

PDF - ISOLATION, IDENTIFICATION AND ANTIBIOGRAM OF *Staphylococcus aureus* ISOLATED FROM COW MEAT - researchcub.info

Abstract

The study was carried out with aim to isolate *Staphylococcus aureus* from cow meat and determine the antibiogram pattern of *S. aureus*. Three samples of cow meat from three different locations (Gwagwalada market, Abattoir market and *Kasuan Dare*) in Gwagwalada were collected to isolate *S. aureus* from the samples. The organisms isolated were *Salmonella* spp, *Escherichia coli*, *Staphylococcus aureus* and *Listeria monocytogenes*. Several biochemical tests were carried out to identify, the *S. aureus* isolates like Catalase test (positive), Mannitol test (positive), Coagulase test (positive) and Oxidase test (negative). The antibiogram pattern of *S. aureus* was evaluated using commercially prepared disk. The antibiotics tested were Pefloxacin (Pef), Streptomycin (S), Ampiclox (Apx), Amoxicillin (Am) and Ciprofloxacin. The pattern indicated that the overall *S. aureus* were resistant to Pef, S, Cpx and less resistant to Am and Apx. Results clearly suggested a possibility of potential public health threat of *S. aureus* resulting from contamination of cow meat with pathogenic bacteria which is mainly due to unhygienic processing, handling, and unhygienic environment.

TABLE OF CONTENT

CHAPTER ONE

- 1.0 Introduction
- 1.1 Contamination & Preservation of Cow Meat
- 1.2 Significance of the Study
- 1.3 Aims and Objectives

CHAPTER TWO

- 2.0 Literature Review
- 2.1 Description of Cow
 - 2.1.1 Scientific Classification
 - 2.1.2 Nomenclature of Cow
- 2.2 Anatomy of Cow
- 2.3 Habitat of Cow
- 2.4 Nutritional Value of Cow Meat
 - 2.4.1 Nutritional Content of Cow Meat
- 2.5 Uses of Cow
- 2.6 Food Borne Organism Associated with Cow Meat
- 2.7 Spoilage Organisms
 - 2.7.1 Factors Influencing Cow Meat Contamination

- 2.7.2 Control of Cow Contamination
- 2.8 *Staphylococcus aureus*
- 2.8.1 Scientific Classification
- 2.8.2 Animal Infection
- 2.8.3 Virulence Factors
- 2.8.4 Carriage of *S. aureus*
- 2.9 Treatment and Antibiotic Resistant

CHAPTER THREE

- 3.0 MATERIALS AND METHOD
- 3.1 STUDY AREA
- 3.2 Sample Collection
- 3.3 Preparation of Homogenate of Cow Meat Samples
- 3.4 Identification of Isolates
- 3.5 Biochemical Test
- 3.5.1 Gram Staining
- 3.5.2 Catalase Test
- 3.5.3 Mannitol Test
- 3.5.4 Coagulase Test
- 3.5.5 Oxidase Test
- 3.6 Preparation of Pure Cultures of *S. aureus*
- 3.7 AntibioGram Test of Pure Strains of *S. aureus*

CHAPTER FOUR

- 4.0 Result

CHAPTER FIVE

- 5.0 Discussion, Conclusion and Recommendation
- 5.1 Discussion
- 5.2 Recommendations
- 5.3 Conclusion

REFERENCES

CHAPTER ONE

1.0 INTRODUCTION

The right of a consumer is to have a product of good quality and not a product that will constitute any form of health hazard. Cow meat are highly desirable, palatable, digestible and highly nutritious. Cow meat is comprised of about 20-45% protein; others are water, fat, phosphorus, iron, vitamins and zinc (USDA, 2011). Quality products are those that meet some need or expectation of consumer and are safe and wholesome as well (Sahoo *et al.* 1996). The microbiological safety and quality of cow meat are equally important to producers, retailers and consumers. Two quite different groups of micro-organism are relevant: ones that

are pathogens and ones that are generally harmless to human health, but being psychrotrophic, they are able to multiply on the product during chill storage (Clay, 2004). Spoilage results mainly from off-odour development and product shelf-life is determined both by the number of spoilage organisms present initially and the temperature history of the product at all stages of production and subsequent storage and handling (Pooni and Mead, 1984). For chill stored cow meat, Viehweg *et al.* (1989) demonstrated that virtually all the odorous substances found at spoilage could be attributed to microbial growth and metabolism. Contamination of cow meat with food borne pathogens remains an important public health issue, because it can lead to illness if there are malpractices in handling, cooking or postcooking storage of the product.

