

The contribution of pharmaceutical industries and poultry farms for spreading antibiotic residue in the environment (Water and Soil): a potential health risk

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Background

Antibiotics are biologically active compounds designed to kill bacteria or inhibit their growth¹. Although antibiotics are considered as an essential factor for human health, its existence in the environment is worrisome. Pharmaceutical industries and poultry farms are both regarded possible sources of residual antibiotics in the environment.

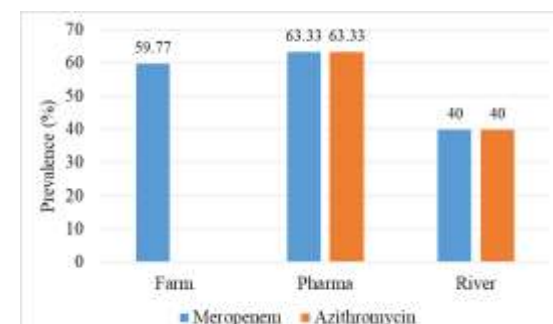
Objectives

- To determine the prevalence of antibiotic residues in water and soil samples from pharmaceutical industries and poultry farms in Savar and Dhamrai Upazila.
- To assess the concentration of antibiotic residues in same samples

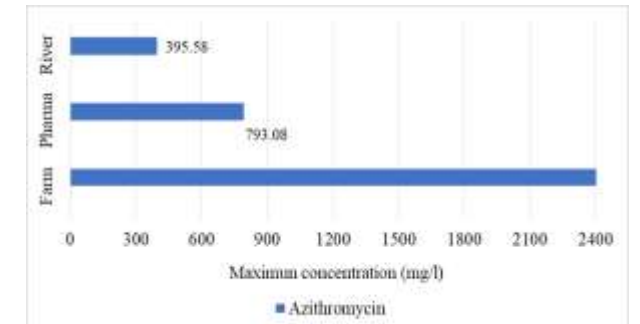
Methods

A cross-sectional study was carried out during January to December 2020 at Dhamrai and Savar Upazila, Dhaka. A total of 127 different samples from both sources were collected. The antibiotics tested for residue namely ciprofloxacin, tetracycline, oxytetracycline, meropenem, azithromycin, ceftriaxone, cefuroxime and clindamycin. HPLC with a DAD detector, C-18 column, and solid-phase cartridges were used to analyze antibiotic residues.

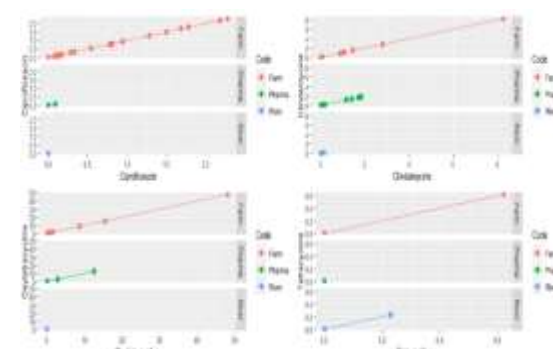
Results



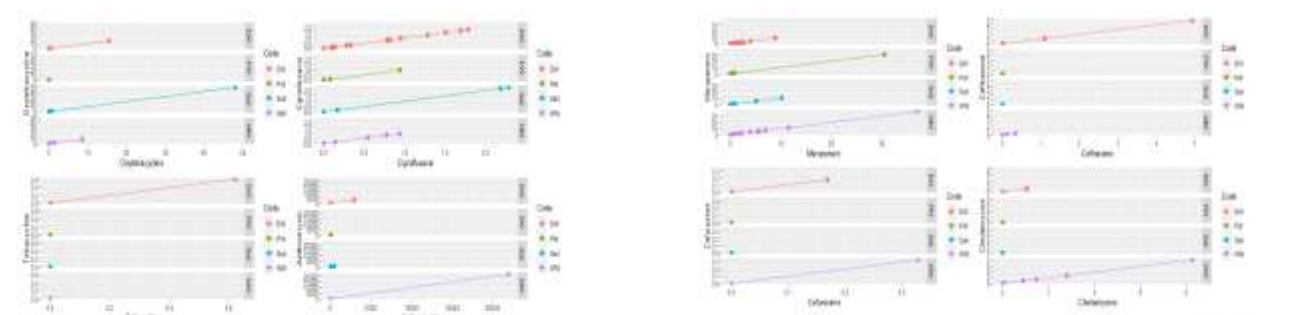
Highest identified antibiotics in F, P and R



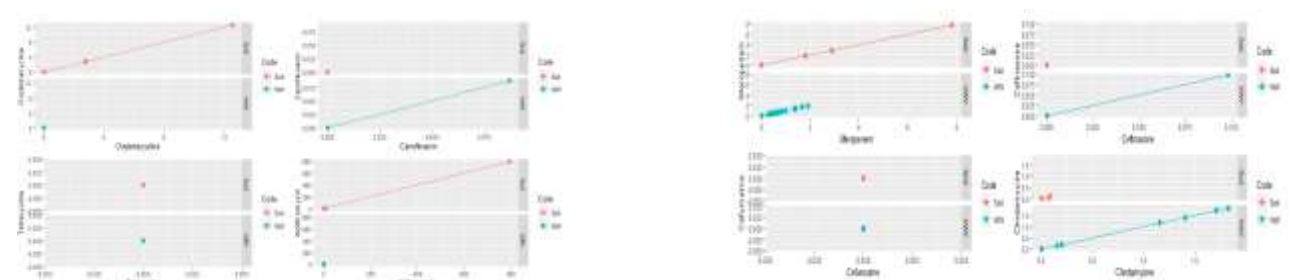
Highest concentration of antibiotic in F, P and R



Correlation of antibiotic residues (mg/l) among poultry farm samples



Correlation of antibiotic residues (mg/l) among pharmaceuticals samples



Conclusion

The presence of antibiotic residues in the water and soil samples lead to antibiotic resistant strains that is greatly worrisome to public health. Antibiotic contamination in different matrices of poultry farms, pharmaceutical industries and rivers in different areas and seasons needs to be quantified

Reference: ¹Nisha, A., 2008. Antibiotic residues-a global health hazard. Vet. World 1, 375-377.

