

***E.coli* O157:H7**

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*E.coli* *E.coli* O157:H7

*E.coli*

(%100)

.(%76)

(%80)

O157:H7

.(%24)

(%32 )

O157:H7

(%100)

Cefixime (CFM) Cephalexin (CL) Rifampin (RA)

Chloramphenicol Ciprofloxacin Amikacin

(%83.4)

(%87.5)

.(%75)

O157:H7

(%67.5)

(%65)

*E.coli* O157:H7

:

## **Isolation and Identification of *E.coli* O157:H7 Strain from local Meat in Ninavah Province**

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### **ABSTRACT**

The research is conducted with the aim to investigate the strains of *E.coli* O157: H7 bacteria among *E.coli* isolates which is contaminated the local meat in Mosul, as it is being one of the common causes of food poisoning. The results showed that most of the studied meat samples have been contaminated with *E.coli* bacteria and the number of colonies of bacteria varied depending on the type of meat samples, although the proportion of contamination (100%) in minced meat (80%) in beef and less in lamb (76 %).

Serotyping test showed that the strain O157: H7 also has been different rates among different types of meat, as follow: (32%) for each of the samples of beef and minced meat, while (24%) in lamb. The results of the sensitivity test for a range of antibiotics showed that the strain O157: H7 had a high resistance to the studied antibiotics in general, and its resistance was (100%) for each of the Rifampin (RA), Cephalexin (CL) and Cefixime (CFM) for all types of meat. The sensitivity to the antibiotics also varied according to source of isolate, in which the highest sensitivity in all studied meat samples were for Amikacin, ciprofloxacin and Chloramphenicol, as (87.5%) in minced meat sample, (83.4%) in lamb samples, while (75%) in beef samples. the percentage of the total resistance of strain O157: H7 to studied antibiotics also differed by type of meat, which is (67.5%) equally in both beef and minced meat samples while (65%) for lamb samples.

%70-60

81-76 (CDC)

%10

.( Scotter *et al.*, 2000 ; Peter *et al.*, 2000)

7

Hemolytic uremic syndrome (HUS)

% 7- 2

.(Hunter, 2003 ;Olsen *et al.*,2002 ; Stephen and Nduka, 2009) .

5

*E.coli* O 157: H 7

1982

O157 : H7

1987

Shigella

1982

:

Undercooked

.Hemorrhagic colitis

( )

.hamburger

*E.coli* O157:H7

.( Sanderson *et al.*, 2006 ; Bach *et al.*, 2002; Foster *et al.*, 2006 )

)

.(2011

2010

2010

*E.coli*

O157:H7

\*

\*

(25)

(25)

( 75)

(25)

*E. coli* O 157: H 7**Culture Media**

:

\*

.(HIMEDIA) Nutrient broth

\*

.(Oxoid) Nutrient agar

\*

.(OXoid) Muller – Hinton agar

–

\*

.(HIMEDIA) MacConkey agar

\*

.(HIMEDIA) MacConkey serbitol agar

\*

.(HIMEDIA) peptone water

\*

**Solution, Reagents and Stains**

\*

( Collee *et al.*, 1996 ; Koneman *et al.*, 2006)**Antibiotic discs**

\*

.(Mims *et al.*, 2004) .(1)

(BIOANALYSE LID. TURKEY)

:1

Sensitivity S	Intermediate I	Resistant R	/	
≥ 17	15 – 16	≤ 14	30	Amikacin (AK)
≥ 18	13 – 17	≤ 12	30	Chloramphenicol( C)
≥ 15	12 – 14	≤ 11	10	Streptomycin (S)
≥ 19	15 – 18	≤ 14	30	Tetracycline (TE)
≥ 21	16 – 20	≤ 15	5	Ciprofloxacin (CIP)
≥ 16	-	≤ 15	5	Rifampin(RA)
≥ 15	13 – 14	≤ 12	15	Gentamicin (CN)
≥ 18	15 – 17	≤ 14	30	Cephalexin(CL)
≥ 18	15-17	≤14	30	Cefoxitin(CX)
≥ 19	16 – 18	≤ 15	5	Cefixime(CFM)

**Antisera**

\*

-: *E.coli**E. coli* Antisera.O157

Difco

*E. coli* Antisera. H7.(Delost, 1997; Koneman *et al.*, 2006)

) ( ) (1) : -1  
ml pepton water (9) ml ( )  
<sup>3-10</sup> (9) ml (1)  
MacConkey ) (MacConkey agar) (0.1)  
(sorbitol agar  
*E.coli* 24 37 (L)  
.(Stephen and Nduka, 2009)

: -2

: (Prescott *et al.*, 2002 ; Koneman *et al.*, 2006)

Microscope examination \*

(24)

(Koneman *et al.*, 2006) .

