



**CHEMICAL, PHYSICAL AND MICROBIOLOGICAL
STUDIES ON SOME LOCAL AND IMPORTED MEAT
PRODUCTS**

BY

AMANY AHMED ABDEL-HALIM MOHAMMED

2021



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Amany Ahmed Abd El-Halim Mohammed

B.Sc. Agri. Sci.(Food Science and Technology), Fac. of Agric., Fayoum
University, 2015

Thesis

Submitted in Partial Fulfillment of
The Requirements for the Degree of
Master of

Agricultural science (Food Science and Technology)

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Abstract

“Chemical, physical and microbiological studies on some local and imported meat products”

The aim of this study is to evaluate the quality of some imported and local canned meat products on the basis of chemical, physical and microbiological quality characteristics and to detect the presence of pork meat and fat in these products using some chemical and genetic methods and to evaluate these methods to determine the most accurate method for detecting the rates of adulteration with meat and fat Pork in some imported and local canned meat products.

In this study, the chemical analysis of both beef and beef fat, as well as pork and pork fat, was performed to ensure their quality, it was found that pork times higher than beef.3 contains an amount of thiamine that is about 1

Laboratory canning of beef, beef fat, pork and pork fat was carried out in different proportions for each of them. It was found that the canning process led to a decrease in the thiamine content by 74.7%, 83.2% in the case of canned beef and pork respectively, and the amount of thiamine in the canned beef increased the more the proportion of pork.

A chemical, physical and microbiological evaluation of meat cans in the Egyptian market was conducted in Fayoum, whether imported or locally, it was found that the chemical composition and physical properties of these cans are different among themselves in the chemical composition and natural properties, which is due to the effect of the different raw materials used and manufacturing conditions. It was also noted that the thiamine content (mg / g of TN) was high in two samples of the imported products, Method for estimating thiamine indicated the possibility of detecting the pork. The microbiological analysis also showed that all the products were completely free of thermophilic bacteria count while it contained a large proportion of total viable bacterial count, total *Staphylococcus aureus* bacteria count, and total *clostridia* count.

Using the real-time polymerase chain reaction (real time) method, it was possible to detect efficiently and accurately that the products were

adulterated with parts of pork or fat to less than 5%, while it was found that the method for determining the level of vitamin B₁ (thiamine) was less accurate and efficient as it cannot to detect cases of adulteration with pork if it is added with less than 10%. Therefore, it is recommended to use real time PCR method as an effective way to detect adulteration with pork meat or fat.

Key words: canned meat, beef, pork, thiamine, Real Time PCR.