شبكة المعلومات الجامعية

بسم الله الرحمن الرحيم

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التوثيق الالكتروني والميكروفيلم

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التوثيق الإلكتروني والميكروفيلم

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شبكة المعلومات الجامعية

بالرسالة صفحات
لم ترد بالأصل

Cairo University
Faculty of Veterinary Medicine
Department of Food Hygiene

PUBLIC HEALTH HAZARDS DUE TO SOME SHELLFISHES

Thesis Presented By

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Hygiene and Control of Meat and its Products

Under the supervision of

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بسم الله الرحمن الرحيم

قرار لجنة الحكم

قامت اللجنة بفحص الرسالة ووجدت أنها قيمة إذا اشتملت علي بحوث هادفة تناولت مواضيع لها أهميتها من الناحية الصحية والتطبيقية.

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INTRODUCTION

INTRODUCTION

Shellfish have a highly palatable and digestable quality among consumers in Egypt and allover the world. They are rich in valuable nutrients such as calcium, phosphorus and vitamins (**Waterman, 1980**).

Crabs (*Neptunus pelagicus*) are seasonally harvested, and its meat is one of the most important commercially valuable seafood. Crabmeat is primarily marketed as a refrigerated fresh product with shelf life of less than 10 days, pasteurized with a longer shelf life, or presented as fresh frozen to the majority of consumers (**Strasser *et al.*, 1971; Ingham and Moody, 1990 and Ellender *et al.*, 1993).**

The molluscan shellfish (*Tapes decussata*) locally named (Gandoffli) is a common food of Alex, also appreciated as delicious famous food in other Egyptian towns (**Ghoneim, 1987**). Gandoffli has 90.09% protein on moisture free bases (**El-Sherif, 1981**). Therefore, it is considered an excellent source of good quality protein.

Om El-Kholoul (Wedge shell – *Donax trunculus*) is a bivalved molluscus, collected from marine coasts, cleaned from dust and plankton, then salted by addition of NaCl, the product is consumed after 48 h from salting, mainly by pupils, children and picnickers (**Mansour *et al.*, 1998**).

Most of the important filter feeder shellfish are present close in shore and are therefore liable to contamination from sewer effluent, discharge from shipping, house boat, ... etc. So, they could accumulate

and concentrate pathogenic microorganisms, bacteriophages and viruses (**Evison, 1985; Guthrie, 1988 and NACM, 1992**).

In addition, during holding and handling, the number of bacteria in shellfish is significantly increased (**Alvarez, 1984**).

Several outbreaks were reported worldwide associated with ingestion of contaminated oysters (**Bryan, 1980**). Most microbiological studies of marine shellfish have focused on public health hazards associated with consumption of contaminated seafood. Harvesting of shellfish from polluted areas constitutes a major public health hazards as many are consumed raw or inadequately cooked and the whole animal is edible rather than only the muscle (**Gill *et al.*, 1983** and **Evison, 1985**). Since microorganisms may remain viable within oyster shellfish for long periods, (**Kaysner *et al.*, 1989**), and due to the fact that oysters are traditionally eaten raw or mildly cooked, they seem as being a high risk food and are widely associated with food poisoning (**Wood, 1976**).

The aim of the present study is to evaluate the sanitary condition of Crab, Gandoffli and Om El-Kholoul harvested from different Egyptian coasts during hot and cold season as well as to isolate and identify microorganisms associated with public health hazards.

REVIEW OF LITERATURE

Review Of Literature

Sources of Contamination

Williams (1963) found that about 40% of normal adult human harbour *Staphylococcus aureus* in their nose, throat and finger tips. So, these act as dangerous sources of human food poisoning during fish handling and processing.

Sakazaki *et al.* (1968) mentioned that *Vibrio parahaemolyticus* could be found in seawater, sediment, sea fish, crustacean and shellfish in coastal and estuarine environments. Raw sea fish or shellfish are the most important sources of gastroenteritis caused by Vibrio in Japan, where the high incidence of the disease is due to eating raw seafoods.

Kudoh *et al.* (1974) reviewed that 77.8% of the outbreaks caused by *Vibrio parahaemolyticus* in Tokyo were due to consumption of raw marine products.

Sanyal and Sen (1974) found that crabmeat and shrimp are most frequent seafoods involved Vibrio infections. Those seafoods are contaminated with *Vibrio parahaemolyticus* from other sources. Since sea fish is normally subjected to contamination with *Vibrio parahaemolyticus* either directly or indirectly, it's extremely difficult to prevent the occurrence of Vibrio on raw seafoods. The numbers of Vibrio cells are yielding clinical symptoms in human volunteers which calculated to be 10^6 to 10^7 cells.

WHO (1974) recommended that the most fertile coasts and estuarine were subjected to pollution by sewage effluents. Large proportion of the mollusces from these areas was eaten raw or only

lightly processed, there was a risk that human enteric disease might be transmitted. Disease that had been transmitted by the concentration of polluted molluscan shellfish included typhoid and paratyphoid fever, thus particular care was required to ensure that molluscs harvested from such areas were suitable for human consumption or were rendered safe.

Liston (1976) showed that when *Vibrio parahaemolyticus* was ingested at a level of 10^6 cells or more to cause a characteristic food poisoning syndrome. Since the level of naturally occurrence *Vibrio parahaemolyticus* rarely approaches infective numbers, food poisoning from this organism normally involved mishandling of seafood products.

Wood (1976) stated that there were two important implications from shellfish hygiene: 1- because molluscan shellfish reflect the sanitary quality of the water in which they live, the content of faecal bacteria will vary with any changes in the level of pollution of seawater. 2- if polluted molluscan shellfish were held in basins of clean seawater under controlled conditions, they threw out faecal bacteria i.e. they were purified and made satisfactory for human consumption. There was no direct correlation between the bacterial content of shellfish growing waters and shellfish. So, shellfish served as vehicles for any of common food poisoning organisms e.g. Staphylococcus spp., *Clostridium perfringens* and Salmonella spp.

Bryan (1978) reported that the principle factors that contribute to outbreaks of staphylococcal intoxication whatever that vehicle were, infected persons, contaminating foods, preparing foods a day or more before serving and improper cooling of foods.

Spite *et al.* (1978) stated that the *Vibrio parahaemolyticus* outbreaks probably caused by gross mishandling practices such as