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دراسة لمدة عامين عن سالمونيلا البط فى الوادى الجديد
٣- اكتشاف الحالات الحاملة للاصابة

مصطفى عبد المطلب، عوض عبد الحافظ، صلاح موسى، شعبان هاشم *

- فى سنة ١٩٨٠ تم تحضير أنتيجن ملون وغير ملون من عترات السالمونيلا المعزولة من قطيع التربية
- أستخدام الانتيجن المحضر فى اختبار ١٠٤٦٢ بطة بواسطة اختبار الدم السريع واختبار السيرم البطئ
- النتائج أظهرت أن اختبار الدم السريع عملى ويمكن الاعتماد عليه
- فى سنة ١٩٨١ تم تحضير أنتيجن جديد من العترات المعزولة وأستخدم فى اختبار ١٤٧٩٨ بطة بواسطة اختبار الدم السريع.

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A TWO-YEAR STUDIES ON DUCK SALMONELLOSIS IN NEW-VALLEY, EGYPT
III- DETECTION OF CARRIER DUCKS

(With 3 Tables)

By

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SUMMARY

In July 1980 a polyvalent stained and unstained antigens were prepared from the locally isolated Salmonella sertypes namely: S.typhi-murium, S.enteritidis, S.paratyphi C and S.thompson. The antigens were used for decection of carriers among 10462 ducks by rapid whole-blood and serum tube agglutination tests. The rapid-whole-blood test proved to be reliable, practical and dependable. In July 1981 a polyvalent stained antigen prepared from the isolated S.typhi-murium and S.enteitidis was prepared. The antigen used for test 14798 ducks by rapid-whole-blood technique.

INTRODUCTION

The results of the first part of these studies dealing with "Pecovery of Salmonellae from breeding Duck Flocks revealed that the economic losses could be attributed to the isolated Salmonella serotypes.

As Salmonellae occur usually as chronic intestinal infections, so detection of carrier birds by serological testing is of value as a mean of control.

GWATKIN and DZENS (1954) and BLAXLAND, et al. (1958) reported that whole-blood-test used for detection of S.typhimurium infected birds was in close agreement with serum-tubetest. EL-AGROUDI and SADEK (1966) recomended the use of whole-blood-method to detect paratyphoid carrier birds by a prepared stained antigen of S.typhimurium as a routine with Pullorum test.

The present work was designed to cover the following items:

Detection of the carrier ducks by using the locally prepared antigens for two successive years and evaluation of both whole-blood and serum-tube agglutination methods as a means of control of paratyphoid infections in ducks.

MATERIAL and METHODS

Isolated Salmonella Strains:

S.typhi-murium "1,4, (5), 12:i:1,2", S.enteritidis "1,9,12 : g,m:(1,7), S.paratyphi C", "6,7:C:1,5" and S. thompson "6,7 : k : 1,5" were isolated at the first year of study, while S.typhi-murium and S.enteritidis were tho only isolates in the second year.

Media and Reagents:

Selenite F.broth, MacConkey agar plates, S.S. agar plates, Nutrient agar slope, Physiological saline, 0.5% Phenol-saline and 3% Crystal-violet. "CRUICKSHANK, et al. (1975)".

Tested Ducks:

10462 Pecking ducks, 6-months-old were tested by the rapid-whole-blood-test, of which 2000 ducks were subjected also to tube-agglutination test using un-stained antigen.

Cloacal swabs were collected from 172 reactor ducks for further bacteriological isolation.

14798 ducks were tested in the second year by rapid whole-blood method only.

Preparation of polyvalent antigens:

Pure culture of the isolated serotypes were inoculated into slope agar tubes and incubated at 37°C for 24 hours, then the bacterial cultures were suspended in a reasonable amount of normal saline and inoculated into

Roux bottles containing nutrient agar which were then incubated at 37°C for 48 hours. Bacterial cultures were harvested using 0.5% phenolised saline and filtered through absorbent cotton into sterile glass stoppered bottles. The turbidity of each bottle was adjusted to correspond McFrland tube No. "1" by using 0.5% phenolised saline. Each cultrue was tested against its specific positive sera. Equal volumes of the bacterial cultures were mixed to produce a polyvalent antigen. One volume of 3% Crystal violet was added to 99 volumes of prepared antigen and allowed to stand for 3-weeks in refrigrator before use to allow thorough staining.

