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## الاصابة بالميكروب القولوني

### في الأرانب

عوض عبد الحافظ

٢٦٠ أرنب عمر ٦ - ٨ أسابيع حديثة النفوق جمعت من مزرعة كلية  
الزراعة - جامعة أسيوط .

الفحص البارستولوجي كان سلبيا في حين أن الفحص البكتريولوجي  
أوضح عزل ٤٤ عترة من الميكروب القولوني تم تصنيفها تحت ٥ مجموعات  
سيرولوجية .

العترات المعزولة كانت ضاربة بالنسبة للأرانب عمر ٦ أسابيع  
بالعدوى الصناعية .

اختبار الحساسية أوضح أن العترات المعزولة كانت حساسة لمركبات  
النيوميسين .



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## **COLIBACILLOSIS OF RABBITS**

(With 3 Tables)

By

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### **SUMMARY**

The growing rabbits at Agriculture College Farm, Assiut University suffered for a long time from intestinal disorders and high losses (20%).

Bacteriological examinations of 260 dead animals "6-8 weeks-old" revealed that E.coli was the only isolate, while the parasitological examinations were negative. 44 E.coli isolates were identified to belong to "5" serotypes viz: 028:K67(B12), 0126:K71(B16), 055:K59(B5), 0124:K72(B17) and 026:K60(B6).

The E.coli strains were experimentally pathogenic to susceptible rabbits. Sensitivity test showed that the isolates were highly sensitive to Neomycin.

### **INTRODUCTION**

During the recent years interest has been focussed on diarrhoea in weanling rabbits, since it is responsible for high economic losses. Most investigators have regarded the condition as an enteric infection by E.coli (MATTHES, 1969 and VETESI, 1970).

High losses were usually recorded among young rabbits at the Agriculture College Farm, Assiut University, Egypt. The diseased animals suffered mainly from severe diarrhoea, with mortality rate about 20% specially in those of 6-8 weeks-old.

Unfortunately there is no complete data about such problem in Egypt, in spite of the importance of rabbits as a good source of animal protein. Therefore, the present work was designed to cover the following items:

- Isolation and identification of causative agents responsible for high losses.
- Reproducing the disease experimentally in susceptible rabbits.
- Testing the sensitivity of the isolates to some antimicrobial agents.

### **MATERIAL and METHODS**

#### **Isolation and identification of the causative agents:**

The examined flocks were weaned at 4-5 weeks-old, kept in separate units and fed a standard diet supplemented with vitamin and mineral premixes.

Two hundred & sixty dead rabbits, 6-8 weeks-old, of different breeds "Bosket, Babion and Flemish" were subjected to post-mortem and direct parasitological examinations. Bacteriological



isolations were carried out from intestinal and caecal contents on both nutrient and Selenite F broth, incubated at 37 C for over-night, followed by subculturing on MacConkey, 5% and blood agar plates incubated for 24-48 hours at 37 C. The suspected colonies were identified according to EDWARDS & EWING (1972).

#### Experimental infections:

56-Bosket rabbits, 6-weeks-old obtained from Laboratory Animal Unit, Assiut University were used in this experiment. The animals were kept in separate cages observed for a week. A random sample of 8 rabbits were then slaughtered and examined for parasitological and bacteriological isolations in addition to P.M. lesions which proved that the rabbits were healthy. The rest of animals "48" were classified into 6-equal groups each of "8" rabbits. The animals of the first five groups were inoculated by different *E.coli* strains " $4 \times 10^{10}$ " organisms/rabbit, via the oro-gastric route (CANTEY & BLAKE, 1977). The animals of the last group were inoculated with sterile broth "control". During the observation period (one month) clinical signs, P.M. lesions were recorded and trials for reisolations of inoculated strains were conducted.

#### Sensitivity of the isolates to antimicrobial agents:

The test was carried-out after KOLMER, *et al.* (1951) using the paper disc technique produced by Oxoid-Laboratories and includes: Chloramphenicol (30 ug), Oxytetracycline (30 ug), Streptomycin (10 ug), Erythromycin (15 ug), Nitrofurantion (300 ug), Ampicillin (10 ug) and Neomycin (30 ug).

