

Microbiome Diversity and Antibiotic Resistant Genes Distribution in Poultry and Vegetable Shop Workers: Tales from Gujarat and Tamil Nadu

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Key Questions

- Whether poultry pathogens pose a risk to poultry workers?
- Can exposure to poultry impact ARGs in poultry handlers?

Objectives-

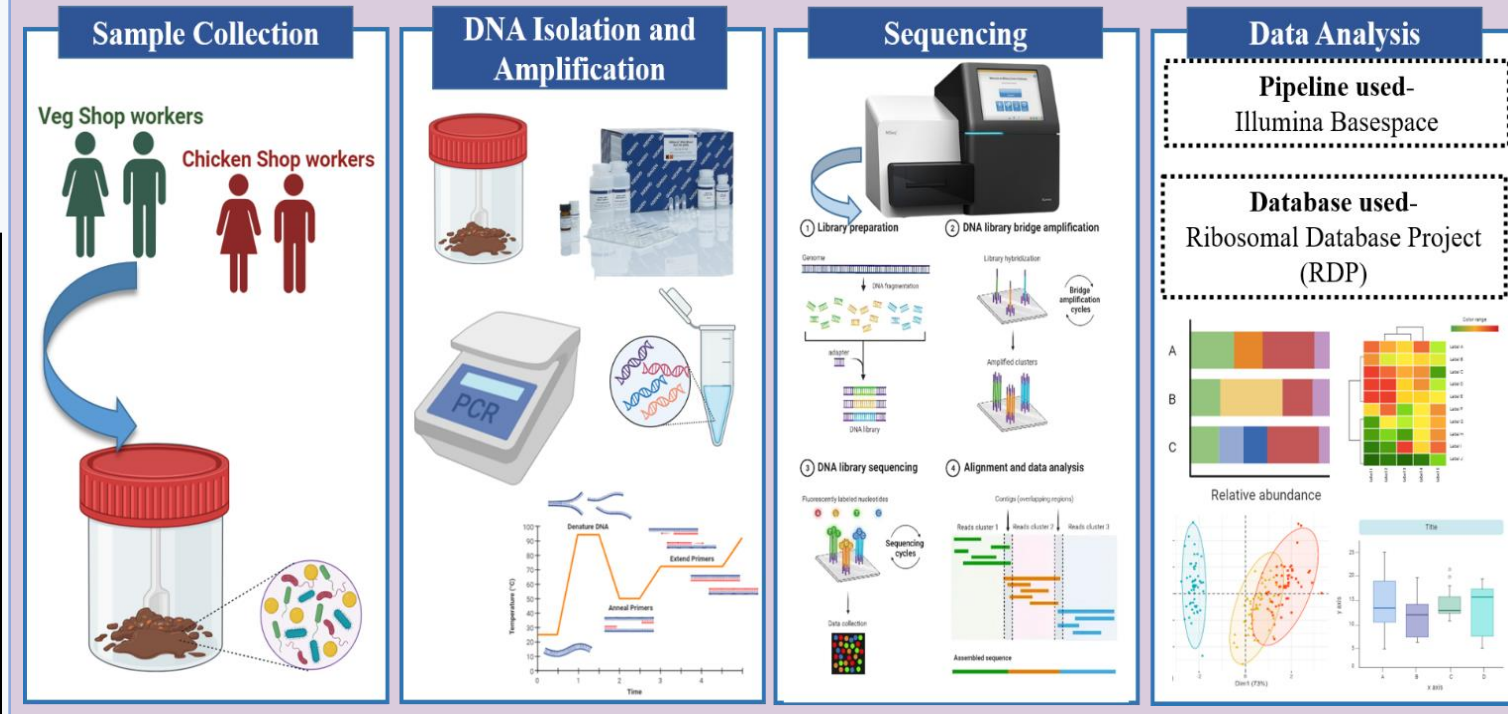
1. To study and compare gut microbiota of those working in poultry and vegetable shops.
2. To compare ARGs between poultry sellers and vegetable sellers

Human fecal samples

Gujarat: n=165 [Chicken shops (n=103)
Tamil Nadu: n=142 [Chicken shops (n=89)

