

Health Problems Associated With Utilization of Fore Stomach Digesta From Slaughter Animal at Sokoto Abattoir, Sokoto, Nigeria

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ABSTRACT

This study has investigated the uses to which Fore stomach digesta recovered from animals slaughtered at the abattoir in Sokoto, Nigeria, are put and the attendant health risks. From preliminary investigation, the digesta are used as sources of manure mainly for vegetable farming as well as a medium for incubation of eggs of flies which hatches into larval forms (maggots) and used as sources of feeds for local poultry. Out of a total of 25 users investigated from the village of Dundaye farming community in Sokoto, 80% use it as farm manure, 16% as sources of poultry feed while 4% use them in fish pond. The study has shown that 84% of the respondents had diseases like ring worms, skin rashes, eczema, infected wounds, common cold, asthmatic attacks and constipation at one time or the other linked to the practice. Bacteriological investigation of the fore stomach digesta indicated that it was infected with various fungi and bacteria such as *Candida albicans*, *Aspergillus* species, *Streptococcus* species and *Staphylococcus aureus*. Skin swabs and scrapings from the farmers yielded by-product, the results obtained may account for the high number of the respondents (84%) with various diseases. There is therefore the need to develop a better treatment before its application to reduce the health hazards to the users.

Key words: Utilization, fore-stomach digesta, slaughter animals, Sokoto abattoir, Nigeria

INTRODUCTION

The application of fairly decayed fore-stomach digesta (FSD) for promoting of soil fertility is becoming a popular practice especially amongst the vegetable irrigation farmers in Sokoto, Nigeria. FSD could be freely obtained from most abattoir in the country. It is often left decaying in most abattoirs due to lack of inadequate waste disposal facilities. Its utilization by farmers could therefore provide an effective means of its disposal. FSD has been used as a supplement in the diet of growing sheep (Maigandi *et al.*, 2002); and it is being a breeding habitat for insect larva (maggots) for feeding birds by some small-scale poultry breeders.

The use of certain animal waste is sometimes said to be associated with potential health risks, which could be due to the presence of pathogenic micro-organisms, anti-metabolites, and other anti-nutritional excretion products (FAO, 1980). Improperly disposed or stored FSD could cause serious environmental contamination and pose serious public health problems. This study reports on the health hazards associated with the use of FSD.

MATERIALS AND METHODS

Fore-stomach digesta (FSD) evacuated from the Sokoto abattoir, Sokoto, Nigeria, which slaughter over 80 cattle daily are accumulated in an open space within the abattoir.

During the rainy season, the FSD accumulates, constituting a menace because of the unpleasant odour. In the dry season there is a rush for the FSD by farmers who come around to remove them. The users of this product were interviewed to obtain information on what they use the by-product for. A total of 25 people were interviewed on the uses of this by-product. They were also physically examined for evidence of pathological lesions and histories of some common diseases. Samples of the FSD were subjected to microbiological examination.

Samples were also taken from the observed skin lesions for microbiological examination using cultural, morphological and biochemical characteristics.

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RESULTS

Table 1 shows the response of users. Majority of the users 20(80%) utilized the FSD as manure on their farms for vegetable farming, 4(16%) use it to harvest maggots to feed poultry and one (4%) for fish pond to feed fishes.

From the clinical examination, twelve (12) individuals showed evidence of skin lesions comprising of five (5) ring worms, four (4) rashes and three (3) eczema. Two persons were asthmatic and three (3) complained of common cold. Others indicated constipation, while two (2) had contaminated foul smelling wound on their limbs. None of the respondents was aware of any harmful effect of the digesta (Table 2).

The results of microbial investigation of the FSD revealed the presence of some pathogenic fungi and bacteria, which may be of public health significance. The Fungi identified were *Aspergillus fumigatus*, *Candida albicans*, *Tricophyton verrucosum* and *Microsporium gypseum* while the bacteria isolated were *Escheichia coli* *Bacillus* sp. *Staphylococcus* sp. *Streptococcus* sp. *Clostridium* sp. and *Corynebacterium* sp (Table 3). The samples of the skin lesions on the farmers yielded *Candida albicans*, *Aspergillus fumigatus*, *Camphylobacter* sp and *Staphylococcus aureus* (Table 4).

