An Assessment of Processing Environment and Microbial Quality of Fresh Meat and the Antibiotic Resistance of Microbes Isolated From Fresh Meat Sold At Techiman Municipality

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ABSTRACT

The aim of this study was to assess the processing environment and microbial quality of fresh meat sold at the Techiman Municipality. It also isolated pathogenic microorganism and determined their susceptibility to antibiotics. Blood and tissue swab samples of an area of $100cm^2$ were collected from twenty-one butchers in six selected abattoirs. Likert- scale structured questionnaires were used to collect data on the processing environment. Three different sets of questionnaires were administered to twenty-one butchers, seven drivers and sixty consumers respectively. Simple random sampling technique was used to select the respondents. The precision rate and confidence level approach was used to estimate the sample size. The code of practice for meat market or abattoir was used as a guild for developing the questionnaires. The outcome of the research revealed that, there is a lack of basic health and hygiene compliance among the butchers. The processing environment does not conform to the Code of practices of meat market or abattoir promulgated by Food and Drugs Authority. This is reflected in inadequate sanitary and hygiene facilities and their poor maintenance, poor state of equipment used, dilapidated state of some of the abattoir and poor waste management at most of abattoir or meat market. Results from the study showed that there are existences of illegal slaughter sites across the Techiman Municipality. Total heterotrophic Bacteria Count of the meat was determined by using plate count technique. Although, the total heterotrophic counts of the meat samples recorded were high but they fell within the permissible limit of Ll O'cfu/cm 2 Standard set by Ghana Standard Authority (GS 69). However, the high load of *E. coli* isolated indicates the general lack of cleanliness in handling and feacal contamination of the fresh beef. *Staphylococcus aureus, Salmonella* sp. and *Clostridium perfringens* isolated were within the permissible limit of 1×10^5 cfu /cnr'.However, the high prevalence of *Staphylococcus aureus* is an indication of poor personal hygiene of the meat processors and temperature control.

Salmonella sp. Isolated were linked to the contaminated waters used in abattoirs for washing carcass and *Clostridium perfringens* as contamination from soil, dust and faecal materials. The results obtained from the antibiotics susceptibility test showed that *E. coli, Salmonella sp, and Clostridium perfringens* isolated show some levels of resistant to all the antibiotics used. *S. aureus* showed no resistance to Tetracycline and Erythromycin. The resistance observed may be attributed to mechanisms such as drug efflux, gene mutation and natural selection. The isolated pathogenic microorganism; *Salmonella* sp. C. *perfringens,* S. *aureus* and *E. coli* showed some level of resistance to Ampicillin, Gentamycin, Ciprofloxacin, Penicillin, Tetracycline, Erythromycin, and Chloramphenicol used on them. It is therefore recommended that more attention should be focused on the construction of new and rehabilitation of the existing slaughter houses and abattoir to meet the standard set by GSA. It is suggested that this study should be replicated in the other parts of the country to generalize the findings and also assessment of waste management situation in the various abattoirs must be carried out.

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