**Vegetable Shops (n=62)]
Vegetable Shops (n=43)]**

Workflow

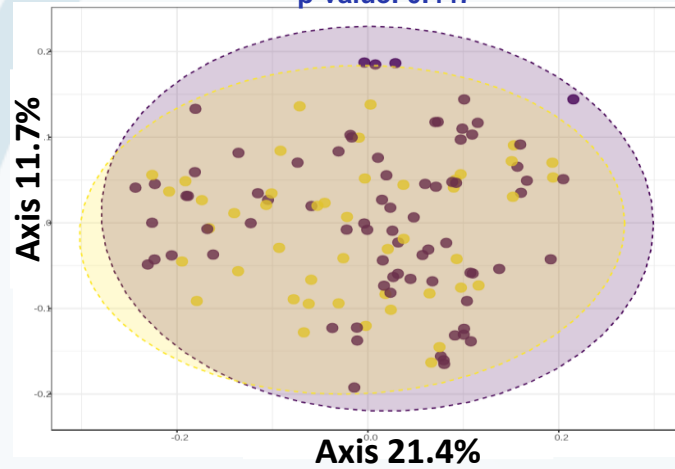


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Results

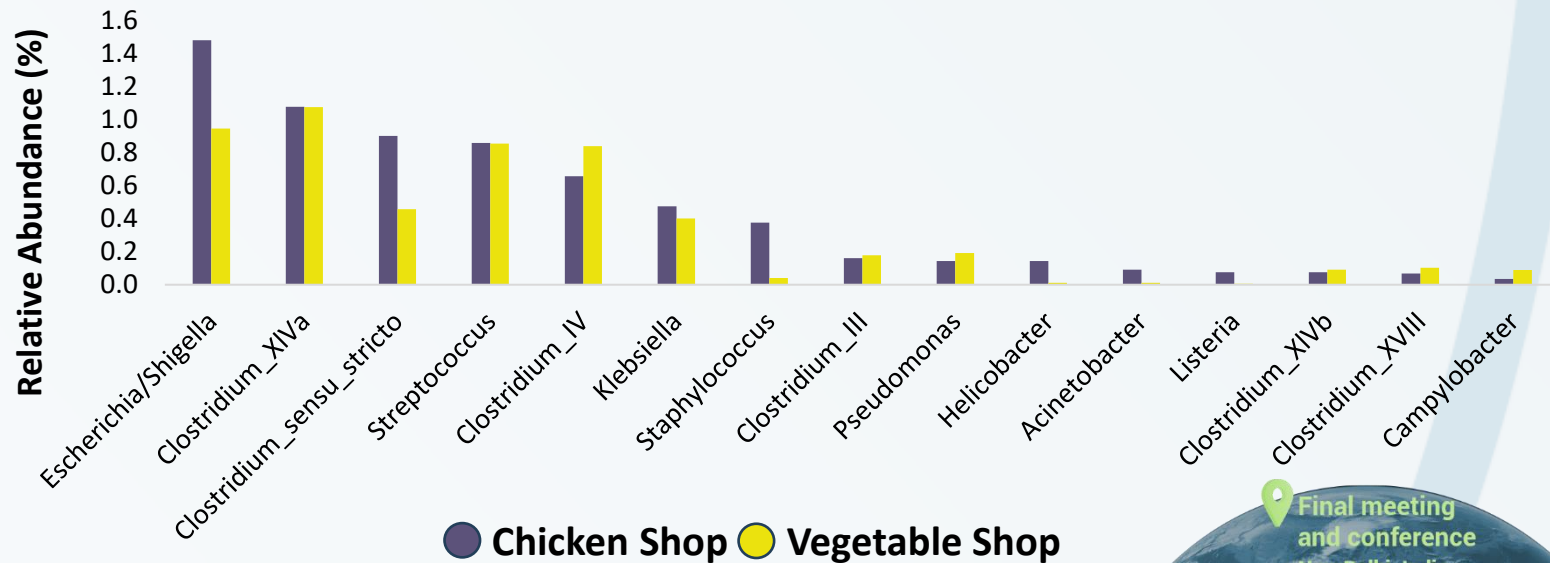
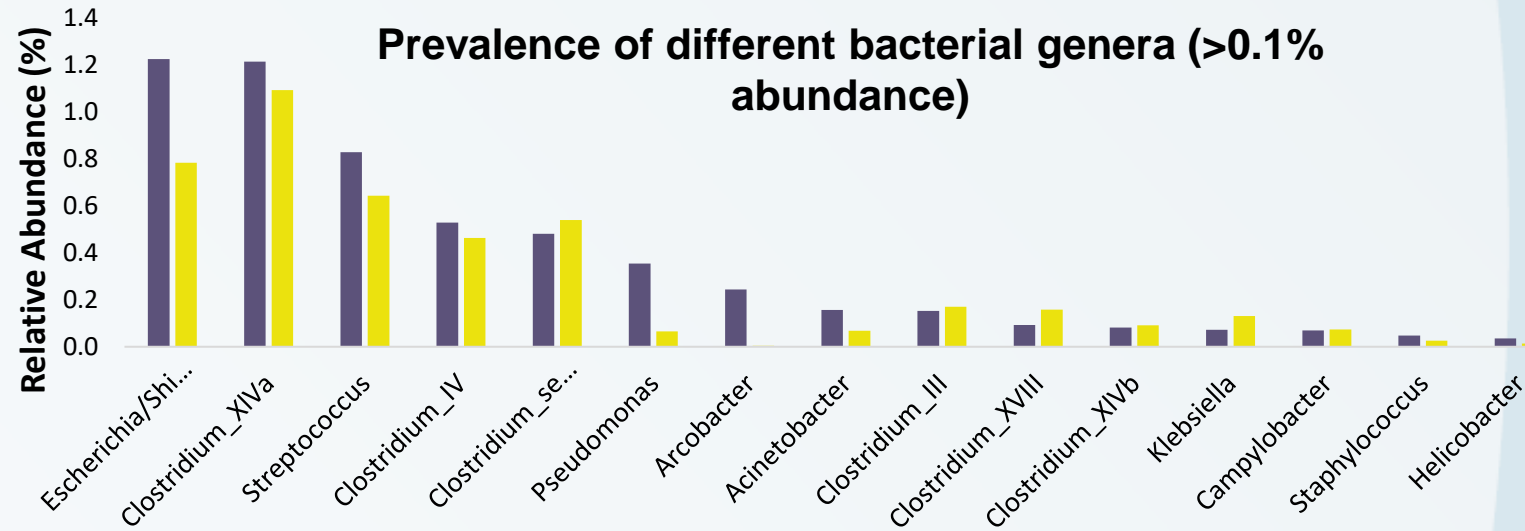
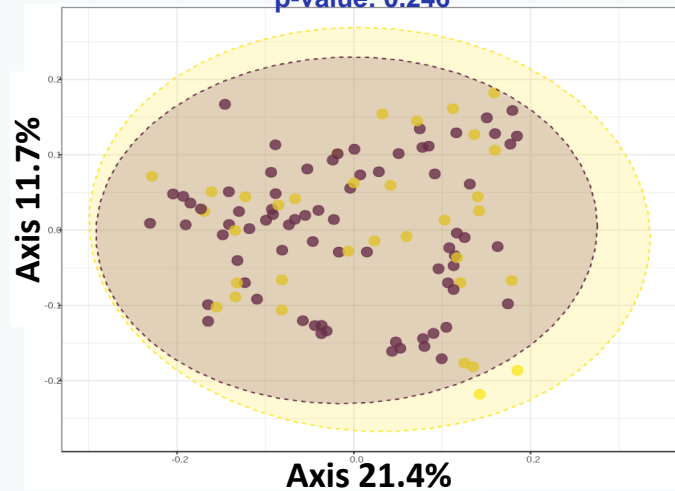
Gujarat