Biochemical tests \*

TSI IMVIC

.(Prescott *et al.*, 2002 ).( )

: -3

*E.coli*

*E.coli* antisera O157

Slide agglutination .

.USA

Difco

*E.coli* antisera H7

H7

O157

(18)

H7

O157

.(Delost,1997 ; Koneman *et al.*, 2006) .

-4

O157:H7

*E.coli*

(22)

Kirby – Bauer

(Bioanalyse)

<sup>3</sup> (5)

(Vandepitt *et al.*,2003)

Macferland tube )

(%1) <sup>3</sup> (9.6)

(%1) <sup>3</sup> (0.6)

(No.1

(Oxoid)

(Muller – Hinton Agar)

-

..... *E.coli* O157:H7

(60)

(5 - 3)

(24) ° (37)

.(1)

*E.coli*

(2)

( 300 )

*E.coli*

*E.coli*

.(Abumuhor, 2002 ; Scotter *et al.* , 2000 ; 1981 )

<sup>3-10</sup> ( 300 -4) *E.coli*

(%100)

(%76)

(%80)

*E.coli*

( )

*E.coli*

( Barret *et al.*, 1992 ;1978 ; 1980 )

*E.coli*

*E. coli* O157:H7

*E.coli*

:2

<sup>3</sup> -10		<sup>3</sup> -10		<sup>3</sup> -10	
300	1	180	1	300	1
300	2		2	240	2
80	3	300	3	4	3
300	4	250	4	280	4
300	5	300	5	540	5
300	6	560	6	154	6
300	7	250	7	300	7
300	8	300	8	300	8
50	9	300	9	400	9
300	10	400	10	260	10
30	11	250	11	300	11
210	12		12	370	12
180	13	240	13	400	13
50	14	200	14	300	14
300	15	360	15	350	15
180	16	40	16		16
300	17	230	17		17
220	18	43	18	120	18
150	19	66	19	450	19
300	20		20		20
50	21	230	21	230	21
300	22		22	230	22
60	23	120	23		23
300	24		24	122	24
300	25		25		25
100		76		80	

..... *E.coli* O157:H7

1982

( Bach *et al.*, 2002 ; Foster *et al.*, 2006)

O157:H7

(3)

(%32)

(%24)

52

*E.coli*

73 25

73500

O157:H7 *E.coli*

(61)

*E. coli*

(1999) Tauxe and Griffin

O157:H7

Synge, 2000 ; Sanderson *et al.*, 2006 ; *E. coli* O157:H7

.(Macovei and Zurek, 2006)

. *E. coli* O157:H7

:3

32	8	
24	6	
32	8	

O157:H7

Hemolytic uremic syndrome (HUS)

(Foster *et al.*, 2006) .

*E. coli*

%21.6 %45.1

(2010 )  
*E. coli* (%22.7 %47.7)  
 (2010 )  
 (Shebib *et al.*, 2003)

(Yanming *et al.*, 2008 ; Rangel *et al.*, 2005)

Sorbitol Mocconkey agar

*E. coli* O157:H7

.(Louise *et al.*, 2003)

*E.coli* O157:H7

O157 :H7 (6) (5) (4)

O157 :H7

(%100)

Cefixime(CFM), Cephalexin(CL) , Rifampin(RA)

Cefoxitin ,Gentamicin (%100)

Streptomycin, Tetracycline (%75)

Cefoxitin, Gentamicin (%87.5)

(%83)

