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بالرسالة صفحات لم ترد بالاصل

A STUDY ON THE OCCURRENCE OF YERSINIA MICRO-ORGANISMS IN MILK AND SOME DAIRY PRODUCTS

BY

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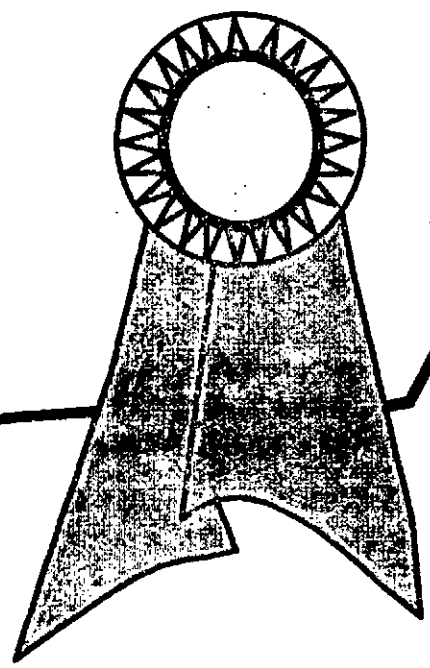
LIST OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

Introduction



Introduction

Yersinia species are common environmental gram-negative, rod shaped bacteria that include eleven species, three of which are pathogenic to humans and animals.

In food hygiene, *Yersinia pseudo-tuberculosis* and *Yersinia enterocolitica* are recognized as food-borne pathogens.

Swine is the primary reservoir for pathogenic *Yersinia* spp. around the world and it can be isolated from environment, faeces of cattle and goats, flies and other insects ***(Shayengani et al., 1983).*** *Yersinia* can contaminate milk and milk products during production, preparation and processing as it can adhere and colonize the dairy processing surfaces that, come in direct contact with dairy products ***(Donnelly, 1990 and Pritchard et al., 1995)***. High temperature short time pasteurization condition of 71.8^{O}C for 18 seconds easily kill *Yersinia enterocolitica*, hence its presence in pasteurized products indicates the real possibility of post pasteurization contamination will exist ***(Tacket et al, 1984 and Schiemann, 1989).***

Several microbiological surveys of raw milk, pasteurized milk, soft cheese and ice cream ***(El-Gemiey, 1995; Constantiniu et al, 1998; El-Brince and Sabreen, 1998 and Halawa & Abdel-Hady, 1998)*** showed that, *Yersinia* species were present with variable percentages.

Milk and milk products have been responsible for numerous outbreaks of Yersiniosis in Canada ***(Kasatiya, 1976),*** in the United States, New York state ***(Anon, 1976 and Black et al, 1978)***, in a tri-states in the southeast ***(Tacket et al, 1984)***, in three southern states ***(Aulisio et al, 1982)*** and in the U.K. ***(Barret,***

1986). Besides acute and chronic gastroenteritis, *Yersinia enterocolitica* can produce a variety of clinical symptoms particularly pseudo-appendicitis, Arthritis, Erythema nodsum and septicemia which cause death ***(IDF, 1994)***. Since Yersinias can survive and grow at refrigeration temperature ***(Kirov et al, 1993),*** as well as can withstand freezing and surviving for extended periods in frozen food, even after repeated freezing and thawing ***(Toora et al, 1992).***

Refrigeration and freezing will not a quarantine safety for milk and dairy products from these pathogenic microorganisms ***(Aytac & Qzbas, 1992).*** Moreover, ***El-Brince and Sabreen, (1998)*** showed that, *Yersinia enterocolitica* survived for 26 days in Yoghurt stored at $4^{O}C$, declined in numbers in ice cream stored at $-18^{O}C$ and remained over a period of weeks in Colby like cheese.

Several investigators, ***(Abee et al, 1993; Aman & Ahmed, 1997 and Aman et al, 1998)*** studied the effect of nisin, a bacteriocin produced by *lactococcus lactis* which is generally recognized as safe (GRAS) in the USA and highly active against *Bacillus, Clostridium, Staphylococcus aureus* and *Listeria monocytogenes*. Unfortunately, these previous studies did not fully address about the effect of nisin on *Yersinia enterocolitica.*

Therefore, the aim of the present study was to determine the incidence of *Yersinia* species in milk, Damietta cheese and ice cream and to study the usefulness of nisin for control the growth of *Yersinia enterocolitica* in cheese according to the following scheme:

1) Isolation of presumptive *Yersinia* from milk, Damietta cheese and ice cream.
2) Confirmation of the isolated *Yersinia spp.* by using the morphological and biochemical tests.
3) Testing the sensitivity of the well confirmed *Yersinia enterocolitica* strain for antibiotics using antibiotic discs
4) Study the effect of freezing on *Yersinia enterocolitica* in the laboratory-manufactured ice cream.
5) Study the effect of nisin on the survival characteristic of *Yersinia enterocolitica* in the laboratory manufactured white soft cheese.