Cairo University
Faculty of Veterinary Medicine
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Prevalence of Listeria species in fish and fish products

Thesis
Presented by

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(Hygiene and control of meat and its products)

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APPROVAL SHEET

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Abstract

L*isteria monocytogenes* is a pathogenic bacterium for man and most animal species, characterized by generalized infection that starts after ingestion of contaminated food with the causative agent . Long storage of fish and fish products that is not properly thermally processed, as well as cooked-cooled ready to eat food that is produced in inadequate hygienic measures, is the ideal condition for *Listeria* multiplication.In the current study, fish, and fish product samples from Giza markets were examined {30 each of cooled fresh fish , frozen fish, frozen shrimp (entire and peeled) , ready to eat (RTE) smoked fish and RTE fried fish products}. Microbiological testing has been performed according to internationally prescribed standards **ISO 11290-1 (1996)** "Microbiology of food and animal feed stuffs -Horizontal method for the detection and enumeration of *L. monocytogenes*". *Listeria* spp were isolated from only 18 samples (12 %) out of the previously mentioned samples. *L.inocuua* was the predominant species, which makes (44.44%) of the total *Listeria* that were isolated from the tested samples.It was found in two samples (13.33%) of each of fresh Clarias lazera fish and RTE fried Sepia, in one sample (6.67%) of each of frozen Mackerel, RTE smoked Herring, RTE smoked Salmon and RTE fried Sepia. *Listeria monocytogenes* followed *L.inocuua* in the incidence of isolation from the different samples (38.89%), where it was found in two samples of imported frozen fish basa fillet (pangasius hypothalamus) (13.33%), in one sample of RTE smoked salmon (6.67%), and in two sample (13.33%) of each of RTE fried fish fillet and RTE fried Sepia. Other isolated *Listeria* belong to the following species: *L.welshimeri* which found in two samples (13.33%) of imported frozen fish basa fillet (pangasius hypothalamus), and *L.seeligeri* was found in one sample (6.67%) of RTE fried fish fillet.

Following biochemical testing, the presumptive isolates of *Listeria monocytogenes* were subjected to multiplex PCR analysis to confirm the harbouring of isolated *L. monocytogenes* the hylA virulence-associated gene The obtained results indicated that consumption of frozen fish, RTE smoked fish and RTE fried fillet and sepia fish, may contribute to food-borne illness. Also, *L. monocytogenes* in raw frozen fish may pose a health risk due to cross contamination of RTE fish products during handling and processing.

Key words: *Listeria monocytogenes*, *L.inocuua, L.welshimeri*, *L.seeligeri*, fish, fish products , multiplex PCR, hlyA gene.

بسم الله الرحمن الرحيم

قَالُوا سُبْحَانَكَ لَا عِلْمَ لَنَا إِلَّا مَا عَلَّمْتَنَا إِنَّكَ أَنتَ الْعَلِيمُ الْحَكِيمُ

سوره البقره (الايه 32)

Dedication

First of all ,

my gratitude and prayful to ***Allah***
for giving me the power not only to
carry out this work but also during
my whole life

Dedication

FOR

MY FATHER,

MY MOTHER

MY BROTHER, MY SISTER

EVERY ONE

WHO TEACH ME ANY THING

FINALLY

THANKS FOR PAIN ..THE BEST TEACHER EVER