

عزل وتصنيف ميكروبات الباستريلا في الأغنام

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ملخص

تم فحص ٣٨٩ حالة من رثتين وقصبة هوائية للأغنام السليمة ظاهريا والمريضة منها ٢٣٢ حالة مرضية . وقد أثبتت الفحوص البكتريولوجية للعينات عزل ١٨ سلالة من ميكروبات الباستريلا وقد تم تصنيفها بالطرق الكيمائية والبولوجية والسيوجية الى ثلاثة أنواع بينما سلالة واحدة لم يتم تصنيفها.

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IDENTIFICATION AND TYPING OF PASTEURELLOSIS IN SHEEP

(with 3 tables)

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SUMMARY

389 samples were collected from healthy and diseased lungs and trachea of sheep and examined for the isolation and identification of *Pasteurella* species. 18 *Pasteurella* isolates were obtained and differentiated biochemically, biologically by mice inoculation and serologically by passive mouse protection test into three serotypes (IV, V and II). Only one strain from diseased lung was untyped.

INTRODUCTION

Respiratory diseases of sheep in which pneumonic lesions were a prominent feature had been described in many areas of the world. Apart from the economic implications, the possibility that some of these diseases are transmissible in nature, indicates the need of more detailed epidemiological studies.

HAMDY (1958) isolated *Pasteurella haemolytica* and *Pasteurella* species from throat swabs of healthy lambs and from pneumonic lesions. A P.P.L.O. and a virus from lung lesions were also recovered.

HAMDY *et al.* (1959) found both *Pasteurella haemolytica* and *Pasteurella septica* in the throat of 28 of 41 apparently normal health lambs and 23 of their 36 dams with pneumonic lesions.

SERGEEV (1960) examined six sheep with acute bronchopneumonia bacteriologically and found that *Pasteurella* was the etiological agent.

GOURLAY and BARBER (1960) isolated nine strains of *Pasteurella haemolytica* from pneumonic lungs of sheep and they stated that young lambs were apparently much more susceptible than older sheep.

PANDE *et al.* (1961) recovered several isolates of *Pasteurella* type III from pneumonic sheep.

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SMITH (1964) described an outbreak of pasteurellosis in a flock of 276 sheep from which 26 animals were died. *Pasteurella haemolytica* type I was isolated and proved to be sensitive to tetracycline.

PASTEURELLOSIS IN SHEEP

VANDER VEEN and ZUMPT (1967) isolated *Pasteurella multocida* and *Pasteurella haemolytica* from 17 dead sheep.

MISRA *et al.* (1970) stated that sheep pneumonia occurred throughout the year and *Pasteurella multocida* was an aetiological agent of pneumonic cases examined in an incidence of 6.8%.

SHREEVE *et al.* (1972) observed an outbreak of *Pasteurella haemolytica* in ovine flocks.

The aim of the present work is to identify and to type the pasteurella organisms in both apparently healthy and diseased respiratory tract of sheep.

MATERIALS AND METHODS

A total of 232 samples from pneumonic cases of sheep were collected from Cairo Abattoir. Also 157 samples collected from apparently clinically normal sheep were examined bacteriologically.

Smears were made from lungs and trachea on clean sterile slides and stained with Leishman's stain to detect the bipolar organisms. Also culture from lungs and trachea were inoculated into nutrient agar media, blood agar, and MacConkey's agar media. The plates were incubated at 37°C for 24—48 hours and the suspected colonies were identified morphologically, biochemically and biologically according to the methods of MACKIE and McCARTNEY (1960) and MERCHANT and PACKER (1969).

Serological identification of *Pasteurella* species isolated was done by passive mouse protection test (ROBERTS, 1947).

RESULTS

Results given in (Table 1) show that out of 157 samples collected from apparently normal lungs and trachea of sheep, 154 proved to be negative for

pasteurella, while the remaining 3 samples harboured different types of *Pasteurella multocida* (1.91%). On the other hand, examination of 232 samples of diseased lungs and trachea revealed the recognition of 15 isolates of *Pasteurella multocida* (6.47%).

TABLE 1. Results of bacteriological examination of *Pasteurella* in sheep

Type of samples	Total Number of both lungs & trachea examined	Bacteriological findings for pasteurella			
		Positive		Negative	
		Number of cases	%	Number of cases	%
Apparently normal	157	3	1.91	154	98.09
Diseased	232	15	6.47	217	59.33

From (Table 2) one can concluded that out of 15 isolates of *Pasteurella multocida* recovered from diseased lungs and trachea, 4 isolates (26.66%) were proved to be type II, 5 isolates (33.33%) of type IV, 5 isolates (33.33%) of type V, and one isolates (6.66%) could not be classified.

TABLE 2.—Serological grouping of the *Past. multocida* isolates obtained from diseased lungs and trachea

Source of the strain	Number of isolates	Robert's classification					unclassified
		I	II	III	IV	V	
Lungs	5	—	1	—	1	2	1
Trachea	7	—	1	—	3	3	—
Lungs & Trachea	3	—	2	—	1	—	—
Total	15	—	4	—	5	5	1
Percentage	—	—	26.66	—	33.33	33.33	6.66

TABLE 3. Serological typing of *Past. multocida* obtained from normal lungs and trachea

Source of the strain	Number of isolates	Robert's classification				
		I	II	III	IV	V
Lungs	—	—	—	—	—	—
Trachea	3	—	2	—	1	—
Lungs & Trachea.	—	—	—	—	—	—
Total	3	—	2	—	1	—
Percentage	—	—	66.33	—	33.33	—

The results obtained in (Table 3) show that out of 3 isolates of *Pasteurella multocida* recovered from apparently normal lungs of sheep 2 isolates (66.33%) proved to be of type II ROBERTS and isolates was (33.33%) of type IV ROBERTS.

DISCUSSION

Pasteurella species have long been known to be associate with ovine respiratory disease complex.

The results obtained in the present work indicate that most of the isolates of *Pasteurella multocida* could be identified serologically and referred to as 2 of type II ROBERTS and one strain was of type IV ROBERTS. This assumption has been recognised by HAMDY *et al.* (1959).

Serological identification of the isolates of *Pasteurella multocida* from diseased lungs & trachea of sheep revealed that most of them were classified as type IV and V. In this work, no *Pasteurella haemolytica*, could be isolated from trachea and lungs of both apparently normal and diseased sheep. Similar findings go hand in hand with MISRA *et al.* (1970). On the other hand, some authors claimed that *Pasteurella haemolytica* was found in diseased ovine lungs. (PINTO DE CUNHA and MELO, 1965 and SHREEVE, 1972).

From the current literature it seems that this is the first time to isolate *Pasteurella multocida* type IV, V, and II ROBERTS from the lungs and trachea of both apparently normal and diseased sheep in Egypt.

In the present work, *Pasteurella multocida* of type II and IV ROBERTS were isolated from both apparently normal and diseased sheep.

It can be concluded that certain environmental conditions or predisposing factors such as seasonal variations or inadequate ration may play a role in the establishment of pasteurellosis in sheep. The concept for viral infection as a cause of pneumonia in sheep also underlines that the role of *Pasteurella* is secondary in the production of the disease MISRA *et al.* 1970. However further investigation based on experimental studies were needed to confirm these explanations.

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