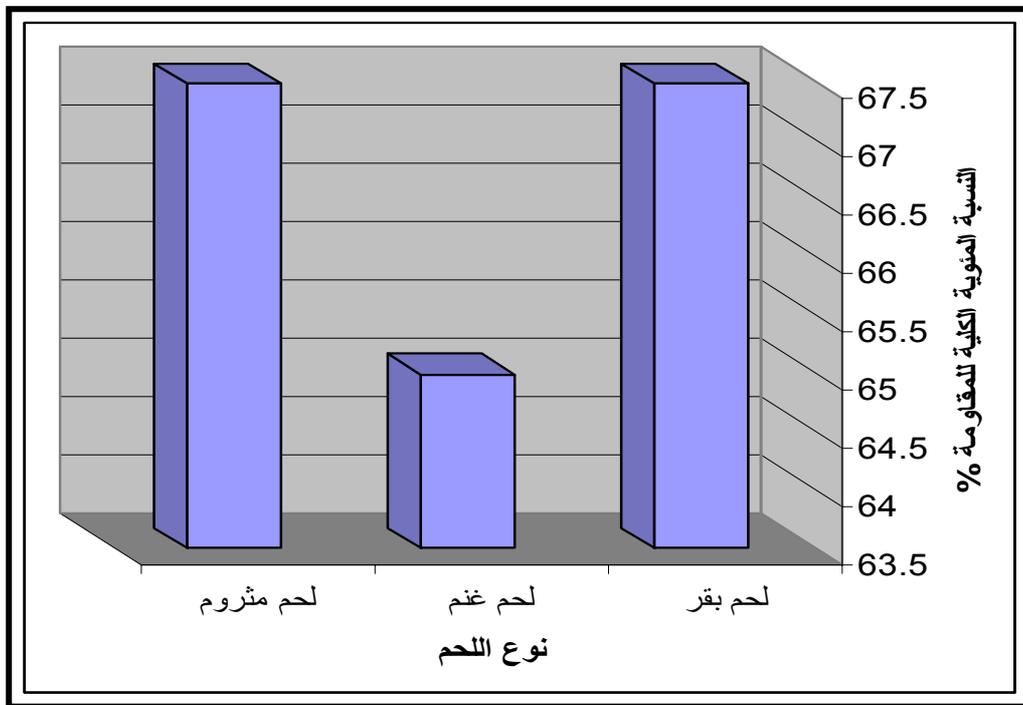
Chloramphenicol,

(%83.4) Ciprofloxacin, Amikacin  
 Chloramphenicol, Ciprofloxacin, Amikacin  
 .(1,2,3,4) (%75)

***E.coli* O157:H7**

:4

CFM	CL	RA	S	CX	CN	TE	CIP	C	AK	
R	R	R	S	R	R	S	S	S	S	1
R	R	R	R	R	S	R	S	R	R	2
R	R	R	R	R	I	R	S	R	S	3
R	R	R	I	R	R	R	R	S	S	4
R	R	R	R	I	R	R	S	I	S	5
R	R	R	I	R	I	R	R	S	S	6
R	R	R	R	R	R	R	S	S	R	7
R	R	R	R	R	R	R	S	S	S	8
100	100	100	62.5	87.5	62.5	87.5	25	25	25	%



O157:H7

:1

*E.coli* O157:H7

:5

<b>CFM</b>	<b>CL</b>	<b>RA</b>	<b>S</b>	<b>CX</b>	<b>CN</b>	<b>TE</b>	<b>CIP</b>	<b>C</b>	<b>AK</b>	
R	R	R	S	R	R	S	S	S	S	1
R	R	R	I	R	S	R	S	R	R	2
R	R	R	R	I	I	R	S	R	S	3
R	R	R	I	R	R	R	R	S	S	4
R	R	R	R	R	R	R	S	I	S	5
R	R	R	R	R	S	R	S	R	S	6
100	100	100	50	83.33	50	83	16.6	50	16.6	%

*E.coli* O157:H7

:6

<b>CFM</b>	<b>CL</b>	<b>RA</b>	<b>S</b>	<b>CX</b>	<b>CN</b>	<b>TE</b>	<b>CIP</b>	<b>C</b>	<b>AK</b>	
R	R	R	R	R	R	R	S	S	R	1
R	R	R	S	R	R	S	S	I	S	2
R	R	R	S	R	R	I	R	S	S	3
R	R	R	R	R	R	R	S	I	I	4
R	R	R	R	R	R	R	I	R	S	5
R	R	R	R	R	R	R	S	S	S	6
R	R	R	R	R	R	R	S	S	S	7
R	R	R	R	R	R	I	S	I	I	8
100	100	100	75	100	100	75	12.5	12.5	12.5	%

