found that it affects the development of five coccidial species. A series of sulfonamides were then discovered and were found effective. From these DELEPLANE, *et al.*, (1947) described the effectiveness of sulfaquinoxaline against coccidial infection. This was later confirmed by many workers (WILSON, 1950 ; HORTON-SMITH, 1951; GILL *et al.*, 1963... etc.).

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STROUT (1961) reported the excellent coccidiostatic effect of Amprolium, when he could protect chicks during the whole breeding period against different species of coccidia using a concentration of 0.004%. Mixtures of coccidiostats were then used because of the absence of a coccidiostat which presents an equal effect against all species of *Eimeria* (JOYNER, 1964). For example LONG (1963), used a mixture of amprolium and sulfaquinoxaline at the rate of 0.006% for each with a very good effect against *E. tenella*, *E. necatrix*, *E. maxima*, *E. brunetti* and *E. acervulina*. DAVIES and JOYNER (1963) added vitamin K to that mixture at the rate of 0.003125% amprolium, 0.00196% synthetic vitamin K and 0.008% sulfaquinoxaline.

This work was planned to investigate the effectiveness of amprol sulfaquinoxaline* against local strain of *Eimeria tenella*.

The value of the histopathological examination of the bursa of Fabricius for the evaluation of the coccidiostatic effect of the tested compound appeared during the screening of several other criteria.

MATERIAL AND METHODS

Four groups each of 18, 24 days old, Leghorn chicks were used in this investigation.

Group 'A', 'B' and 'C' were infected orally with 20,000 sporulated oocysts of a pure local strain of *Eimeria tenella* / chick. Group 'D' was left as uninfected control.

Group 'C' was left as infected non-treated control. Meanwhile group 'A' and 'B' received amprol sulfaquinoxaline in the drinking water at the rate of 1.2 gm/litre for 3 days followed by 0.6% gm/litre for other 3 days.

Medication of group 'A' started with infection and in group 'B' 3 days after infection.

For the judgement of the efficiency of the coccidiostatic effect of the tested compound, the following criteria were considered :

1. Symptoms, general condition of the birds and the characters of their droppings.
2. Detection of developmental forms in smears prepared from the blind coeca.

* Merck, Sharp and Dohme International, New York.

3. Detection of developmental forms in smears and sections prepared from the bursa of Fabricious. For both 2 and 3, two chicks were killed from each group on the 5th, 6th, 7th, and 8th days post infection. Smears and sections of the bursa of Fabricious were prepared as described in a previous work, ABBASI, *et al.*, 1974).

4. Excretion of oocysts according to the method described by LOHLAMMERT (1967).

RESULTS

The results of this investigation are summerized in Table 1 and shown in Figures 1 and 2.

DISCUSSION

The signs of disease and the detection of developmental forms either in smears prepared from the blind coeca or smears and section prepared from the bursa of Fabricious reported for the untreated control group in this investigation are in agreement with previous reports (TYZZER, 1929 and LOHLAMMERT, 1967 ; ASDRUBALI, *et al.*, 1967 and ABBASI *et al.*, 1974)..

Like the report of LONG (1963), the findings observed among both treated groups 'A' and 'B' confirm the excellent effect of the combination of both amprolium and sulfaquinoxaline. The last author reported besides, no interference from both drugs with the development of immunity against the infective protozoan. The results of the present investigation revealed a more or less complete failure of devlopment in both medicated groups and the question should-therefore-arise, how could immunity be developed ? Morover according to the works of WILSON (1950) and HORTON-SMITH (1951), group 'B' ought to show more or less partial development as the treatment here begun on the 4th day after infection. Our results showed failure of development in this group too and therefore disagree with the mentioned authors who used only sulfaquinoxaline. Another variant is that the local strain should be expected to be very susceptible to the used combination which was not used before in this country.

The tested compound is considered according to the results obtained in this investigation as an excellent remedy for *Eimeria tenella* infection in Egypt. We suggest however a remedication using lower concentration after a rest of 2-3 days to give the chance for the development of immunity.

TABLE I.

