THE MEATS WE EAT!

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Abstract

The experiment is to determine if cheap raw meat products contain the meat stated in the packaging. Research shows that consuming contaminated and adulterated food can lead to serious health problems, including infectious diseases and allergies. DNA barcoding technology serves as a regulatory tool for identification and authenticity, providing the public with insights into the microbiological and toxicological risks associated with consuming unknown meats. With ground meats like ground beef, pork, and turkey from C-Town, Food Bazaar, and Bravo supermarkets, we will test if they are real or not. Our control is premium fresh ground beef from the butcher. If meats sold in grocery stores are tested through DNA barcoding then it will show if the meats could be detrimental to human health. DNA barcoding will help test the meats to discover what they are. The experiment was not successful as there was no data from the experiment shown.

Introduction

Have you ever questioned the authenticity of the food you consume? In today's world, the probability of unknowingly consuming burgers made from insects is surprisingly high. Most of the time, we are unaware of how our food is prepared unless we witness the process firsthand, which is rarely the case. The likelihood of consuming mislabeled meats rises in establishments that are more affordable or popular. This experiment aims to unveil the composition of these dubious mystery meats using DNA barcoding, offering a precise and efficient method for consumers to gain this insight. Such knowledge is crucial to safeguard individuals from potential health hazards associated with counterfeit meat. Recent advances in DNA barcoding have enabled scientists to identify species accurately, involving the extraction of DNA sequences from tiny tissue samples of various organisms (Kress & Erickson, 2012). Previous research has highlighted the significance of ensuring food quality and safety. According to Dawan and Ahn (2022), the consumption of contaminated and adulterated food can lead to severe health complications, including infectious diseases and allergies. Therefore, the implementation of authentication and traceability systems is essential to enhance food safety. Unfortunately, some food products, particularly those sourced from outside, undergo questionable processing methods, resulting in the production of 'meat' of questionable origin. In certain instances, insect-based meat substitutes have been discovered, posing both health risks and a revolting revelation (Ismail, Hwang, Joo, 3/31/2020). Utilizing DNA barcoding in testing can provide valuable insights into the authenticity of ground meats sold in supermarkets. This method is crucial for ensuring that the food we consume meets the necessary safety and quality standards.

Methods

- *Ground beef, ground turkey, ground pork*
- *Incubator*
- *Tweezers*
- *Centrifuge*
- *Solutions*
- *Tubes*
- *Micropipettes*
- *Gel*
- *etc…*

Methods

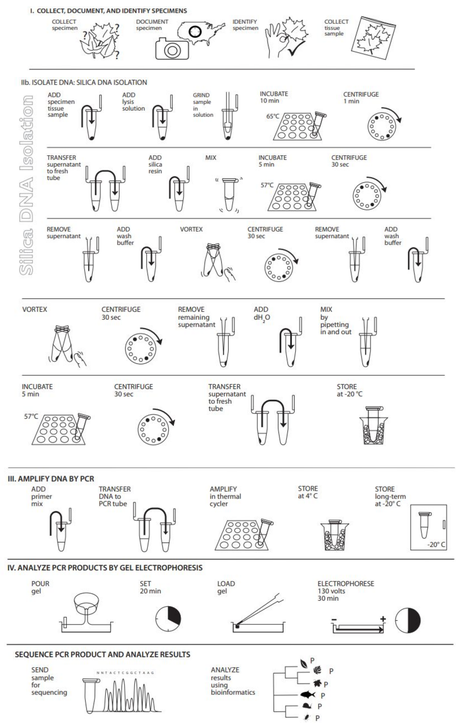


Figure 1. After using gel electrophoresis to show the DNA it was found that there nothing there. There was no sequenced DNA from the meat samples.

Results

The results of the gel electrophoresis were unexpected as it does not refute or approves the original hypothesis, which stated that more affordable ground meats would not be completely authentic. The results of the electrophoresis show no real results, as it was blank. There were no results that came out of the experiment because the DNA was not amplified.

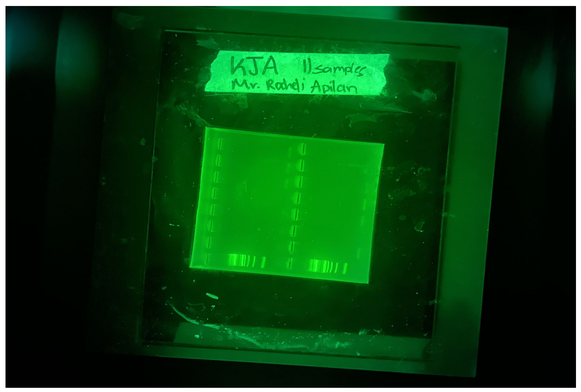
Tables & Figures

Meats	Control	C-Town	Food Bazaar	Bravo Supermarket
Beef				
Pork				
Turkey				

ground beef

ground turkey

ground pork



Discussion

The lack of results could be do to some errors made during the experiment, for example, not centrifuging properly, incubating too for too long, and not adding the buffer before the ethanol(last steps before adding solution to gel plate. This was due to the distractions present in the room that led to mistakes being made which largely impacted the results. A small misstep that occurred when amplify the dna with the transferring of dna might have caused there to be no results. Another possibility could have been that the meats were in the freezer too long and didn't unfreeze completely natural.

References

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