

# ISOLATION AND IDENTIFICATION SOME BACTERIAL CAUSES OF LUNG ABSCESSES SHEEP BY CHROMOGENIC MEDIA

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(Received 25 February 2016,Accepted 10 May 2016)

**Key word** : Abscesses ,Chromagar, sheep.

## ABSTRACT

The study carried to isolation and identification some bacterial causes of lung abscesses in the sheep in Najaf province by Orientation chromagar. Forty two lung abscess were collected from died (10) and slaughtered sheep(32). The result of bacterial isolation appeared 32 bacterial isolates included 18 (56.2%) Gram positive bacteria and 14(43.7%) Gram negative bacteria according morphology and color of colony and confirmed by classical biochemical test .The *Staphylococcus aureus* were predominant bacteria 15(46.8%) , *Escherichia coli* 9 (28.1 %), *Klebsiella pneumonia* 5 (15.6 %) and *Staphylococcus saprophyticus* 3 (9.3%).

## INTRODUCTION

lung the major organs of respiratory system, is susceptible for several infectious and non infectious agents cause pathological change in farm animals, among these agents, pneumonia(acute and chronic ) causes weakness and fate animal leading to high economic loss (1,2).

The respiratory system diseases such as pneumonia and unspecific toxemias were the most common causes of deaths in sheep(3). The respiratory diseases in sheep complex causes such bacteria virus ,the bacterial causes of pneumonia is most frequent and lead to high mortality and economic loss(3).

Abscess is a necrotizing lesion characterized by a pus-filled cavity(4). The most common causes of lung abscesses due to aspiration are some bacteria such as *Staphylococcus aureus* and *Klebsiella Mycobacterium tuberculosis*. (5). Orientation chromagar is one of a number of new chromogenic agars , it used for identification of some Gram negative bacteria and some Gram positive bacteria (6) the basis of

differentiation of bacteria according to colony colors produced by reactions of (genus or species) specific enzymes of bacteria with a proprietary chromogenic substrate(7, 8, 9,10).

## **MATERIALS AND METHODS**

Forty two specimens (pus ) were taken from dead ( 10)and emergency slaughtered sheep(32) suffering from respiratory signs in some farm of Al Najaf province between the April 2014-April 2015.

Samples were taken by sterile syringes with 17G needles, while thick pus samples taken by sterile surgery blade.The samples Put in tubes containing a transport medium (3 ml of tryptone soy broth). Sample transported by a cooled box to the laboratory of veterinary medicine college .

Bacterial examination : All pus samples were cultured onto blood agar (10% defibrinated sheep blood) were incubated at 37°C for 24 hr . The positive growth were sub cultured on chromagar ,incubated at 37°C for 24 hr . The identification were done according to the color and morphology of the colony, which described in the product catalog of the company (CHROMagar,France). Confirmed diagnosis by Gram stain and biochemical tests such as catalase ,oxidase ,coagulase ,indole ,methyl red, Voges- Proskauer, lactose fermentation and citrate test .

Statistical analysis. The data were analyzed by SPSSversion 11.5, (11).

## **RESULTS**

A total of 42 samples of the lung abscess (Fig.1) of sheep(10 dead and 32 slaughtered animals ) were cultured on blood agar and all samples showed positive growth. the bacterial isolates were sub cultured by streaking on chromagar.32 out of 42 bacterial isolates , were obtained by chromagar media (8 isolates from dead and 24 from slaughtered animals),table (1).



Figure (1) : lung abscesses of sheep

Table (1): bacterial isolation and identification by Chromagar and biochemical test .

Sample		Blood agar	%	Chromagar	%	Classical biochemical test	%
Deadsheep	10	10	100	8	80	8	100
Sulghter	32	32	100	24	75	24	100
Total	42	42	100	32	76	32	100

Thirty two bacterial isolates were obtained in this study .The isolates included 18 (56.2%) Gram positive bacteria and 14(43.8%) Gram negative bacteria. The Gram positive bacteria were *S .aureus*, *S. saprophyticus* ,*S .aureus* was dominant bacteria was 15(83.3%) ,6 from dead and 9 from slaughtered animals.*S. saprophyticus* was 3 (16.6%),0 from dead and 9 from slaughtered animals, the Gram negative bacteria were *K. pneumonia* 5 (35.7 %), 1 from dead and 4 from slaughtered animals and *E. coli* 9 (64.2 %) ,2 from dead and 7 from slaughtered animals as in table (2).