Days post infection	Symptoms				Blood in faeces				Developmental forms in smears from bird coeca				Develop. forms in sections from bursa				Oocyst count in smears and from blind coeca			
	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4	—	—	ruffling appearance, no deaths	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
5	one bird died of cannibalism	—	ruffling appearance diarrhoea and no deaths	—	+	±	+++	—	—	—	—	—	—	—	—	—	—	—	—	—
6	—	—	Severe signs	—	—	—	++	—	—	—	—	—	—	—	—	—	—	—	—	—
7	—	—	Severe signs	—	—	—	+	—	—	—	—	—	—	—	—	—	—	—	—	—
8	—	—	Moderate signs	—	—	—	+	—	—	—	—	—	—	—	—	—	—	—	—	—
9	—	—	Moderate signs	—	—	—	+	—	—	—	—	—	—	—	—	—	—	—	—	—
10	—	—	Mild Symptoms	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

± = very few blood
+++ = abundant blood

+ = traces of blood
** till 20 oocysts/field

++ = moderate blood
*** over 20 oocysts/field

The criteria considered in this work for the evaluation of the coccidiostatic effect of the tested compound are used by many investigators. The histopathological examination of the bursa of Fabricius confirmed the results obtained in a previous work (ABBASI *et al*, 1974) and was not considered in the available literature.

It is used here for the first time with comparable efficacy to other criteria. Furthermore the possibility of excising the bursa and its examination in living birds increases the interest for its consideration as a practical mean for the evaluation of coccidiostatic efficiency of any drug.

It should be remembered that only the development of *Eimeria tenella* was proved in this organ. Further investigations are needed to clear out the possibility of development of other species.

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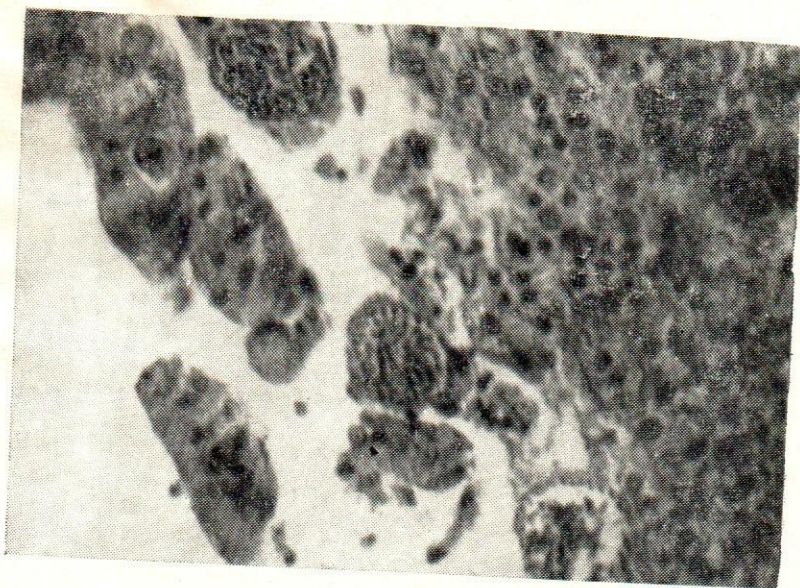


Fig. 1.—Bursa of infected untreated bird. Observe the large second generation shizonts in the epithelium 5 days post infection. (H and E stain, $\times 800$).

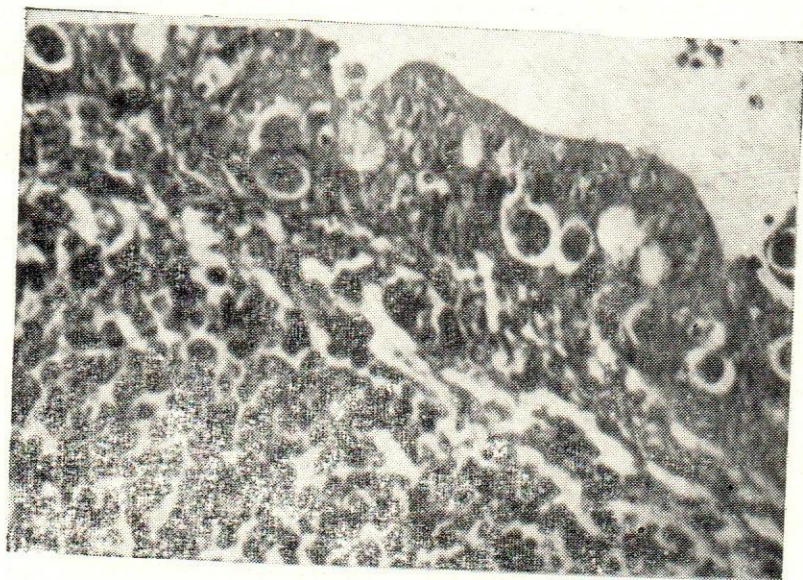


Fig. 2.—Bursa of control bird, gametes in the epithelial cells 6 days after infection (H and E stain, $\times 320$).

