

Fayoum University
Faculty of Agriculture



**QUALITY ASSURANCE OF PASTRAMI AND BEEF
LUNCHEON**

By
Samah Ahmed Abd-Eltwab Awad

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Thesis

Submitted in Partial Fulfillment of
the Requirements for the Degree of
Doctor of Philosophy

In

Agricultural Science
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Abstract

The main objective of the present study was to evaluate the conformity of pastrami and beef luncheon collected from local Egyptian markets to the Egyptian Standard Specifications (ESS). Beside food safety against hazardous heavy metals, Mycotoxins and some parasites (*Toxoplasma gondii* and *Sarcocystis spp*) was carried out. Application of bee propolis extract as natural antimicrobial food additive instead of sodium nitrite in pastrami processing was also investigated.

The chemical evaluation of pastrami collected from local Egyptian markets indicated that moisture and fat contents were consistent with the Egyptian Standard Specifications (ESS) while total volatile nitrogen and peroxide values were inconsistent with ESS in 6 and 8 samples out of 10 samples respectively.

All pastrami samples were free from aflatoxin B1 and ochratoxin A. On the other hand all pastrami samples were inconsistent with Egyptian Standard Specification for microbial counts.

The parasitological investigations showed that 20 and 30% of pastrami samples contained *Toxoplasma gondii* and *Sarcocystis spp*.

The chemical evaluation of beef-luncheon samples collected from local Egyptian markets indicated that: moisture, fat, and ash contents were within that recorded in E.S.S. while protein content, peroxide and thiobarbituric acid values in the same samples were inconsistent with the same Specifications.

The microbial counts in beef luncheon were higher than that permitted by the ESS (2005). Aflatoxin B1 was detected in 10% of beef-luncheon samples, however 35% of the samples contained ochratoxins A. All examined samples were free from *Toxoplasma gondii* and *Sarcocystis spp*.

Lead concentrations in all pastrami samples were higher than 0.5 ppm which is the maximum limit permitted by codex standards in cured meats. However, lead concentrations in 55% of luncheon samples were less than 0.5 ppm, which is consistent with codex standards. Cadmium concentrations in the all pastrami samples and 90% of beef luncheon samples were safe for human

consumption according to the contaminants group subordinated to the Nordic Council of Ministers 1991 which permitted 0.1 ppm of cadmium in raw meats. Accordingly, it could be advised that there is a high risk from eating pastrami and beef luncheon produced and subjected for sale in the regions from which samples were collected.

Addition of bee propolis ethanol extract among the coating material used in laboratory processed pastrami had high keeping quality effect for pastrami. Bee propolis ethanol extract had high significance effect in lowering total volatile nitrogen, peroxide values, thiobarbituric acid values and reduce the microbial load on laboratory processed pastrami. The higher the concentration of added propolis extracts the lower values of total volatile nitrogen, peroxide and thiobarbituric acid values and the microbial counts.