# Antimicrobial Resistance and Molecular Diversity of Foodborne Pathogens in Ghana

Introduction

Foodborne diseases are one of the most important public health concerns worldwide but few studies have investigated the various causes and applied the requisite surveillance and laboratory tools in their intervention in Ghana. In 2015, 5,100 children under the age of five were recorded to die each year due to foodborne diseases. There is therefore a growing concern for further investigations about the causative pathogens of foodborne diseases and the reasons for the difficulty in their prevention and treatment.

Key Message: This cross sectional surveillance will help investigate the antimicrobial resistance and molecular diversity of some selected foodborne pathogens in Ghana
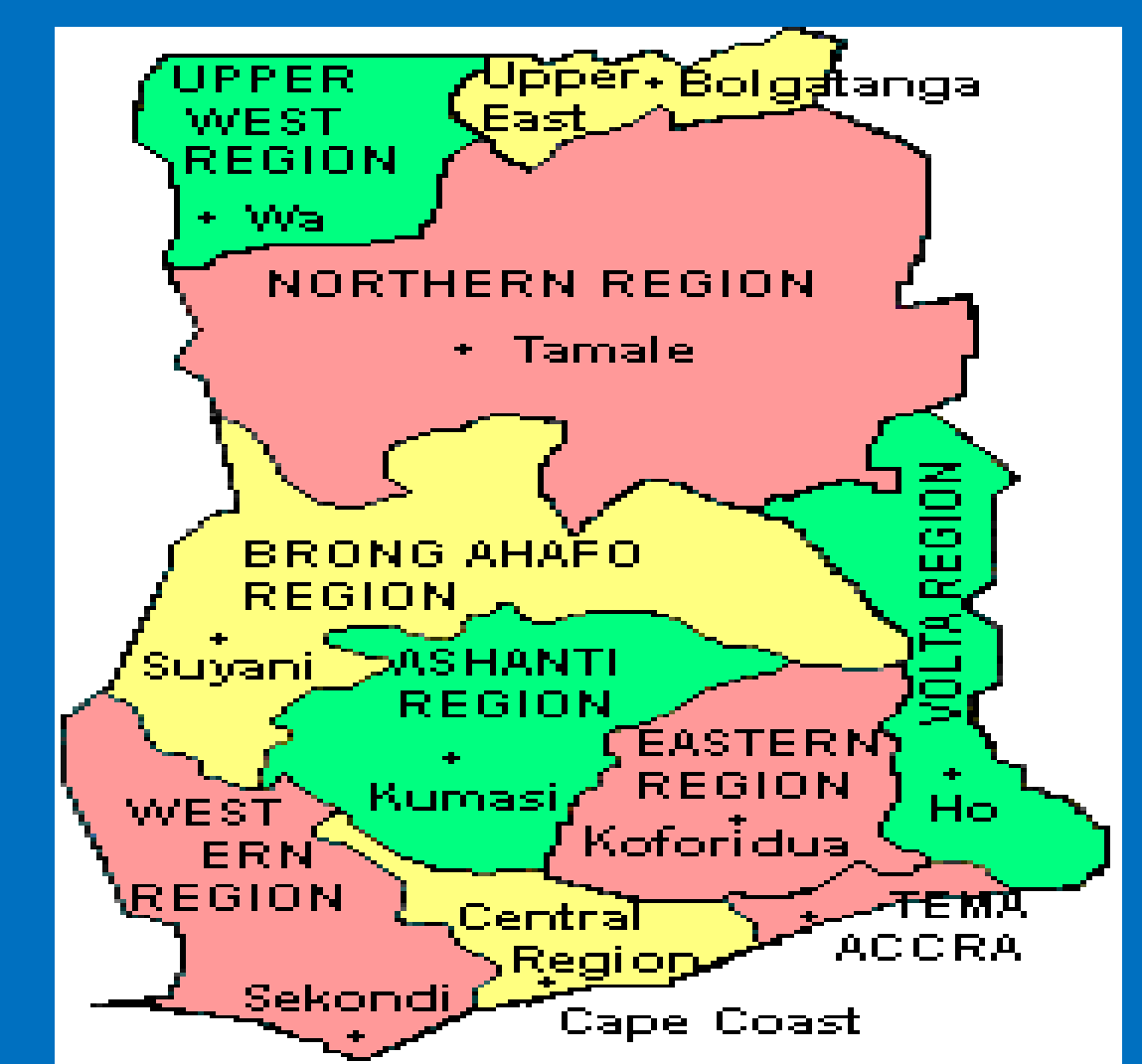
Study Area: The capital cities in the ten regions of Ghana

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Objectives

- This study will help develop descriptive, epidemiologic results with sufficient host, pathogen, vector and interaction information to allow hypothesis generation about the surveillance of the selected foodborne pathogens incorporating the one health concept (animal handlers, livestock, some livestock products, vegetables and some water sources in the selected abattoirs and farms).