"EL-AGROUDI & SADEK (1966) and WILLIAMS (1968)":

Rapid-Whole-Blood-Agglutination-Test:

A loopful of blood was taken from the punctured wing vein contain approximately 0.02 ml. The blood mixed with 0.05 ml. stained antigen on a glass plate which was tilted several times to aid in the mixing of blood and antigen. Reaction may occur within a few seconds up to 2 minutes.

Serum-Tube-Agglutination-Test:

1-2 ml. blood was collected from each of 2000 ducks, the blood tubes were identified by leg-banded number. Serum was separated by refrigration and centrifugation. Two dilutions of 1/25 and 1/50 were used for each sample by adding 0.02, 0.04 ml. of serum to one ml. of unstained antigen respectively in Wassermann tubes. The serum-antigen mixture was shaken, incubated at 37°C for 24 hours, agglutination of the second tube "1/50" was considered positive. "WILLIAMS, et al. (1975)".

Isolation of Salmonellae from reactor ducks:

Cloacal swabs were collected from 172 reactor ducks, inoculated into selenite F.broth, incubated at 37°C for 18 hours, subcultured was then made on MacConkey and S.S. agar plates and incubated at 37°C for 48 hours, suspected Salmonella colonies were subjected to further biochemical and serological identification.

Results are shown in tables (I, II and III).

DISCUSSION

Control of paratyphoid infections was directed towards blood testing programs for detection of carrier birds.

The comparison between results of both rapid-whole-blood and tube-agglutination tests revealed that the two methods were more or less similar. Out of 2000 breeder ducks tested by the two techniques, 172 were reactors to rapid test, of which 166 were positive also to tube-agglutination-test, while 6 cases only reacted positively to rapid test and negatively to serum-tube-test. This might be explained by the presence of low serum titre to Salmonella serotypes used in prepration of polyvalent antigen. Our results were in agreement with those of GWATKIN and DZENIS (1954) and EL-AGROUDI and SADEK (1966) who concluded that both tests gave similar results in detecting carrier birds.

Cloacal swabs were obtained from reactors "172", subjected to bacteriological examination which revealed that 168 cases were positive and belong to the previously identified serotypes. These results assure the reliability of the rapid test which if properly and thoroughly applied could be a dependable method for elimination of paratyphoid carrier ducks. The author's results were in agreement with those of CLARENBURG and ROMIJN (1954), EL-AKKAD, et al. (1967) and SMITH, et al. (1972) who reported that the rapid-whole-blood test was of value in detecting naturally and experimentally paratyphoid infected birds. On the other hand our results differed from those of SATO, et al. (1970) who found that both the rapid and tube-test were unreliable for detection of carriers, WILLIAMS and WHITTEMORE (1976) who recorded that the rapid-whole-blood-method was the least effective technique used for detection of experimentally infected birds.

Egg production, fertility and hatchability were markedly increased, while mortality percent of ducklings was sharply decreased after elimination of carriers in comparison with the previous season.

The application of the rapid-whole-blood-test for two successive years revealed a definite reduction of reactor percent in the second year (1.8%) compare with those of the first year (8.4%). These encouraging data could be attributed to the elimination of great numbers of carriers from flocks by serological methods and pro-

Finally the authors wish to recommend the yearly isolation of Salmonellae from breeding stocks specially in those farms suffering from high losses of ducklings, lowered egg production, fertility and hatchability, testing of their sensitivity to chioce the effective drugs to be used as prophlactic medication to ducklings and serological testing of the breeding flocks by rapid-whole-blood-technique using a locally prepared antigen as an efficient control measures.

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RESULTS

Table (I): Illustrates the comparison between results of Whole-Blood and Serum-Tube test

No. of tested ducks	Whole-Blood-Test		Serum-Tube-Test	
	No. of positive	%	No. of positive	%
2000	172	8.6	166	8.3

Table (II): Shows the hatchability and mortality rates of duck-lings up to 4-weeks-old

Years of study	No. of hatched ducklings	Hatchability percent	No. of dead ducklings	Mortaility percent
1979-80	109995	52.3	8671	7.8
1980-81	164734	64.2	4534	2.7

Table (III)

Illustrates the results of Rapid-Whole-Blood-Test for two successive years

Years of	No. of tested breeder ducks	No. of reactors	Reactor percent
1980	10462	882	8.4
1981	14798	274	1.8