Table (2) :percentage of bacterial species isolated from pus of dead slaughter sheep.

Bact. Isolates	No.(%)	Bacteria spp.	No.(%)	Dead No.(%)	Emergency slaughter No(%)
G+ B	18(56.2)	<i>S.aureus</i>	15(83.3)	6 (40)	9 (60)
		<i>S.saprophyticus</i>	3 (16.6)	0 (0)	3 (100)
G- B	14(43.8)	<i>E.coli</i>	9 (64.2)	2 (22.2)	7 (77.7)
		<i>K.pneumonia</i>	5 (35.7)	1(20)	4 (80)
Total	32		32 (100)	9(28.1)	23 (71.8)

Identification of the bacterial species were done according to color and morphology of colony were described by Catalog of manufacturer of the product (CHROMagar, France) and used classical biochemical test for confirmation diagnosis, table (3) figure(,2,3,4,5)

Table( 3):Color and morphology of colony on chromagar media

Bacteria spp.	Color and morphology of colony
<i>E.coli</i>	dark pink to reddish
<i>S.aureus</i>	golden, opaque, small
<i>S.saprophyticus</i>	pink, opaque, small
<i>K.pneumonia</i>	metallic blue

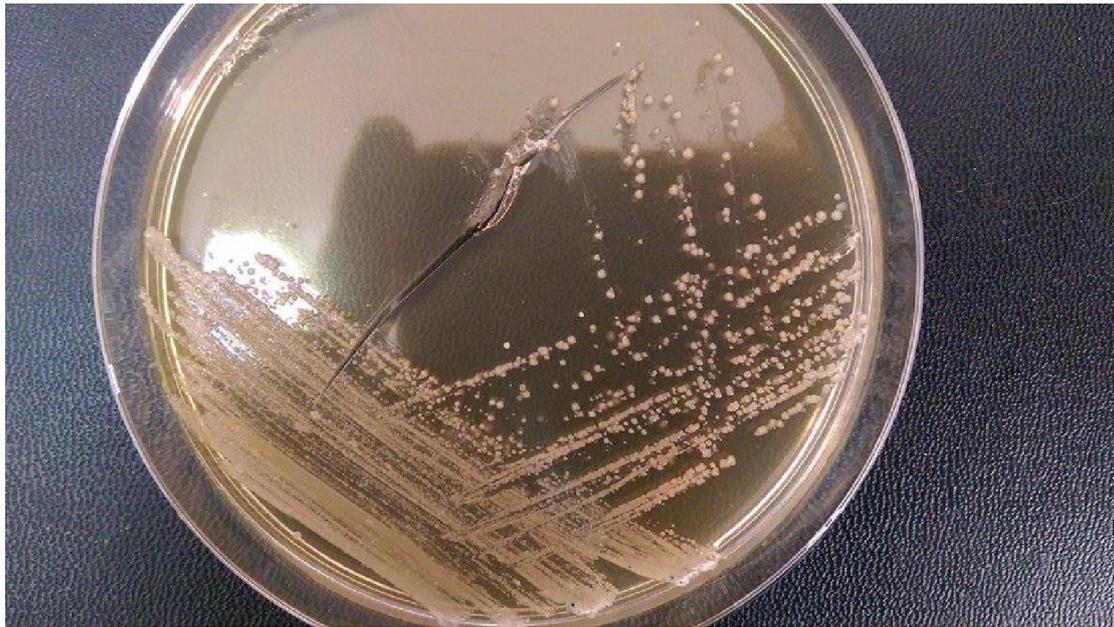


Figure (1) growth *s.aureuson* chromagar andwich have golden, opaque, small colony

