

قسم : طب الحيوان .  
كلية : الطب البيطرى - جامعة أسيوط .  
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## بعض أنواع البكتريا المعزولة من القراد تحت الظروف الطبيعية في محافظة أسيوط

ليلى صلاح الدين ، ريم دسوقي \*

اجرى هذا البحث على عدد ٢٢٠ من قراد البوفيلوس أنيولاتس والتي  
جمعت من على الابقار في مناطق مختلفة من محافظة أسيوط . وكان الغرض من  
الدراسة هو عزل الانواع المختلفة من البكتريا الهوائية واللاهوائية التي قد توجد  
طبيعية في هذا القراد .

هذا وقد قسمت الحشرات الى مجموعات مختلفة وتم فحص الأمعاء والمبايض  
ومطحون الحشرات الكاملة بكتريولوجيا . وقد تم عزل ٨١ عترة بكتيرية قسمت كالآتى:  
٣٧ عترة بنسبة ٣٣٣٪ من الامعاء ، ١٨ أى بنسبة ٢٢٢٪ من المبايض وكذلك  
٣٦ عترة أى بنسبة ٤٤٤٪ من مطحون الحشرات الكاملة وبالإضافة الى ذلك  
يتضح من الفحص الميكروسكوبي لعينات الهيموليف لعدد ٨٠ قراده أن اثنين  
منها فقط أى بنسبة ٢٥٪ موجبة للإصابة بالريكتسيا .

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بسم الله الرحمن الرحيم  
الحمد لله رب العالمين  
والصلاة والسلام على سيدنا محمد  
الذي بعث في طينتنا نبيًا ربيًّا

أشهد أن لا إله إلا الله  
أشهد أن محمدًا عبده ورسوله

وآل بيته الطيبين الطاهرين

الذين هم أئمة المرسلين  
أولاد آل محمد الطيبين  
الذين هم أئمة المرسلين  
أولاد آل محمد الطيبين

وآل بيته الطيبين الطاهرين  
الذين هم أئمة المرسلين  
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والصلاة والسلام على سيدنا محمد  
الذي بعث في طينتنا نبيًا ربيًّا

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**SOME BACTERIAL ISOLATES FROM BOOPHILUS ANNULATUS TICKS  
UNDER NATURAL CONDITIONS IN ASSIUT GOVERNORATE**  
(With 2 Tables)

By  
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**SUMMARY**

For the present study a total of 220 male and female ticks (*Boophilus annulatus*) were collected from cattle in different places in Assiut Governorate.

Bacteriological examination of gut, ovaries and crushed ticks indicate that 81 isolates were recovered, of these 27 (33.3%) from the gut, 18 (22.2%) from ovaries and 36 (44.4%) from crushed groups of examined ticks.

Microscopical examination of haemolymph smears from 80 ticks revealed that 2 of them (2.5%) were positive for rickettsiae.

**INTRODUCTION**

It is well known that Ixodids Ticks plays an extremely important role as a transmitter of Viral, Bacterial, Rickettsial and blood parasitic diseases to domestic animals and fortunately to a somewhat less extent to man. They are of outstanding importance in the transmission of organisms of some diseases as Pasteurellosis, Salmonellosis and Rickettsiosis of spotted fever and related diseases of man and animals (CHANDLER, 1962).

Among bacterial diseases, various species of hard ticks were responsible for transmission of Anthrax, (WILLIAMSON and PAYNE, 1959), Brucellosis (TOVAR, 1947 and MOWAFY, 1974), Salmonellosis, (BUXTON, 1958 and MOWAFY, 1974), Tularemiasis (KARPOV and POPOV, 1944 and BLLERD, *et al.* 1956), Pasteurellosis (MACADAM, 1962) and Listeriosis (PETROV, 1966).

The present investigation was performed to establish whether those ticks may play some role in the conservation of organisms in nature and in their transmission between animals.

**MATERIAL and METHODS**

A total of 220 male and female ticks (*Boophilus annulatus*) were collected from cattle in different places in Assiut Province. They were morphologically diagnosed at the department of parasitology.

For detection of Rickettsiae, ticks were incubated at 37C for 48 hours, and according to (BURGDORFER, 1970), a haemolymph smears were made by amputating the distal portion

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of one or more legs using small scissors, small drop of haemolymph was obtained and touched on glass slide which was marked by grease pencil. Each glass slide was divided into two rows, each row was divided into 5 squares. The smears were air dried, fixed in methanol for 10-15 minutes. The smears were stained with diluted Giemsa stain (1 : 10) for 30 minutes and examined microscopically.

A sum of 70 engorged adult female ticks were classified into 14 groups, each contain 5 ticks. According to (LI, 1956) each tick was aseptically dissected to remove the ovary and intestine, the obtained organs of each group were separately emulsified in sterile saline then used for bacteriological investigation.

A number of 150 ticks were divided into 15 groups, each of them contain 10 ticks. Each was washed thoroughly several times with sterile normal saline. The washed ticks were crushed in sterile mortar containing 10 ml saline. The emulsion was used for bacteriological examination.