(%65)

(%67.5)

.(1)

Proscotte *et al.*, 2008; )*E.coli*.(Watkinson *et al.*, 2007; Kapil, 2005 $\beta$ -Lactamase

.( Kumer, 2003 ; Kapil, 2005)

*E.coli*.( Shebib *et al.*, 2003 )

O157:H7

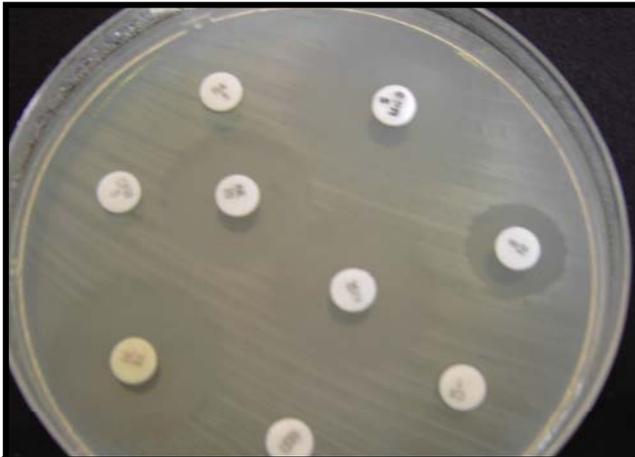
(Yoko *et al.*, 2005)

.(2011

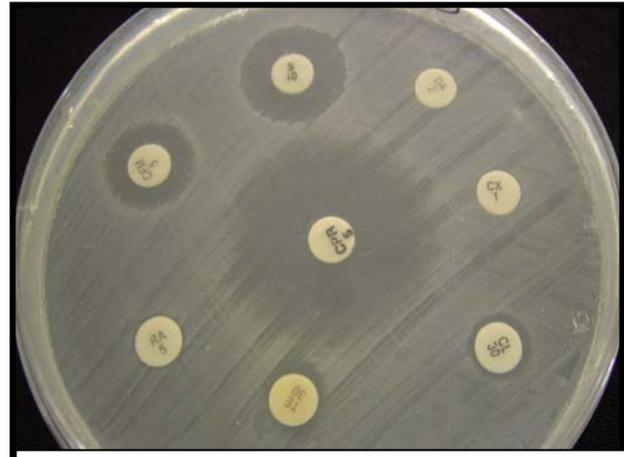
2010

2010

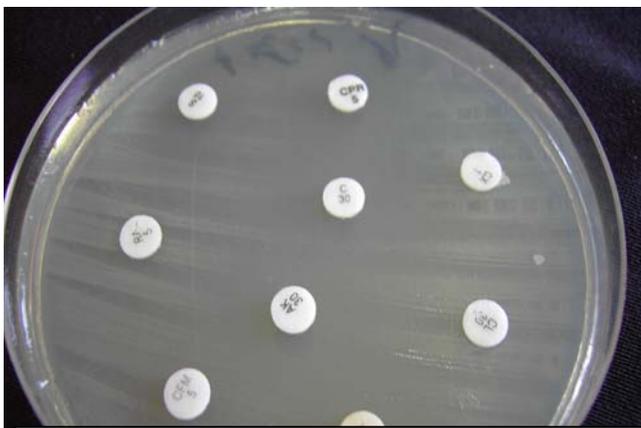
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الصورة 2 : حساسية السلالة *E.coli* O157:H7 المعزولة من لحم البقر



الصورة 1 : حساسية السلالة *E.coli* O157:H7 المعزولة من لحم المفروم



الصورة 4 : حساسية السلالة *E.coli* O157:H7 المعزولة من لحم مفروم



الصورة 3 : حساسية السلالة *E.coli* O157:H7 المعزولة من لحم الغنم

- " (1980)  
 .138-130 .
- " (1978)  
 .140-135 .
- O157:H7 (2010)  
 .(1)21 .
- O157:H7 (2010)  
 .(2)21
- E.coli* O157:H7 (2011)

.132-121

- " (1981)  
 .149-142 .

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