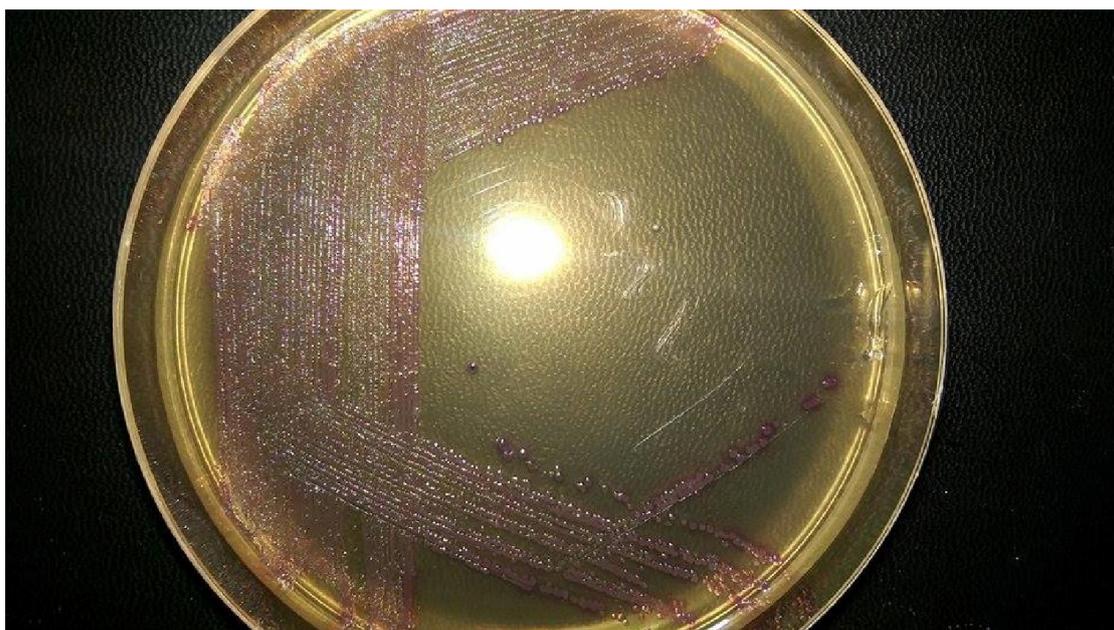


Figure (2) growth *S.saprophyticuson* chromagar and which have pink, opaque, smallcolony