[PERMANOVA] F-value: 1.0001; R-squared: 0.0081979; p-value: 0.447



Tamil Nadu

[PERMANOVA] F-value: 1.2335; R-squared: 0.011503; p-value: 0.246



● Chicken Shop ● Vegetable Shop

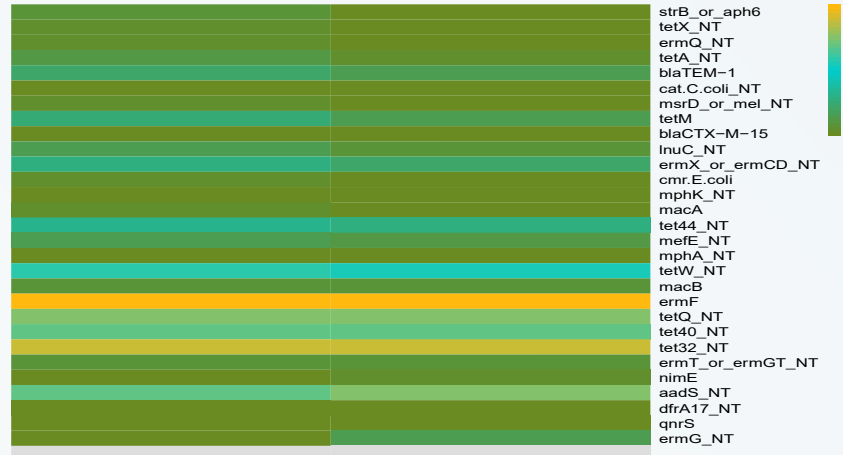
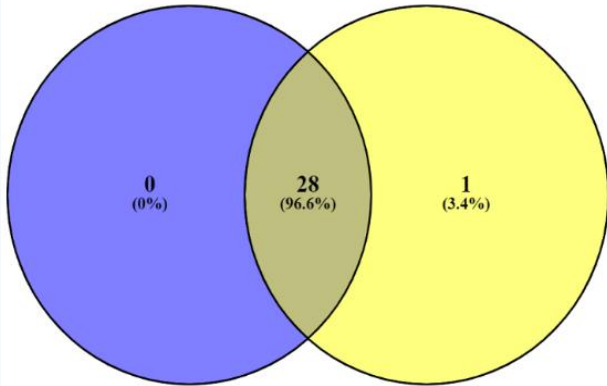
Results Prevalence of ARGs (>0.1% abundance)

Gujarat

CS

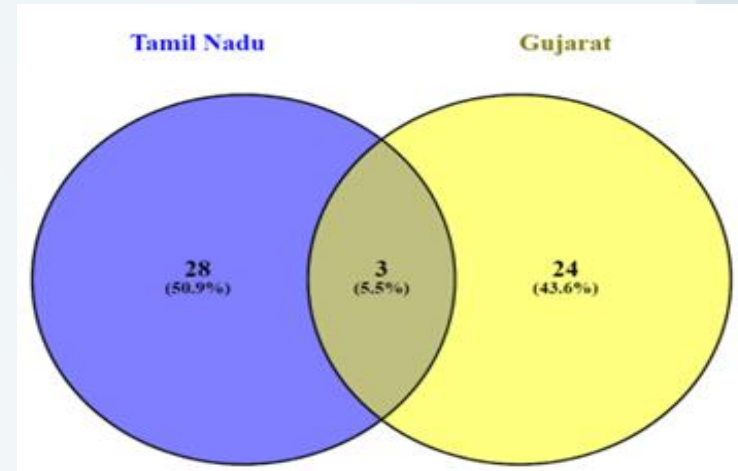
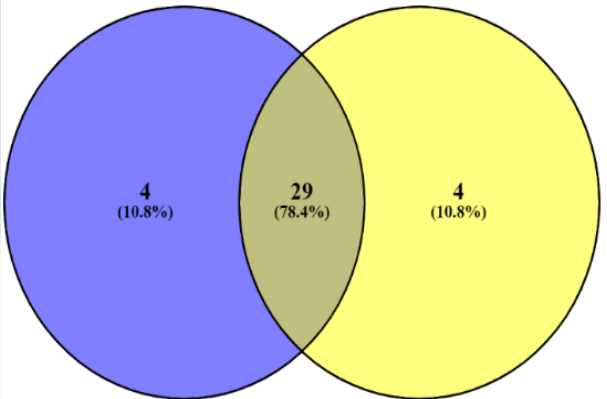
VS

Poultry shop Vegetable shop



Tamil Nadu

Poultry shop Vegetable shop



Conclusion

- Food borne pathogens like *Escherichia/Shigella*, *Clostridium*, *Staphylococcus*, *Helicobacter* are abundant in poultry shop workers.
- No significant differences in overall microbiome composition and prevalences of ARGs between chicken and vegetable shops workers in both the states.
- However, significant difference in ARG profiles between two states.
- Distribution of ARGs is dependent on geography rather than exposure to poultry.