Fresh (uncooked) food such as cow meat carries natural microflora that may contain organisms potentially harmful to humans. The microbial flora of cow meat is largely confined to the skin surface. Isolates from cow meat could include members of the following genera *Proteus*, *Enterobacter*, *Alcaligenes*, *Escherichia*, *Bacillus*, *Flavobacterium*, *Micrococcus*, *Pseudomonas*, *Staphylococcus* and *Salmonella* (Frazier and Westhoff, 1988).

Contamination of the skin and lining of the body cavity occurs during washing, plucking and evisceration. Bacterial numbers vary considerably on the surface of the cow meat. This variation is greater between cows found in different locations. The type of organism isolated depends upon where the samples are taken and upon the stage of processing (Frazier *et al.*, 1985). Fresh cattle products like cow meat are known to undergo deterioration due to microbial action, chemical and physical changes. In normal handling and storage of cow meat, these deterioration changes are attributed to microbiological contamination and activity.

1.1 Contamination & Preservation of Cow Meat

Cow and cow products are frequently contaminated with several types of micro-organism. This problem is even more severe under temperature-abused conditions as well as improper or inefficient refrigeration commonly observed in retail cow meat sold in open markets. Cow meat can be kept in good condition for months if properly frozen and the storage temperature is low enough. Cow meat should freeze fast enough to retain most of the natural bloom of a freshly killed cow. The storage temperature should be below 17.8°C and relative humidity above 95% to reduce surface drying. Most cow meat is sharp-frozen at about 29°C or less in

circulating air or on a moving belt in a freezing tunnel. Other spoilage micro-organisms are introduced into the cow meat by the workmen during cutting and evisceration, through water, and air in the dressing, cutting and cooling room environment (Bhagirathi *et al.*, 1982). However, various methods are used in the preservation of cow meat in order to reduce the incidence of these organisms. These include asepsis, use of heat, use of low temperature, chilling, freezing, preservative such as asceptic, adipic, succinic etc at pH 2.5 and use of irradiation (Frazier and Westoff, 1988). Despite these methods of preservation, contamination of dairy products remains the order of the day before it gets to the final consumer.

1.2 Significance of the Study

Many micro-organisms have been found to be pathogenic to human consumption. *Staphylococcus aureus* being one of the most ubiquitous on food material such as raw meat and raw bulk milk (Matthews *et al.*, 1997) was chosen to be studied to know the antibiotics that are most effective against *Staphylococcus aureus*. The knowledge of the antibiotics that are most effective can be suggested for the treatment of the cows that their meat are being sold in the market to reduce the effect of *Staphylococcal* infestation on cow meat and the resultant detrimental effects it has on humans when consumed.

1.3 Aims and Objectives

Various bacteria are associated with cow meat; this research is aimed at achieving the isolation of *Staphylococcus aureus* from cow meat sold at different locations in Gwagwalada metropolis. The specific objectives of this study include:

- i. To determine the amount of *Staphylococcus aureus* found in cow meat in Gwagwalada market.
- ii. To carry out antibiogram analysis of *Staphylococcus aureus*.
- iii. To speculate the significance of the antibiotics used.

ISOLATION, IDENTIFICATION AND ANTIBIOGRAM OF *Staphylococcus aureus* ISOLATED FROM COW MEAT

The complete project material is available and ready for download. All what you need to do is to order for the complete material. The price for the material is NGN 3,000.00.

Make payment via bank transfer to Bank: Guaranteed Trust Bank, Account name: Emi-Aware

technology, Account Number: 0424875728

Bank: Zenith Bank, Account name: Emi-Aware technology, Account Number: 1222004869

or visit the website and pay online. For more info: Visit <https://researchcub.info/payment-instruct.html>

After payment send your depositor's name, amount paid, project topic, email address or your phone number (in which instructions will sent to you to download the material) to +234 70 6329 8784 via text message/ whatsapp or Email address: info@allprojectmaterials.com.

Once payment is confirmed, the material will be sent to you immediately.

It takes 5min to 30min to confirm and send the material to you.

For more project topics and materials visit: <https://researchcub.info/> or For enquiries: info@allprojectmaterials.com or call/whatsapp: +234 70 6329 8784

Regards!!!