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SURVEILLANCE OF ENTEROHEMORRHAGIC ESCHERICHIA COLI (E. COLI 0157 H7) IN MILKS AND KARESH CHEESE

(With 3 Tables)

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مدى تواجد ميكروب الايشيريشياكولاي المدمم فى الالبان والجبن القرش
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أجريت الدراسة على ثلاثين عينة من كل من اللبن الجاموسى ولبن الاغنام والماعز والجبن القرش لمعرفة مدى تواجد ميكروب الايشيريشياكولاي المدمم وذلك باستخدام الطرق السريعة فى التصنيف وكذلك التصنيف السيرولوجى وقد أظهرت النتائج تواجد الميكروب بنسب 13.3 ، 6.6 ، 10.0 ٪ على التوالى وكذلك نوقشت الاهمية الصحية لهذا الميكروب والاحتياطات الواجب توافرها لمنع تلوث الالبان ومنتجاتها.

SUMMARY

Samples of buffalo's milk, kareish cheese and ovine milk (Thirty of each) collected randomly from different localities in Cairo and Giza governorates were screened for presence of Enterohemorrhagic Escherichia coli (EHEC) by plating on sorbitol MacConkey Agar. Identification of the isolates was done using both conventional methods and multitests minikits (Micro ID and Minitex Systems). EHEC was isolated from 4, 2 and 3 of the examined samples with percentages of 13.3, 6.6 and 10.0 respectively. The minikits proved a high correlation with the conventional methods 93.75, 93.05 for both micro ID and minitex system respectively. The isolates were identified serologically using 0157 and H7 sera. The public health importance and suggested control measures were discussed.

Keywords: Surveillance, enteropathogenic E. coli, milk, kareish cheese.

INTRODUCTION

Enterohemorrhagic Escherichia coli (E. coli 0157 H7) was first recognized as a pathogen in the last decade, it is now emerging as an important cause of bloody diarrhea and renal failure in human (RILEY *et al.*, 1983 and *Assiut Vet. Med. J. Vol. 33 No. 66, July 1995.*

HITCHINS *et al.*, 1992). Several outbreaks and cases of hemorrhagic colitis and hemolytic syndrome caused by E. coli 0157 H7 have been attributed epidemiologically to consumption of raw milk (DUNCAN *et al.*, 1987). Moreover, the organism was incriminated in

cases of hemolytic uremic syndrome in children following consumption of raw milk contaminated with feces of dairy cattle (MARTIN *et al.*, 1986 and BOREZYK *et al.*, 1987). Interests in accurate and rapid methods for identification of microorganisms of public health importance has been developed due to the increasing rate of foodborne disease outbreaks. Micro ID and Minitek systems are two multitests minikits recently introduced to microbiological labs which aid in identification of these organisms. Therefore, the present research was carried out to (a) spot light on the incidence of the EHEC in buffalo's milk, Kareish cheese and ovine milk. (b) compare the efficacy of both Micro ID and Minitek systems with the conventional methods. (c) suggest control measures to eliminate this hazard.

MATERIAL and METHODS

A total of 30 samples, each of, buffalo's milk, Kareish cheese and ovine milk were collected randomly from different localities in Cairo and Giza governorates. Collected samples were delivered directly to the laboratory where the technique adopted by A.P.H.A., 1992 to assay the incidence of E.coli 0157 H7 was followed. The isolates were identified using conventional biochemical tests according to (KRIEG and HOLT, 1984) and both Micro ID system (Morris plains, N.J.) & Minitek system (BBL, Division of Bacton Dichinson and Company, Cockeysville, M.D.), directions supplied by the manufacturer were followed for inoculation of kits before incubation at

37°C for 4 and 24 hours for Micro ID and Minitek system respectively. Serological identification of the isolates was carried out according to (A.P.H.A., 1992).

RESULT

The obtained results were summarized in Tables (1-3).

DISCUSSION

Results achieved in the resrarch and depict in Table (1) indicate that Enterohemrrhagic Escherichia coli (E. coli 0157 H7) could be detected more frequently in the raw milk (Buffaloes and ovine milk) than did in Kareish cheese, as it was isolated from 4,3 samples of Buffaloes milk and ovine milk with percentages of 13.3 and 10.0 respectively, while the incidence in Kareish cheese samples was 2 out of 30 samples with percentage of 6.6. Similar findings were reported by MARTIN *et al.*, 1986; DUNCAN *et al.*, 1987 and DOYLE and SCHOENI, 1987 who could isolate the organism from raw milk incriminated in hemolytic colitis and hemorrhagic uremic syndrome cases. Raw milk may get contaminated with the organism during milking process, handling and distribution (MARTIN *et al.*, 1986).

Results in Table (2) revealed that out of 16,12, and 8 isolates obtained from market raw milk, Kareish cheese and ovine milk only 25, 12 and 7 were identified using Micro ID system respectively with percentages of 93.75, 100 and 87.5 on the other hand Minitek system could identify 14, 11 and 8 of the same isolates respectively with percentages of 87.5, 91.66 and 100 by the

same sequence with An average values for both Micro ID and Minitek systems (Table 3) in correlation with the conventional method were 93.75 and 93.05 respectively. These findings are closely related to those reported by *FUGN, 1992; HARTMAN et al., 1992 and ABD EL-HADY et al., 1994* on comparison of these two systems with the conventional method. From these findings, it can be concluded that consumption of raw milk and the manufacture of cheese or other dairy products from raw milk may

constitute a possible way that allow transmission of the organism to consumers.

The frequent contamination of raw milk and Kareish cheese with Enterohemorrhagic *E. coli* suggests that attention to hygienic milk-handling practices may be an important preventive measures on addition to avoidance of fecal contamination, and proper heat treatment of milk which would eliminate the risk of infection by this organism.

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