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.

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*.

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

[Partner logos]

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Crude Kenyan phage extracts (zone of bacterial lysis)

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