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THE PREVALENCE OF YERSINIA ENTEROCOLITICA
IN ICE CREAM
(With One Table)

By

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مدى تواجد اليارسينيا انتركوليتيكا فى
الآيس كريم

سمير الجميع

أجرى هذا البحث لمعرفة مدى تواجد ميكروب اليارسينيا انتيروكوليتيكا فى مائة عينة من الآيس كريم التى جمعت عشوائياً من السوبر ماركت والمحلات فى مدينة المنصورة . وأوضحت النتائج ان ٩ (٩ %) من العينات المفحوصه وجدت ايجابيه لهذا الميكروب وقد تم مناقشة النتيجة وبيان مدى خطورة تواجد هذا الميكروب على الصحة العامه .

SUMMARY

A total of 100 ice-cream samples collected randomly from different localities in Mansoura City were examined bacteriologically for detection and identification of *Yersinia enterocolitica*, nine (9%) of the examined samples were contaminated with *Yersinia enterocolitica*. The public health hazard of its presence in the product is discussed.

Keywords: Prevalence, *Yersinia enterocolitica*, ice cream.

INTRODUCTION

Yersinia enterocolitica is associated with a spectrum of clinical syndromes in man such as acute gastroenteritis, mesenteric lymphadenitis, arthritis and eye infection (WALKER, 1989). There are four major means of transmission: direct human to human, direct animal to human, contaminated food and contaminated water (MEADOWS and SNUDDEN, 1982). *Yersinia enterocolitica* has been isolated from different food stuffs including milk and milk products (SCHIEMANN, 1989).

Although, freezing causes inactivation of *Yersinia enterocolitica* (GRECZ and EL-ZAWAHRY, 1984), the organism has been isolated from ice cream by MOLLARET *et al.*, (1972) and MOUSTAFA, (1989). Therefore this work was carried out to determine the contamination rate of *Yersinia enterocolitica* in ice cream in Mansoura City.

MATERIAL AND METHODS

One hundred random samples of frozen ice-cream were collected from different supermarkets and cafeterias in Mansoura City.

Samples were brought to room temperature by setting the containers in thermostatically controlled water bath at 44 °C for not more than 15 minutes, and thoroughly mixed and prepared according to procedures adopted in Standard Methods for Examination of Dairy Products (RICHARDSON, 1985). The samples were then subjected for bacteriological examinations as follows:

(a) Pre-enrichment:

One ml of mixed ice cream was aseptically transferred to 5ml of trypticase broth then mixed well and incubated at 22 °C for 24 hours (SCHIEMANN, 1983).

(b) Selective enrichment:

One ml of pre-enrichment culture broth was added to 9 ml of bile-oxalate-sorbose (SCHIEMANN, 1982) and incubated at 4 °C for 21 days. Alkali treatment by the method of DOYLE and HUGDAH, (1983) was done by transferring 0.5 ml of enrichment medium to 4.5 ml of 25% KOH and holding the exposure for 2 minutes.

(c) Plating procedure:

Loopfulls of KOH-treated medium were seeded on Cefsulodin-irgasan-novobiocin (CIN) agar plates (Oxoid) (Schiemann 1979). All plates were incubated at 25 °C for 48 hours (WALKER A GILMOUR, 1986). Characteristic *Yersinia* colonies were identified according to SEELIGER and JONES, (1986).

RESELTS

Results obtained were recorded in Table 1

Table 1: Occurrence of *Yersinia enterocolitica* in icecream samples

No of examined samples	No of positive samples	%
100	9	9

DISCUSSTION

The result recorded in Table 1 reveals that 9 (9%) out of 100 samples were contaminated with *Yersinia enterocolitica*.

This finding simulate that reported by MOUSTAFA (1989), while it was higher than that reported by BOER *et al.*, (1986). DELMAS *et al.*, (1985) found a greater prevalence of *Yersinia enterocolitica*.

The difference in these results may be due to different temperatures used in storing the product.

The dangerous nature of *Yersinia enterocolitica* is magnified by its ability to survive and multiply in refrigerated food at 0 °C to 4 °C (LEE, 1977).

It is of value noting that consumption of milk, dairy products and food contaminated with *Yersinia enterocolitica* has a potential hazard (MORSE *et al.*, 1984).

Yersinia enterocolitica was found by KAPPERUD (1981) to be of invasive nature. WHILE PAI *et al.* (1978) claim that pathogenic strains of the organism produce heat stable enterotoxins.

Therefore, to ensure a maximum safety to the consumer and to save milk, milk products and other food from being contaminated with *Yersinia enterocolitica*, strict hygienic measures including environmental hygiene, sanitation measures and lower freezing temperature should be applied for storage.

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