Isolation and identification of each microorganism was fulfilled according to MERCHANT and PAKER, 1967; BAILY and SCOTT, 1974; BUCHNAN and GIBBON, 1974; CRUICKSHANK, *et al.* 1974; WILSONS and MILES, 1975 and JAWETZ, *et al.* 1976.

### RESULTS and DISCUSSION

A sum of 81 isolates were recovered from 220 *Boophilus annulatus* ticks of these 27 from the gut (33.3%), 18 from ovaries (22.2%), and 36 (44.4%) from the crushed groups of ticks.

From bacterial isolates the following species were isolated: 3 coagulase positive staphylococci, 24 coagulase negative staphylococci, 4 haemolytic streptococci, 11 non haemolytic streptococci, 4 salmonella bovis, 2 salmonella typhi, 6 shigella flexneri, 11 E. coli, 13 proteus morgani and 3 clostridium perfringens.

It is clearly evident that coagulase positive staphylococci were only isolated from the samples of crushed ticks (Table II).

*Clostridium perfringens* were recovered from two groups of crushed ticks and from one group of examined ovaries (Table I & II). The identification of this strain is based on its culture character and biochemical reactions. However, the pathogenicity test for *clostridium perfringens* indicated that this strain was highly pathogenic for white mice, where they died within 24 hours.

Haemolytic streptococci and salmonella typhi, could not be isolated from the ovaries of the examined ticks.

Isolation of coagulase positive staphylococci, *clostridium perfringens* and salmonella typhi from naturally fed *Boophilus annulatus* ticks were not recorded in the available literature.

*Brucella* species failed to be detected from any samples of the investigated ticks after performance of the usual methods including the atmosphere of isolation, H<sub>2</sub>S production bacteriostatic action and serologic tests. TOVAR (1947) reported a naturally infected *Boophilus annulatus* ticks with *brucella abortus* in Mexico, a transovarial infection through tick eggs was also observed.

## BACTERIAL ISOLATES FROM TICKS

The occurrence of salmonella bovis, shigella flexneri, E.coli, Proteus morgani, clostridium perfringens, coagulase negative staphylococci and non haemolytic streptococci in the examined groups of ovaries complicates the problem of control, due to the extension of infection through the next generations (transovarial transmission).

Microscopical examination of haemolymph smears of 80 both partially and fully engorged ticks indicated that 2 (2.5%) ticks were positive for rickettsiae. This finding supports the suggestion of BURGENDORFER (1970) in that the examination of haemolymph might provide a rapid and dependable means for detecting rickettsial infection in ticks.

From the hygienic point of view naturally infected ticks were probably constitute a dangerous reservoir for the mentioned micro-organisms, this fact should not be neglected during eradication of ticks and combating various infection among farm animals.

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Table (I)  
Incidence of aerobic and anaerobic bacteria isolated from the Guts and Ovaries  
of 14 examined groups of *Boophilus annulatus* ticks

| Organ | Staph. aureus |          |            |                | Streptococcus |            |                   |        |                   |     | Enterobacteriaceae |     |     |     | Cl. Perf. |   |      |   |     |   |     |
|-------|---------------|----------|------------|----------------|---------------|------------|-------------------|--------|-------------------|-----|--------------------|-----|-----|-----|-----------|---|------|---|-----|---|-----|
|       | Coag.+ve      | Coag.-ve | haemolytic | Non haemolytic | Sal. bovis    | Sal. typhi | Shigella flexneri | E.coli | Prouteus morganii | No. | %                  | No. | %   | No. |           | % |      |   |     |   |     |
| Gut   | -             | 3        | 6.6        | 2              | 4.4           | 7          | 15.5              | 1      | 2.2               | 1   | 2.2                | 2   | 4.4 | 5   | 11.1      | 6 | 13.3 | - | -   |   |     |
| Ovary | -             | 6        | 13.3       | -              | -             | 3          | 6.6               | 1      | 2.2               | 1   | 2.2                | -   | -   | 2   | 4.4       | 2 | 4.4  | 3 | 6.6 | 1 | 2.2 |

Table (II)  
Incidence of aerobic and anaerobic bacteria isolated from 15 examined groups  
of crushed *Boophilus annulatus* ticks

| aphilococcus aureus | Streptococcus |          |            |                | Enterobacteriaceae |            |                   |        |                   |     | Cl. perf. |   |     |   |      |   |      |   |     |   |     |
|---------------------|---------------|----------|------------|----------------|--------------------|------------|-------------------|--------|-------------------|-----|-----------|---|-----|---|------|---|------|---|-----|---|-----|
|                     | Coag.+ve      | Coag.-ve | haemolytic | Non haemolytic | Sal. bovis         | Sal. typhi | Shigella flexneri | E.coli | Prouteus morganii | No. |           | % | No. | % | No.  | % | No.  | % |     |   |     |
| 3                   | 8.3           | 15       | 41.6       | 2              | 5.5                | 1          | 2.7               | 2      | 5.5               | 1   | 2.7       | 2 | 5.5 | 4 | 11.1 | 4 | 11.1 | 2 | 5.5 | 2 | 5.5 |