Study the Prevalence of Shiga Toxin Producing Escherichia Coli (Stec 0157: H7 in Fecal Samples of Camels and Human (Awners) in Najaf Province Iraq

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Abstract
This study revealed that out of 200 anorectal sweb from camels produce 20(10%) of shiga toxin producing E.coli (STEC 0.157: H7) and out of anorectal rectal swab from 20 adult awners produce 1(5%) and out of 30 anorectal swab from children produce 4 (13.3%) positive for STEC 0.157: H7 the results also indicated that the chrom agar STEC and chrom agard 0157 and(vitek -3) are of value in isolation and differentiation of STEC 0157:H7 and non 0157 STEC.

1. Introduction

Escheria coli is a member of Escherichia genus in Enterobacteriacea family, Gram negative, facultative anaerobic, non spore forming organism and a commensal E-coli, enhabit intestinal tract and yield Vit K. some strains may cause the disease in human and animals.
The virulent groups include the following Enteropathogenic E- coli, enteroaggregative E-coli, Enterotoxigenic E-coli, enteroinvassive E.coli and diffuse adhering E-coli, sepsis / meningitis E-coli, uropathogenic E.coli and enterohemorrhagic E-coli or the shiga toxin – producing E.coli (STEC).(1),(2) STEC are the most important causes of intestinal infection in human, domestic and willd animals (3);(4) Human infection with STEC is very serious (5);(6) including the hemolytic uremic syndrome bloody diarrhea, hemorrhagic colitis, possible death (1) The STEC classified depending on the important of serotype 0157: H7 and two major categories, STEC 0157 and non 0157 STEC (7); (8) whom considered that the E-coli 0157 is an developing public problem in the world and it is an important cause of food borne disease. The main site for E. coli 0157: H7 is the animals intestine, so rapidly inhabited and shed E-coli in their stool (9). The source of E-coli; 0157: H7 and inhabit in the animal are little known, similarly little known on its epidemiology, therefor this study aimed at:
Isolation of E-coli 0157: H7 from camels and human (their awners).

2. Materials and methods

Isolation and identification of 0157: H7 E. coli

1. Human samples:

Fifty stool samples taken from awners of the camels 30 children and 20 adults of both sexes in the AL-Najaf city, samples were collected by a sterile swab with amies transport media, labeled and placed in cool box and send to laboratory (10).

2. Camels samples: Also were collected from camels fecal samples by rectoanal swab (200) according (10) taken by amies medium, labeled and transported to laboratory sample culture:

A- STEC chrom agar:

Following keeping the fecal swab in enrichment media tube (soy broth) for 6 hrs. at 37C° (5), after incubatin in 20 ml of enrichment tube media was streaked on chrom agar STEC for 24 hrs incubation at 37 C° then observe mauve color indicator for growth of STEC.

B- O157:H7 chromagar: this media was used to differentiate of 0157 E. coli from other non 0157 STEC. after 24 hrs mauve color indicate E-coli 0157 while the blue color colonies indicate non – 0157 STEC. All colonies were detected by gram stain (11) and biochemical test is done by using (Vitek-2) which a modern profisional device for bacterial biochemical identification.

3. Results and discussion

Prevalence of 0157 STEC in camels and awners samples, the current study showed the prevalence of 0157 STEC was 5 out of 50 samples (4 out of 30 children and 1 out of 20 adults' samples of both sexes in human and 20 out of 200 (10%) in camels stool samples (table -1)

Table -1- The prevalence of 0157 STEC: H7 STEC in human (children and adults) and camels samples.

Source of samples		Total Number of sample	Positive for 0157 STEC	Percentage (%)
Camels		200	20	(10%)
Awners	Adults	20	1	(5%)
	Children	30	4	(13.3%)

Following isolation of E-coli 0157, STEC the present results showed that chrom agar was a great aid in isolation, differentiation and diagnosis of STEC while

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non 0157 STEC coli may use chromogenic substances resulting blue to blue green colored colonies in agreement with (12) whom reported that high detection sensitivities' were observed when stool samples are cultured on chrom agar in this study.In other study done by (12) they found that the chromagar STEC has a sensitivity and specificity in isolation of STEC strain.

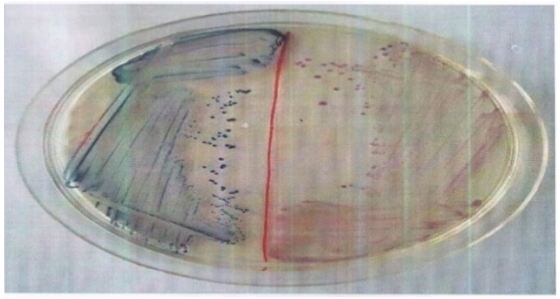

Figure -1: The isolated STEC colony on CHROM agar 0157: blue color colonies (non-0157 STEC) and mauve color colonies (STEC 0157)

The culturing of isolation STEC colony from chrom agar STEC when used the culturing on chrom agar 0157 showed different colors of colonies, the STEC serotype 0157 showed mauve colored colonies while other serotypes of STEC were non 0157 STEC showed blue colored colonies (fig 1)

Chrom agar 0157 was a useful method in isolation and differentiation 0157 STEC E. coli, it use ohromogenic substances which produce mauve colored colonies while non 0157 STEC utilize other chromogenic substance and produce blue to blue green color colonies, this in agreement with study by (13),(14), whom found that chrom agar 0157 was a useful diagnosis for STEC 0157

Microscopical examination:

Of 0157 STEC showed gram negative bacilli and single cell bacteria after 24hrs – incubation at 37C°. fig -2

Figure-2: E. coli bacterial looked into the light microscopic, gram – ve, bacilli and singled cells bacteria after a day post incubation at 37°C. Gram stain,1000X.

Biochemical identification

Was more evident biochemical details, using vitek-2 and (table-2) it is of value in identification STEC 0157: H7 (15)

Table -2 the biochemical identification of 0157 STEC using vitek 2

Table -2 the result of Vitek2											
Biochemical Details											
2	APPA	-	3	ADO	-	4	PyrA	-	5	IARL	-
7	dCEL	-	9	BGAL	+	10	H2S	-	11	BNAG	-
12	AGLTp	-	13	dGLU	+	14	GGT	-	15	OFF	+
17	BGLU	-	18	Dmal	+	19	dMAN	+	20	dMNE	+
21	BXYL	-	22	BAlap	-	23	ProA	+	26	LIP	-
27	PLE	-	29	TyrA	+	31	URE	-	32	Dsor	+
33	SAC	+	34	dTAG	-	35	Dtre	+	36	CTT	-
37	MNT	-	39	SKG	-	40	ILATK	+	41	AGLU	-
42	SUCT	+	43	NAGA	-	44	AGAL	(+)	35	IHISa	-
46	GlyA	-	47	ODC	+	48	LDC	+	53	IHISa	-
56	CMT	+	57	BGUR	-	58	OI29R	+	59	GGAA	-
61	IMLTa	-	62	ELLM	+	64	ILATa				

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