سامية محمد مصطفى

شبكة المعلومات الجامعية

بسم الله الرحمن الرحيم

سامية محمد مصطفى

شبكة المعلومات الجامعية

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التوثيق الالكتروني والميكروفيلم

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سامية محمد مصطفى

جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

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

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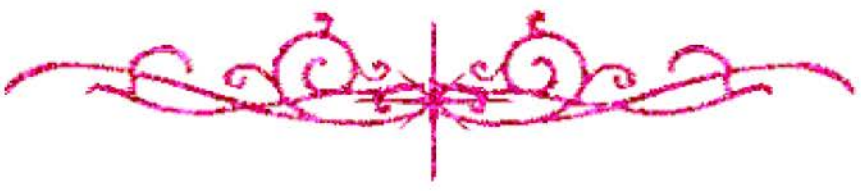
بعض الوثائق الأصلية تالفة



سامية محمد مصطفى

شبكة المعلومات الجامعية

بالرسالة صفحات لم ترد بالأصل

Faculty of Veterinary Medicine

SANITARY ASSESSMENT OF SOME COMMON FRESH WATER FISH IN ASSIUT

Thesis
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بسم الله الرحمن الرحيم


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قرار لجنه الحكم و المناقشة

قامت اللجنة بفحص الرسالة ووجدت أنها قيمة حيث اشتملت على بحوث هادفة لها قيمتها المتميزة من الناحيتين الصحية و التطبيقية

ولذلك

توصي اللجنة بترشيح السيد ط.ب / **محمود عمار محمد عمار** للحصول على درجه الماجستير فى العلوم الطبية البيطرية تخصص (الرقابة الصحية على اللحوم والأسماك ومنتجاتها والمخلفات الحيوانية) .

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CONTENTS

INTRODUCTION

INTRODUCTION

In order to increase the level of the much needed protein of teeming population in Egypt, there has been increased interest of fish, which has traditionally been popular part of the diet in many parts of our country . Fish has long been regarded as nutritive and highly desirable food due to its contribution of high quality animal protein, its exceptional richness in calcium and phosphorus and its generous supply of B-complex vitamins (Mutkoski and Schurer, 1981) .

Most often, however, quality is synonymous with aesthetic appearance and freshness and refers to the degree of spoilage which has undergone. A great number of methods have been proposed for assessing the various aspects of fish quality. Some of them have proved to be unsuitable for the purpose, and others are only useful in very specific situations or for a limited number of fish species or products (FAO, 1988 and Connell, 1990).

With sensory methods, the appearance, texture, odour and flavour of the fish samples are evaluated using the human senses. These are the methods, which the consumer applies and which give the best idea of freshness or degree of spoilage and general presentation (FAO, 1988 and Hall, 1992).

Knowledge about the pH of fish may give some valuable information about its condition . The initial post-mortem pH varies with species, catching ground and season . The catching method does not seem to influence the final value of the post-mortem pH (Love, 1980) . Since fish muscle is not very vascularized, the lactic acid formed through struggling during capture is not

readily removed from the muscle. Thus the same amount of lactic acid is accumulated regardless of the amount of muscle stress before death. The seasonal variation in the pH of the meat is to some extent related to the energy reservoir of the fish, e. g. liver glycogen and muscle glycogen (FAO, 1988) .

Measurement of the total volatile basic nitrogen (TVBN) compounds is an alternative method to trimethylamine (TMA) estimation. Levels of 30 – 35 mg TVBN / 100 g in iced cold water fish are regarded as the limit of acceptability. However, a TVBN value cannot be used to estimate the degree of freshness in the early stages of storage but only the degree of spoilage in the later stages. There is also large species – to – species variation in the development of TVBN. The method has a wider application since it can be used for fish species containing little or no trimethylamine oxide. Also it is more useful for quality assessment of species when volatile bases other than TMA are formed during spoilage (FAO, 1988 and 1992)

In contrast to most other methods, the microbiological procedures do not give any information about freshness or eating quality. The aim of these examinations is to give an impression about the hygienic quality of the fish, the standard of hygiene during handling and processing, and the possible presence of bacteria or organisms of public health significance (FAO, 1988) .

Unlike meat and poultry, fish are more liable to contamination with pathogenic bacteria from animal / human reservoir which may contaminate the water depending on the fishing area and also may be further contaminated during handling and processing . While the muscle flesh of living fish, which is the mean edible part is normally sterile but microorganisms can penetrate from the skin and the gut to the flesh (FAO, 1983) . The penetration and

contamination increase in cases of fish caught from polluted areas where there are high densities of bacteria (Howgate, 1998) . So that many investigators are convinced that fish from polluted environment may be passive carriers of bacteria and fungi pathogenic to man (Ghittino, 1972 and Varnam and Evans, 1991). Furthermore, fish can act as a source of many bacterial infection occasionally of epidemic characters when they were inadequate and unhygienically handled, processed, stored, distributed and prepared for consumption (El-Gohary and Samaha, 1992) .

Fungal contamination of fish is considered the main cause of spoilage which lead to off flavour and unpalatable taste and may constitute a public health hazard as well as many economic losses. Also fungi were reported to be responsible for many fish diseases (Thatcher and Clark, 1978 and Stoskopf et al. 1993)

In Assiut, raw freshwater fish are the most perishable in fish markets, but they are marketed without inspection or quality control as well as, in many of these markets the adopted hygienic measures during storage and sale of fish are neglected which may lead to economic losses or risk the public health . So, this study was designed to throw a light on the hygienic quality of the most common three freshwater fish in these markets namely *Oreochromis niloticus, Clarias gariepinus* and *Bagrus bajad* as sold in these markets through assessment of fish quality and to look for correlation between :

1 – Sensory assessment as a mean of determining quality
2 – Chemical methods for determining quality through determination of pH and total volatile base nitrogen .
3 – Bacteriological methods for assessing the quality of fresh fish .
4 – Mycological methods for determining fish quality .

REVIEW OF LITERATURE