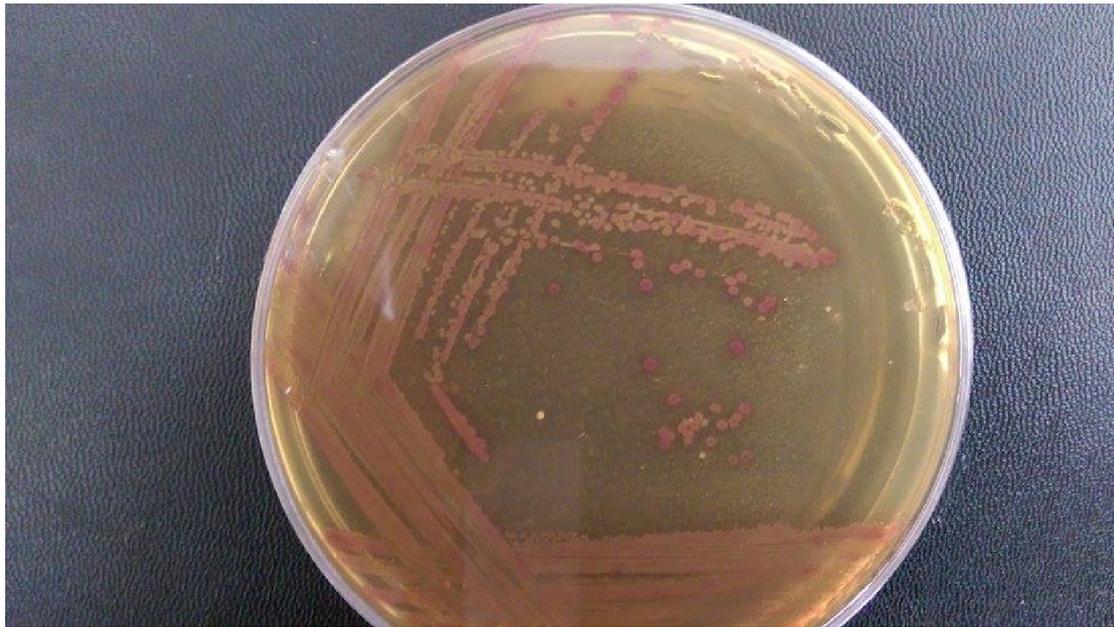


Figure (3):growth *E.coli* on chromagarandwhich have dark pink to reddishcolony



Figure (4) growth *K.pneumonia* on chromagar and which have metallic blue

## DISCUSSION

The respiratory diseases in the sheep is one of the most important problems are cause the death and reduction in productivity In many countries(12).The lack data and studies about lung abscesses of the sheep , but there are many studies isolated similar the current bacteria from pneumonia ,pathologic lesions of the lung as well as the normal flora of the respiratory system in sheep (13,14,15) .

The current study showed the Gram positive bacteria was higher proportion than Gram negative bacteria.In earlier study (16) found Gram positive bacterial infection most causes of lung abscesses ,these results were agreed with our results. Another report showed the percentage of Gram positive bacteria (55.2 %) and Gram negative bacteria was (44.7%) ,that similar percent of our bacterial isolates (17).Classical Culture and biochemical method identified 32 bacterial isolates from lung abscesses of the sheep, included *S.aureus* (46.8%),*E.coli* (28.1 %),*K. pneumonia* (15.6 %) ,*S.saprophyticus*(9.3%) ,which similar bacteria species obtained by (18) and (19) from nasal swabs apparently healthy and from diseased sheep , while disagreement with results whom reported by (20,21). Also study in Iran mention the bacterial causes of lung lesion and abscesses in sheep carcasses were *Pasteurellamultocida*, *Staphylococcus,aureus* ,*Klebsiellapneumoniae*, *Corynebacterium pseudotuberculosis*and *Actinomycespyogenes* (24.53%), (20.75%),(15.09%)(7.55%),(1.89%)(22)respectively .

This variation due to geographical area and some factors like stress ,immune system status and transportation. (23).

The *Staphylococcus aureus* was dominant bacteria isolated from lung abscesses, this result in agreement with finding by (24)who isolated *S.aureus*from subcutaneous abscesses in sheep, but (25 )found (*Fusobacteriumnecrophorum* dominant bacteria isolated from bovine abscesses.The difference of bacterial isolation might be due to sample size and potential pathogens appears when repression of the normal bacteria and lead to a variety of pathologies(26).

The results were reported a low percentage of *S.saprophuticus* isolated from abscesses this like recorded by(27). Ahmed and his group (28) in a previous study observed low *K.pneumonia* percent from nasopharyngeal of diseased and apparently

healthy sheep 8.5% ,This result is less than recorded by our study .The result of *E.coli* isolation was (28.1 %) which similar (29 ) record *E.coli*(24.7 %),while *Klebsiella pneumonia* 5% were less than what we obtained in our study. The variable of *Klebsiella* isolates percent due to the source of *Klebsiella* spp. It isolated from soil and also from nasal cavity for several healthy animals species (30).

## CONCLUSION

The results showed the percentage of Gram positive bacteria were higher than Gram negative bacteria and *S.aureus* was dominant bacteria isolated from the lung abscesses of the sheep.

عزل وتعريف بعض البكتيريا المسببة لخراج الرئة في الأغنام بواسطة الاوساط الزرعية اللونية

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## الخلاصة

اجريت الدراسة لعزل وتحديد بعض المسببات البكتيرية لخراج الرئة في الاغنام فيا لنجف الاشراف بواسطة الوسط الزرعي اللوني. جمعت ٤٢ عينة خراج رئة من ١٠ اغنام ميتة و32 مذبوحة. اظهرت نتائج العزل البكتيري هنالك ٣٢ عزلة بكتيرية تضمنت ١٨ (56.2%) عزلة موجبة لصبغة كرام و14 (43.7%) سالبة لصبغة كرام. تم العزل حسب مظهر ولون المستعمرات البكتيرية وتم تأكيد التشخيص بواسطة الاختبارات الكيموحيوية. كانت المكورات العنقودية هيا لبكتريا السائدة 15 (46.8%) ، الايشرشيا القولونية 9 (28.1%) ،كلبسيلا ذات الرئة 5 (15.6%) والمكورات الرمية 3 (9.3%).

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