

**NSAP****47th Annual Conference**
(JOS 2022)**CONFERENCE PROCEEDINGS**THEME
SECURING ANIMAL AGRICULTURE AMIDST GLOBAL CHALLENGES**SLAUGHTERING SURVEY AND MICROBIOLOGICAL ASSESSMENTS OF ABATTOIR WATER IN IBARAPA CENTRAL LOCAL GOVERNMENT (IGBOORA), OYO STATE, NIGERIA**¹Oyinlola, O. O, ²Oshibanjo, D. O and ¹Adetunji, A.A¹Department of Animal Health and Production, Oyo state College of Agriculture and Technology, Igboora, Oyo state, Nigeria.²Department of Animal Production, Faculty of Agriculture, University of Jos, Jos Plateau State, Nigeria.e-mail: oyinlolaopeyemi77@gmail.com**ABSTRACT**

The study was carried out to investigate the sources of water and animals, mode of transportation of the animals to the slaughter slab and the microbial load of water used in Igboora slaughter slab. Samples of water used (for washing of carcasses) in the slaughter slab were collected in a day in Ibarapa central local government area, Igboora, Oyo State. The information on source of water, source of animals, and the mode of transportation of the animals to the slaughter slab was obtained from registered personnel and casual workers of Igboora slaughter slab, Located at Ajegunle. The study revealed that the source of water used in the slaughter slab to be deep well which was very close to the slaughtering section. It was revealed that the sources of animals were through procurement from neighbouring markets such as weekly cow market (kral) within the vicinity and outside the town like Budo musa. The mode of transportation was revealed to be commercial vehicles, motor bikes, and pick up vans depending on availability and distance. Vibrio cholera was enumerated as indicator organism in the water used. In conclusion, there was high rate of contamination of the water used in the slaughter slab which can cause serious health problem to the public, when meat washed with the contaminated water is consumed.

Keywords: Microbial load, slaughter slab, source of water water used, *E. coli*, *Vibrio cholera*.

INTRODUCTION

The purpose of an abattoir is to produce hygienically prepared meat through humane handling of the animals, using hygienic techniques for slaughtering and dressing (FAO, 1992). At the same time, it enables proper meat inspection to be carried out. Abattoir operation could be very beneficial to man; in that it provides meat for human consumption and other useful by-products. Inadequate facilities and hygiene at slaughter houses can result in contamination of meat and occupational hazards to workers (Cook *et al.*, 2017). Recent studies have shown that zoonoses from abattoir wastes are yet to be fully controlled in more than 80% of public abattoirs in Nigeria (Cadmus *et al.*, 1999). Diseases like pneumonia, diarrhea, typhoid fever, asthma, wool sorter diseases, respiratory and chest diseases were reported to be associated with abattoir activities (Bello and Oyedemi, 2009). *Escherichia. coli* infection source was reported to be undercooked beef which has been contaminated, often in abattoirs, with faeces containing the bacterium. Due to the trending issues in town that abattoir are not producing hygienic meat enough due to contaminations from tools and materials used in the abattoir and environmental factor like air, pollution. This study was designed basically to identify the effect of water used in the abattoir, sources of the water, sources of the animals and mode of transportation, because, the diseases that are contacted by humans as a result of food contamination are increasing at an alarming rate and possible ways to combat this problem must be sought out. This study assessed the level of microbiological contamination of the water used in meat processing at Igboora slaughter slab.

MATERIALS AND METHODS***Experimental Site***

The study was carried out in Ibarapa central local government (Igboora), Oyo State, Nigeria, with latitude 7°26' 1.79" n and longitude 3°17' 16.37" E. and rainfall of 86 mm and temperature ranges between 71° F to 93° F

Assessments of slaughter slab facilities and operations



The slaughter slab was visited for a day from 7:00 am – 10:00 am. The component of the abattoir was evaluated based on both their presence and functional status. Pictures were taken using digital camera to document conditions of the infrastructures and procedure of the abattoir operations.

Source of Information

The information was obtained from registered personnel and casual workers of Igboora slaughter slab Located at Ajegunle.

Information Collected: Number of animals slaughtered per day, (cow and bull), Mode of waste disposal, Mode of transportation, Source of water, Sources of the animals and Water sample

Source of Water: The water sample was collected from its source (deep well) and drainage pathway of used water into sterilized bottles and were taken to the laboratory for microbiological analysis.

Microbial load identification and characterization.

Water samples collected were taken to Animal care laboratory, located at Oluyole in Ibadan.

