بسم الله الرحمن الرحيم

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

شبكة المعلومات الجامعية

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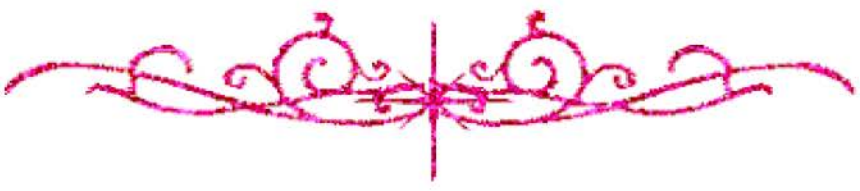

بالرسالة صفحات لم ترد بالأصل

Cairo University
Faculty of Veterinary Medicine
Department of Food Hygiene and Control

QUALITY IMPROVEMENT OF SOME EGYPTIAN FROZEN MEAT PRODUCTS

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Hygiene and Control of Meat and its Products

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CONTENTS

INTRODUCTION

INTRODUCTION

The further processed beef products production is nowadays a big industry in Egypt. The common products available could be grouped into 3 main categories i.e. products stored and handled at the ordinary room temperature, products which require cooling through storage and distribution and products which require freezing temperature for storage and distribution (frozen meat products).

Of the third category are (minced meat, beef burger, kofta and oriental raw sausage). The importance of that group of meat products is very obvious with the centralized catering system, commonly expanded in Egypt which demand unnegligable volume of the industry, besides other food serving establishments and home use demand.

The expanding distribution and consumption of such products calls for the necessity of thorough investigation and control to ensure wholesomeness and safety of the products.

Despite the efforts expressed by producers, control of quality and safety inseders yet, the products are every now and then incriminated as health alarming etiological agents. Besides the blame given by cardiologist all over the world for that type of foods to be a heart risk source.

Microbiological quality is for a long time considered the basic landmark and criteria for the quality evaluation of food. In the last decade, food hygiene scientists requisted besides the microbiological attributes to investigate the biogenic products due to the existence and propagation of such microbes.

Not only the hygienic quality of a product determine the total quality but the physical and sensory characteristics of a certain product as agreed by professionals and legislative acts are to be considered in evaluating certain product. Such characteristics are subject to change from one country to the other and from time to time as quality updated in a certain country.

Therefore, this work had been planned as being an extension to a previous study entitled "Quality study of the market frozen meat products" and beside the criteria looked for in the previous study the biogenic products of protein degradation by microbial contamination are also analysed for the market products and then the possible experimental models for improvement under the frame of products quality abdating as well as a response for the health impaction the nutritional contribution of the products.

REVIEW OF LITERATURE

Review of Literature

Organoleptic and Sensory Attributes

The acceptability of a meat product starts by the sensory aspect. The acceptability includes appearance and flavor. The different flavor active compounds have an important effect on the cumulative sensory properties of all food.

In this respect, **Pearson and Tauber (1984)** described processed meat product deterioration as being of two types; appearance and flavor and they called deviation collectively as spoilage. **Times and Watts (1958)** used the term wormed over flavor (WOF) to describe the characteristic off flavor that developed in cooked meat after cooking and storage. The WOF differs from the common rancidity in raw meat, fatty tissues, rendered fat which is normally not apparent until they have been stored for weeks or months (**Pearson *et al.*, 1977).**

Roushdy (1971) concluded that the physical examination of minced meat is important for the quality control, and for immediate detection of undesirable changes. The major sensory attributes by which consumers judge the meat quality are color and tenderness, both are connected with live animal characteristics such as; species, age, sex breed, plane of nutrition, transportation and preslaughter stress, as well as post mortem such as; method of slaughter, method of hanging the carcass and holding temperature **(Asghar and Yeates, 1977).**

Nusbaum *et al.* (1983) found a darkening of color on the surface of patties as a result of slower freezing which may attributed to the presence of larger ice crystals and more surface dehydration in slow-frozen patties.

Andersen *et al.* (1990) and Faustman *et al.* (1992) recorded that the development of brown discoloration in minced meat indicate oxidative changes and to relate rancidity as judged from a determination of thiobarbituric acid reactive substances in mince surface. The color of meat is extremely the single most important factor affecting the psychrosensory acceptance, purchasing, preference, freshness and price of meat.

The oxidative rancidity (warmed over flavour) considered as a big problem occurring during the storage of meat. The susceptability of muscle lipids to oxidation depends on their degree of unsaturation. In processed meats the occurrence of lipid oxidation is not only influenced by fatty acids, prooxidant and antioxidant content but also by the processing condition, which includes: reduction in meat particle size, cooking and various additives used in formulation like salt, nitrite, phosphate, extenders and fillers **(Gray and crackel, 1992 and Monahan *et al.*, 1992).**

Smith and Al-Fawaz (1995) mentioned that the ground beef is susceptible to warmed over flavor (WOF) also referred as meat flavor deterioration (MFD) and oxidative rancidity which develops during short periods of refrigerated storage. The most likely cause of MFD development is oxidation of phospholipid membranes producing a mixture of aldehydes and ketones. These classes of compounds are responsible for development of undesirable flavor attributes. MFD