Table 1. Frequency of utilization of FSD by respondents in Sokoto abattoir

| Users | Frequency | Percentage |
|---------|-----------|------------|
| Manure | 20 | 80 |
| Poultry | 4 | 16 |
| Fishery | 1 | 4 |
| Total | 25 | 100 |

Table 2. Frequency distribution of disease common to FSD users

| Disease | Frequency | Percentage |
|--------------------------|-----------|------------|
| Ring worm | 5 | 28 |
| Skin rashes | 4 | 16 |
| Eczema | 3 | 12 |
| Asthmatic attack | 2 | 8 |
| Common cold | 3 | 12 |
| Constipation | 2 | 8 |
| Infested wounds on limbs | 2 | 8 |
| No effect | 4 | 16 |
| Total | 25 | 100 |

DISCUSSION

Continuous cultivation of the land without the use of fertilizers has resulted in poor soil fertility in most agricultural systems in Sub-Saharan Africa (Smaling *et al.*, 1997). The depletion of soil nutrients through prolonged cultivation requires supplemental fertilizers, but most farmers do not have access to fertilizers due to the limited supply of the item. A key resource that could be useful in reversing this trend is manure from livestock, particularly cattle (Braun *et al.*, 1997). Manure and other waste products of plants and livestock have been used as a soil nutrient's replenishers for centuries. These materials were the only means of improving soil fertility before the advent of chemical fertilizers (Lupwayi *et al.*, 2000).

The uses of FSD by the respondents have indicated the good use to which this by-product can be put to (Table 1). Lupwayi *et al.*, (2000) reported that manure from animal source provides a good source of manure and increase in productivity. By evacuating the digesta, the environment of the abattoir could be properly managed and kept clean thereby reducing flies and subsequent contamination of the meat at the abattoir.

The respondents linked some of the ailments observed to the onset of the practice and some of the organisms

isolated are known to cause the skin lesions reported. Such organisms are the pathogenic fungi. *Aspergilli* are present in vegetation, feed, and secondarily in air and water and objects exposed to them; *Aspergillus fumigatus* becomes predominant over competing microbiota in fermented plant materials e.g. hay, silage and compost (Biberstein 1999a). Some of the fungus isolated such as *Candida* and *Aspergillus* are associated with systemic infection (Merchant and Packer, 1969).

Table 3. Organisms isolated from the FSD obtained from the Sokoto abattoir

| Organism isolated | Frequency of isolation |
|-------------------------------|------------------------|
| <i>Aspergillus fumigatus</i> | 13 |
| <i>Candida albicans</i> | 12 |
| <i>Trycophyton verrucosum</i> | 7 |
| <i>Microsporum gypseum</i> | 7 |
| <i>Stapylococcus aureus</i> | 25 |
| <i>Bacillus</i> sp | 20 |
| <i>Eschericia coli</i> | 20 |
| <i>Salmonella</i> sp | 20 |
| <i>Clostridium</i> sp | 7 |
| <i>Corynebacterium</i> sp | 6 |
| <i>Streptococcus</i> sp | 5 |

Table 4. Microbial organisms isolated from lesion observed on farmers who use the FSD

| Lesion | n | Organism isolated | Frequency |
|-------------|---|---------------------------------|-----------|
| Ring worm | 5 | <i>Aspergillus fumigatus</i> | 2 |
| | | <i>Candida albicans</i> | 2 |
| | | <i>Microsporum</i> sp | 1 |
| | | <i>Bacillus</i> sp | 3 |
| Skin rashes | 4 | <i>Staphylococcus aureus</i> | 3 |
| | | <i>Corynebacterium pyogenes</i> | 2 |
| | | <i>Corynebacterium pyogenes</i> | 2 |
| Wound | 2 | <i>Corynebacterium pyogenes</i> | 2 |
| | | <i>Staphylococcus aureus</i> | 2 |

In conclusion, this study has identified some health problems associated with the use of FSD by our farmers. It is therefore recommended that to achieve maximum benefit there is a need to introduce proper treatment of the FSD before its application.

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