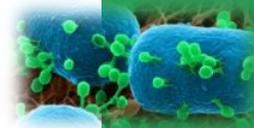




NUTRITION & FOOD SECURITY

Bacteriophages a viable alternative to antibiotic use in poultry farming

- Demand for poultry products predicted to grow by 800% by 2050 in Africa.
- Antimicrobial resistance (AMR) is an increasing problem in poultry farming.
- Among strategies to control bacterial infections, the use of bacterial viruses (bacteriophages or phages) is going through a renaissance, particularly as alternatives or complements to antibiotics.



Electron microscopy of phages (green) binding to bacteria (blue)



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Context

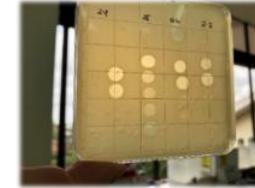
- **The poultry industry:** Increased globally by 5% every year for the past three decades; shows a higher growth rate than the pig (3%) and beef (1.5%) sectors.
- **The problem:** Pullorum disease and fowl typhoid are among the most important bacterial diseases affecting chicken health and productivity. *Salmonella* is also transmitted to humans mostly by poultry products.
- **The problem of AMR:** About 75% of antibiotics administered to poultry are released in the environment, at least 30% of *Salmonella* from poultry farms are multidrug resistant.
- **What changes do you want to achieve?:** Reduce the use of antibiotics in poultry farming and reduce the problem of antimicrobial resistance.
- **Other information related to the project:** The project is taking place in Kenya for the benefit of women chicken farmers.

Our innovative approach

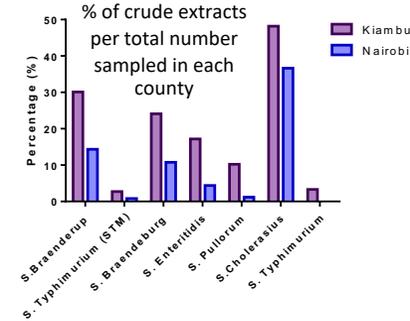
- **Using bacteriophages** (viruses that infect and kill bacteria): They are ecologically safe, do not cause side effects, are ubiquitous, are more specific than antibiotics, and have the advantage of co-evolving with their bacterial host, reducing the emergence of long-term resistance.

Outcomes

- A collection of Kenyan *Salmonella*-specific phages have been isolated and will be tested soon *in vivo*:



Crude Kenyan phage extracts [zone of bacterial lysis]



Future steps

- **Post-2021 potential:** Field trial of best candidates.
- **What are other potential applications of this particular project:** Application to other farming or agricultural systems.
- **Scaling objectives?:** In partnership with a Canadian company to scale up phage production. Hopefully, this approach can be extended to other African countries.

Partners



International Development Research Centre
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