- The Antimicrobial Resistance profiles of the selected foodborne pathogens will be determined using molecular tools.
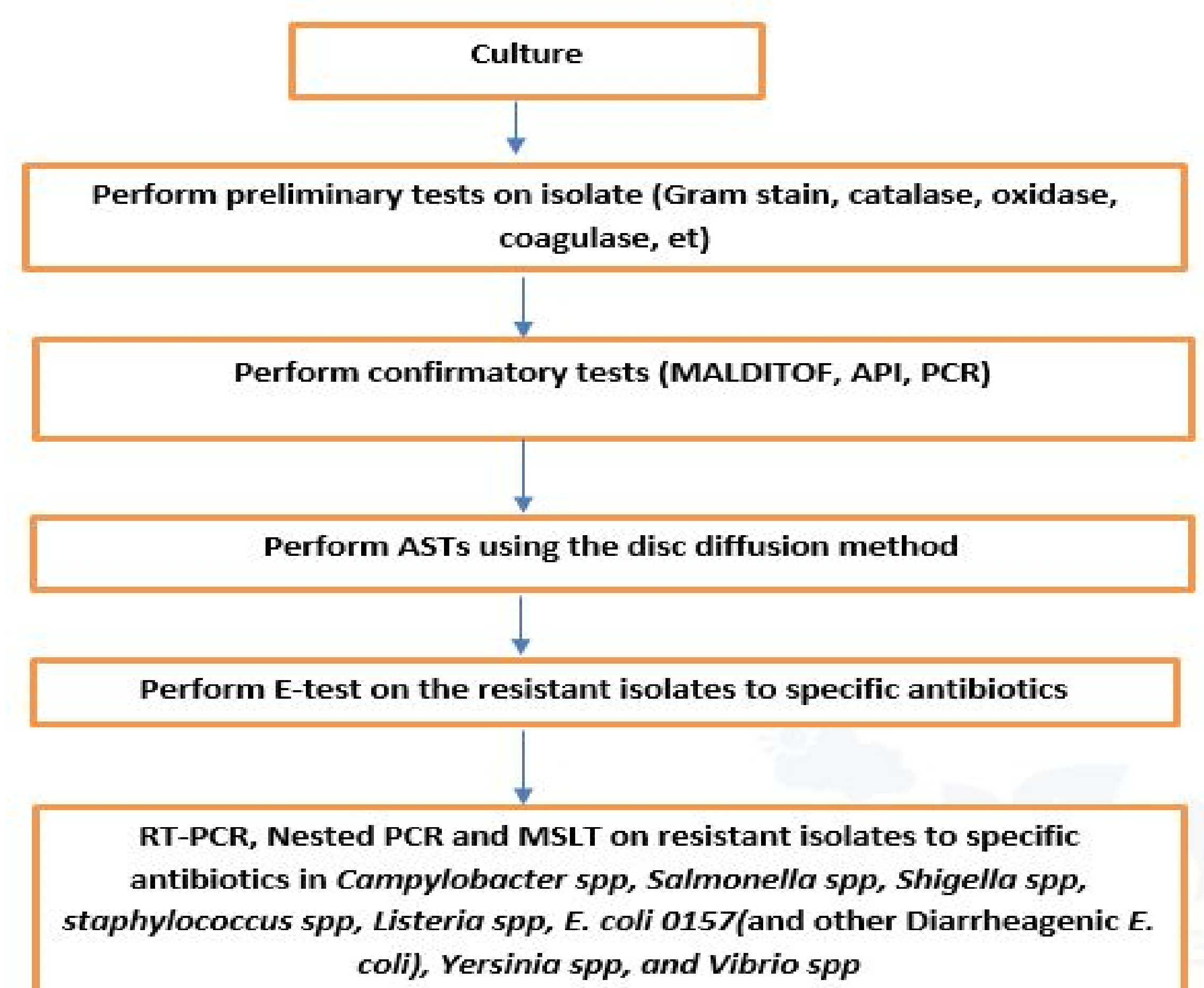
Results

- The Antimicrobial Resistance (AMR) profiles of the selected foodborne pathogens (*Campylobacter spp, Salmonella spp, Shigella spp, staphylococcus spp, Listeria spp, E. coli 0157*(and other Diarrheagenic *E. coli*), *Yersinia spp, Vibrio spp, Toxoplasma gondii, Cryptosporidium spp* and *Giardia lamblia*) using molecular tools will be investigated.

- The use of phenotypic and molecular tools to discover the molecular diversity of the selected foodborne pathogens from the different samples (animal handlers, vegetables, water sources, livestock and their products in the different selected sites (abattoirs and farms)) will be employed.

- The risk factors involved in the occupational hazards of the animal handlers in the selected abattoirs and farms will be investigated.

Methodology

Flowchart of the Bacterial laboratory procedure

Flowchart of the Parasitology laboratory procedure

Conclusion

The outcome of this research will serve as a basis for future research in the Antimicrobial Resistance (AMR) of other emerging foodborne pathogens and this will enhance efforts to be facilitated to prepare for eventual outbreaks. The molecular diversity in the different strains of the selected foodborne diseases amongst the different sampling sources that will be discovered will help policy makers in taking the right decisions in their methods of agriculture taking into consideration the interdependency of humans, animals and the environment.

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