### **RESULTS**

The post-mortem examinations of dead rabbits revealed severe-watery diarrhoea, catharral-enteritis and impacted stomachs. Direct parasitological examinations of dead animals were negative while bacteriological isolations showed that *E.coli* was the only isolate as illustrated in Table (I).

The most common signs observed on the experimentally infected rabbits were: loss of appetite, ruffled fur, and profuse-watery diarrhoea, while the P.M. lesions of dead animals revealed catharral or even haemorrhagic enteritis, mucous fluid filled caecum, impacted stomach with dry food and emaciation specially among those died several days post-infection.

The mortality percent of each experimental animal groups were as shown in Table (II).

### **DISCUSSION**

Among the pathological conditions affecting intensively rabbit production, the enteric diseases have been of greatest economic importance (PRESCOTT, 1978). Out of these *E.coli* infections of growing rabbits was considered to be the most serious problem (VETESI & KUTAS, 1974).

The young rabbits at Agriculture College Farm, Assiut University suffered for a long time from high losses "20%" specially among the newly weaned animals. Clinical signs and P.M. lesions were similar to the findings of PRESCOTT (1978) and PROHASZKA & BARON (1981).

Concerning the bacteriological study of the present work *E.coli* was the only organism detected from examined animals. Serotyping of the *E.coli* isolates by slide-agglutination-technique using Coli-test-sera, anti O-K produced by Behringwerke AG, Marburg, W.Germany revealed that the isolates belonged to "5" serotypes, of it O128:K67 (B12) was isolated by SADEK & EL-AGROUDI



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(1963) and MATTHES (1969) from diseased rabbits. Our results agreed with those of ASDRUBALI, *et al.* (1977) who recovered E.coli 026:K60 (B6) and 0126:K71 from rabbits with desentry. On the other hand there was no available data about the isolation of the E.coli 055:K59 (B5) or 0124:K72(B17) identified by the author.

Experimental infections of the susceptible animals showed that the isolated strains were pathogenic with mortality rates ranging from 37.5 up to 100%. The clinical symptoms and post-mortem pictures of diseased and dead infected rabbits reported by the author "see results of experimental infections" resembled those of LEIGHTON (1962) and PROHASZKA & BARON (1981).

The in vitro sensitivity of the isolates to antimicrobial agents revealed that the tested strains were highly sensitive to Neomycin, while moderate degree of sensitivity were observed to Chloramphenicol, Oxytetracycline and Nitrofurantion and finally the isolates showed either low degree of sensitivity or even complete resistance to both Streptomycin and Ampicillin.

The present study indicated that the high loses among weaning rabbits were mainly attributed to E.coli infections. It was concluded that prophylactic doses from tested drugs soonly after weaning of the rabbits side by side with strict sanitations may be of value in controlling such problem.

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Table (I)

Sr. No.	Isolated E.coli strains	Frequency
1	O 128 : K 67 (B12)	12
2	O 126 : K 71 (B16)	10
3	O 55 : K 59 (B 5)	9
4	O 124 : K 72 (B17)	7
5	O 26 : K 60 (B 6)	6

Table (II)

Group No.	Inoculated Strains	No. of rabbits	Daily deaths							Frequency		
			4	5	6	7	8	9	10	30	Total	%
1	O 128 : K 67 (B12)	8			1	1		1	1		4	50
2	O 126 : K 71 (B16)	8					1	1	1		3	37.5
3	O 55 : K 59 (B 5)	8		1	2	1	1	2	1		8	100
4	O 124 : K 72 (B17)	8	1	2		1	1	2	1		8	100
5	O 26 : K 60 (B 6)	8			1	1	2	1			5	62.5
6	Sterile-broth	8									-	-

Table (III)  
Result of sensitivity test

Anti-microbial agents	Tested E.coli Serotypes				
	O128:K67 (B12)	O126:K71 (B16)	O55:K72 (B5)	O124:K72 (B17)	O26:K60 (B6)
Chloramphenicol	++	+	++	+++	++
Oxytetracycline	+	++	++	+	++
Streptomycin	+	+	+	++	+
Erythromycin	++	+	++	+	+
Nitrofurantion	+	++	++	+++	++
Ampicillin	-	+	-	+	+
Neomycin	+++	+++	+++	+++	+++

+++ = Highly sensitive  
+ = Slightly sensitive

++ = Moderately sensitive  
- = Complete resistance