



Prevalence Of Salmonella And Staphylococcus species On street vended Bakery Products As A Risk Factor Of Food Poisoning In Nagongera Town Council
Tororo, Uganda

By

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Declaration

I, Mulako William, declare that this research dissertation is my own original work otherwise cited, and where such has been the case reference has been stated and that the same work has not been submitted for any reward in any other university or other tertiary institute of higher education.

Signature.....

Date.....11/05/2023

Approval

This dissertation has been submitted for examination and has been approved by supervisors.

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Table of Contents

Declaration.....	Error! Bookmark not defined.
Approval	Error! Bookmark not defined.
Dedication	iv
Acknowledgement	v
Abstract.....	vi
1. Introduction.....	1
1.1 Background.....	1
1.2 Objective of study	5
1.3 Problem statement.....	5
1.4 Research Hypothesis	6
1.5 Significance of the study.....	6
1.6 Limitations of the study	6
1.7 Scope of study.....	6
2. Literature Review.....	8
3. Methods.....	12
3.1 Study site.....	12
3.2 Materials (requirements).....	12
3.3 study design	12
3.4. Study population	12
3.5 collection of food items	13
3.6 Data collection.	13
3.7 Data Analysis and presentation.....	15
4.0 Results and Discussion.	16
4.1 Hygienic practices.....	16
4.2 Microbial contamination of the bakery products.....	19
4.3 Comparisons with WHO permissible limits.	23
5.0 Conclusions.....	25
5.1 Recommendation.....	25
5.2 Pictures.....	26
Reference	27

Dedication

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Abstract

Bakery products in which category Chapattis and samosas fall constitute a great percentage of snacks and take way foods consumed by large number of people in Uganda. They are among the categories of street vended foods in most trading centres in Uganda. Street food vending is one of the highly flourishing business in the informal sector which not only provides cheap and affordable ready to eat foods to its customers but also employment to a great deal of local people in Uganda. However, this informal business is largely left in the hands of local traders and therefore less inspected by government, but only on occasional basis. Therefore issues of food hygiene and sanitation are sometimes compromised by these food vendors, and has created some levels of doubt about safety of these foods for human consumption but so far little has been done to investigate these. Therefore the purpose of this study was to examine the safety of bakery products sold in Nagongera Town council for human consumption. The analysis involved laboratory testing of food samples for pathogenic contamination and an informal field observation of hygienic practices of the food handlers with the help of a checklist. A total of 31 bakery foods of these food items; 23 chapattis and 8 samosas were collected from vendors in Nagongera town council at 9:00 am. The mean total plate count on was 1.0×10^{13} cfu/g and 4.4×10^{12} cfu/g on samosas and chapatti respectively, whereas the mean Salmonella count was 3.75×10^{11} cfu/g and 3.57×10^{11} cfu/g on samosas and chapatti respectively. The mean count of Staphylococcus on chapatti was 1.0×10^{12} cfu/g and non was detected in samosas. Of the 23 chapattis sampled, 4 (17.4%) were contaminated with Salmonella spp, 1 (3.2%) was contaminated with Staphylococcus spp, of the 8 samples of samosas samples 1(12.5%) showed contamination with Salmonella spp, non (0%) of the samosas was contaminated with staphylococcus bacteria. Most of food vendors were operating under unhygienic conditions for example none of them had a hand washing facility, head gear, apron. All the contaminated food items had bacterial loads within the unsatisfactory level of permissible limits as per WHO standards therefore unfit for consumption by human beings. Standard safety food handling procedures should be employed by street food vendors to reduce this hazards that may result into food borne diseases.

Keywords---- chapatti, samosas, contamination, street food vendors, hygienic practices.

1. Introduction

1.1 Background.

The global bakery products market size was USD 397.90 billion in 2020. This is projected to grow from USD 413.36 billion in 2021 to USD 590.54 billion by 2028, growing at a compound annual growth rate (CAGR) of 5.12% during the forecast period (2021-2028). The rise in CAGR is due to the growing demand for convenient foods, affordability, constant evolving launch of innovative products by bakery industry and increasing westernization in the emerging markets.(Fortune, 2022)

However, foodborne diseases has continued to be a significant challenge to whole world. (Hikmet, 2019). Almost 1 in 10 people in the world, estimated 600 million fall ill after eating contaminated food and 420000 die every year. US\$110 billion is lost each year in productivity and medical expenses resulting from unsafe food in low and middle income countries. Children under 5 years of age carry 40% of the foodborne diseases, with 125000 deaths every year. Unsafe food contains harmful bacteria, viruses, parasites, or chemical substances, these causes over 200 diseases ranging from diarrhea to cancers. It also causes vicious cycle of diseases and malnutrition, mostly affecting infants, young children, elderly and the sick.(WHO, 2022)

Foodborne diseases are caused by contamination of food and occur at any stage of the food production, delivery, and consumption chain. These diseases can result from different forms of contamination like polluted water, soil, air, and unsafe practices of production and storage. Most of these diseases will cause gastrointestinal problems, but some of them also cause gynecological, immunological, and neurological symptoms. The economic burden of foodborne illnesses is estimated to be of \$95.2 billion in productivity loss and \$15 billion for treating these diseases annually.(Vega, 2021)

According to Centres for Disease Control and Prevention (C.D.C.) of the U.S. Department of Health and Human Services, an estimated 1 in 6 Americans (or 48 million people) gets sick every year. Of those, 128,000 are hospitalized and 3,000 die. Centre for Science in the Public Interest (C.S.P.I.), a consumer advocacy organization based in Washington, reports that bakery products were associated with 142 disease outbreaks and 2,822 illnesses from 2004 to 2013.

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