



Niger Delta University

Bacteria Contamination of Poultry Meat Processed by Smallholder Poultry Farmers

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Introduction

Purpose of raising Poultry birds:

- 1) Production of quality protein as meat
- 2) Eggs for human consumption

Sources of Contamination of Meat and eggs for human consumption

I. During slaughter

II. Along the processing chain

Bacteria contaminants of poultry products:

Salmonella, *Escherichia Coli*, *Campylobacter jejuni* are some bacteria which causes economic losses in the poultry industry.

Processing method of poultry from smallholder farmers:

In low medium income countries like Nigeria, poultry meat from smallholder farmers are processed manually in small scale.



Processing chicken on a rainy day

Methods

Sample collection:

Head and thigh (drum stick and thigh) were purchased from vendors for smallholder poultry farms.

Preparation of samples

- ❖ Samples were chopped to fine particle using a sterile knife.
- ❖ 1 gram weighed on an electrical weighing balance then transferred into 9 ml of normal saline solution to make 10 ml of stock solution.

Bacteria isolation

- Third diluent of serial dilution was plated out on nutrient agar, incubated at 37°C for 24 hours.
- Colonies picked at random according to varying cultural characteristics, sub-cultured by streak method on fresh nutrient agar plates, incubated at 37°C for 24 hours to obtain pure isolates.
- Biochemical tests, gram staining technique and bacterial motility tests carried out to identify bacterial isolates.
- All analysis carried out in triplicates.

Results

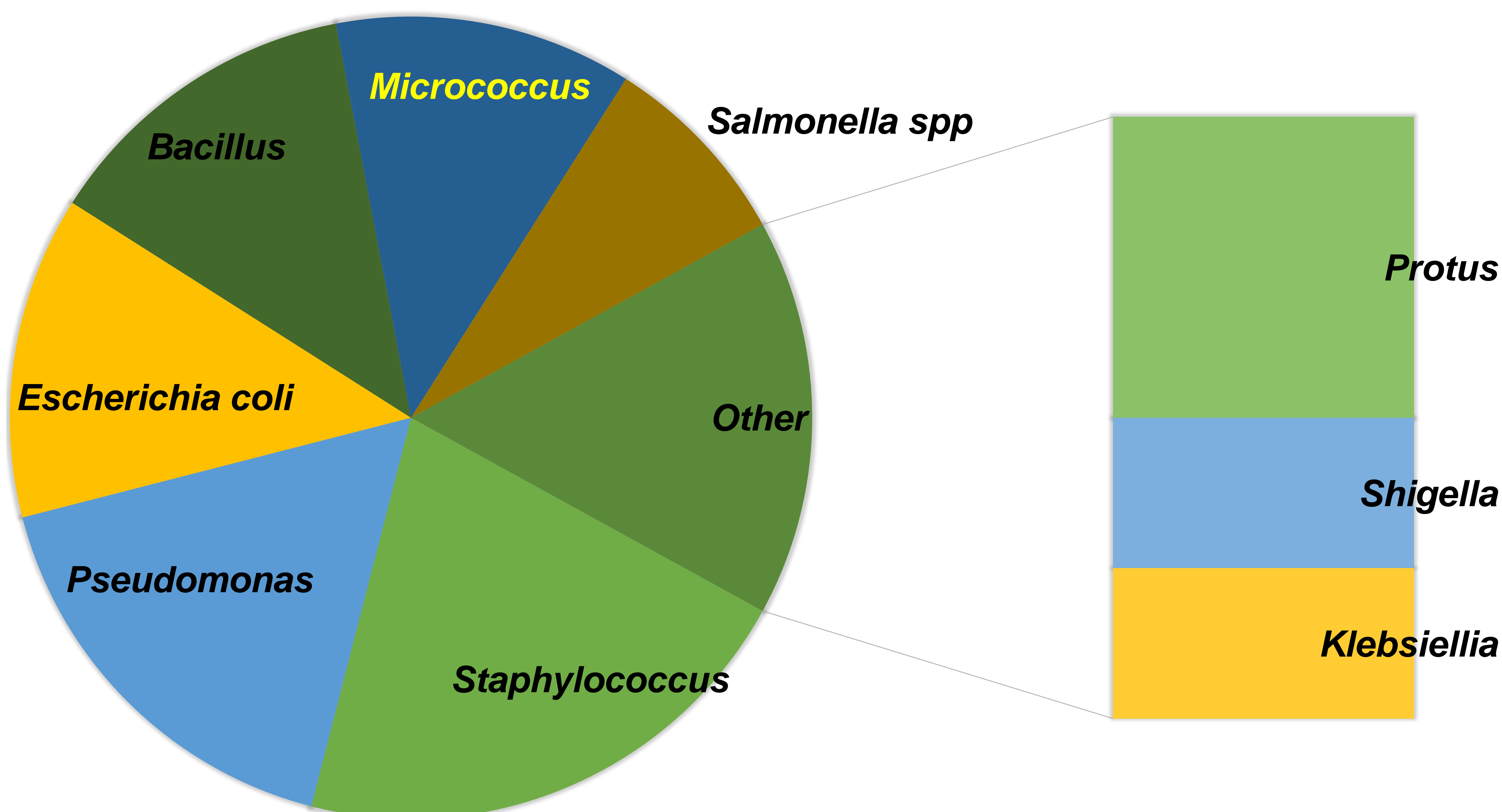


FIG 1: BACTERIA ISOLATES

Highlights

Nine bacteria were identified on both meat samples which were obtained as pure culture:

- *Staphylococcus*: 21%
- *Pseudomonas*: 17%
- *Escherichia coli*: 13%
- *Bacillus* 13%
- *Micrococcus*: 12%
- *Salmonella spp*: 8%
- *Protus*: 8%
- *Shigella*: 4%
- *Klebsiellia*: 4%



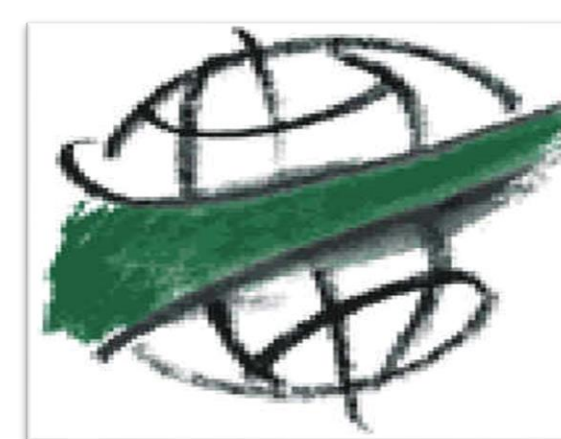
Results



Already processed chicken cut up for sale to consumers

1. The environment where vendors for smallholder poultry farmers process chicken contributes to contamination of poultry meat.
2. Exposure of processed chicken parts also contribute to bacteria contamination.
3. Resources available to process chicken meat by vendors for smallholder poultry farmers are limited.

Conclusion: Poultry meat processed by smallholder poultry farms are contaminated with a wide range of bacteria besides *Salmonella spp* and *E. coli*.



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