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قسم

نقسم باللّه العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

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بالرسالة صفحات
لم ترد بالأصل

MONITORING OF SPORE FORMERS IN SOME FISH PRODUCTS

Thesis Presented

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To

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UNDER THE SUPERVISION OF

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To

My Parents,

&

My Husband

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Introduction

1. INTRODUCTION

Fish and fish products act as a nutrition desirable feed due to contribution on high quality animal protein, its exceptional richness in calcium and phosphates and its generous supply of vitamins.

Fish and fish products are liable to be contaminated with different kinds of microorganisms from different sources. Such contaminants may be of public health hazard to consumers or may render the products unmarketable, especially in young countries in which the hygienic measures are still under way. Therefore, one of the main responsibilities of the food technologists and scientists is to find the best possible way to produce a product free from pathogens of public health hazard and with low microbial contents in order to improve its keeping quality period.

Spore formers bacteria are the main organisms responsible for food poisoning caused by fish and fish products including *Bacillus cereus, Clostridium perfringens* and *Clostridium botulinum.*

Bacillus cereus has been recognized as an agent of food borne disease for the past several decades. It causes both diarrhoeal and emetic syndrome, each associated with a distinct toxin ***(Lund, 1990)***.

Clostridium perfringens is more widely spread than any other pathogenic bacteria, its principal habitats are the soil and the intestinal contents of man and animals ***(Hayes, 1992)***. As well as being responsible for food poisoning, *C. perfringens* may cause a number of

human diseases ranging from necrotic enteritis to wound infections and life threatening gas gangrene. This pathogenicity is associated with a range of toxins some of which have defined enzyme activity ***(Norris and Pettipher, 1987)***.

Clostridium botulinum is an anaerobic Gram-positive rode whose spores are highly heat resistant. There are seven known types (A through G) based on toxin production. During growth in a food, the organism produces a protein with a characteristic neurotoxicity, which is responsible for intoxication.

So, the present study was planned to investigate the following points:

1. Total aerobic spore formers count.
2. Total anaerobic spore formers count.
3. Isolation and identification of *Bacillus cereus.*
4. Isolation and identification of *Clostridium perfringens.*
5. Isolation and identification of *Clostridium botulinum.*

Review of Literature

2. REVIEW OF LITERATURE

Dunham (1897) mentioned that spores of *Clostridium perfringens* were resistant for one minute to 98 °C.

Wild (1898) observed that spores of *Clostridium perfringens* in stools were more resistant to heat than those in cultures.

Rodella (1910) found that *Clostridium perfringens* produced spores which resisted boiling for one and half hour at 100 °C.

Trub and Wundram (1942) mentioned that during second world war mild food poisoning happened due to eating of stored foods from which only aerobic spore formers could be detected.

Highland and Williams (1944) indicated that the salting raised the bacterial count.

Plazikowski (1947) reported that during the period of 1936 – 1943, 117 of 367 cases of food poisoning investigated by the Stockholm Board of Health, were suspected of being caused by aerobic spore former microorganisms.

Colmer (1948) mentioned that most media employed for enumeration of *Bacillus cereus* contain egg yolk, the primary differentiation of *Bacillus cereus* from other Bacillus species depends on the detection of phospholipase activity in cultures of the former organism.