Parameters measured: Coliform count, non-coliform count, growth on TCBS (Thiosulphate citrate bile sucrose agar), growth on SCA (Simmon citrate agar), growth on EMB (Eiosine methylene blue agar), motility, morphology, catalase reaction, Oxidase reaction, Indole reaction, glucose fermentation, lactose fermentation, sucrose fermentation, GAS production, H₂S production, manitol fermentation, and organism identified.

RESULTS

Result of the information acquired during the study

From the information acquired from the registered personnel individually, it was revealed that, an average of 14 cattle were slaughtered on daily basis which 70% of these cattle were cow and 30% were bull respectively. The mode of waste disposal was by dispersion of cattle dungs, waste and used water beside the slaughtering unit, which is leaking directly to the underground water source. It was revealed through this study that the mode of transportation of these cattle was through the use of commercial vehicles, motor bikes, and pick-up vans, depending on availability and distance. The main source of water in this slaughter slab is deep well water which is very close to the slaughtering section. The animals slaughtered in the slaughter slab were procured from both the neighbouring markets such as weekly kraal market within the community, and neighbouring Fulani kraal within the vicinity and distant markets like budo Musa and some other markets outside the community.

The result for Total plate count of used water in Igboora slaughter slab is presented in Table 1. The coliform count of Igboora used water was too numerous to count (TNTC), and the non-coliform count was negative (-), while the growth on thiosulphate citrate bile sucrose agar (TCBS) was 82 CFU/100mL, and growth on simmon citrate agar (SCA) and growth on eosine methylene blue agar (EMB) were both positive (+).

Motility and morphology of microorganisms from used water in Igboora slaughter slab

The motility and morphology of microorganisms from Igboora slaughter slab used water is depicted in Table 2. The motility was negative (-), while the morphology of the microbes appeared in rod shapes.

Table 1: Total plate count of used water in Igboora slaughter slab

Parameter	Count in cfu/100µl
Coliform count	TNTC
Non-Coliform count	-
Growth on TCBS	82 CFU/100µl
Growth on SCA	+
Growth on EMB	+

TNTC- Too Numerous to Count

EMB - Eosin methylene blue agar



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SCA - Simmon Citrate Agar

TCBS -Thiosulphate Citrate Bile Sucrose Agar

(-) Negative (No growth)

(+) Positive (There was growth)

Table 2: Motility and morphology of microorganisms from used water from Igboora slaughter slab

Parameters	Observation
Motility	-
Morphology	Rod shape
(-)	Negative (No growth)
(+)	Positive (There was growth)

Biochemical test of microorganisms from used water in Igboora slaughter slab

The biochemical test of microorganisms from used water in Igboora slaughter slab is shown in Table 3. The catalase reaction, oxidase reaction, indole reaction, glucose fermentation, lactose fermentation, sucrose fermentation, and GAS production were positive while the H₂S production and manitol fermentation were negative (-)

Table 3: Biochemical test of microorganism from Igboora slaughter slab used water

Parameters	Observation
Catalase reaction	+
Oxidase reaction	+
Indole reaction	+
Glucose fermentation	+
Lactose fermentation	+
Sucrose fermentation	+
GAS production	+
H ₂ S production	-
Manitol fermentation	-
(-)	Negative (No growth)
(+)	Positive (There was growth)

Organism identified in used water from Igboora slaughter slab

The organisms identified from Igboora slaughter slab used water is presented in Table 4. Organisms identified from Igboora slaughter slab used water were *Escherichia coli* and *Vibrio cholera*

Table 4: Identified organisms in used water from Igboora slaughter slab

Parameter	Identified organisms
REMARKS	<i>Escherichia coli</i> ; <i>Vibrio cholera</i>

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DISCUSSION

The organisms identified from Igboora slaughter slab in the water used was *Vibrio cholerae*, which when consumed by humans can cause serious health problem according to Mahmood et al, (2014) which stated that *Vibrio cholerae* is spread mostly by unsafe water and unsafe food that has been contaminated by faeces containing the bacteria. The organism identified from Igboora slaughter slab water was also *Vibrio cholerae*. When meats washed with this contaminated water is consumed by humans, it may cause cholera.

CONCLUSION

In conclusion, there was high rate of contamination of the water used and the used water in the slaughter slab which can cause serious health problem to the public, when meat been washed with the contaminated water is consumed. An alternative source of water that will be used for dressing carcasses from the slaughter slab is recommended.

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