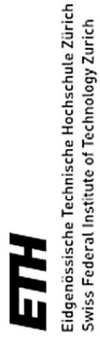


Application of *Lactobacillus reuteri* and glycerol as a novel approach to control *Campylobacter* colonization in chicken gut

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Background

Campylobacter infection cycle

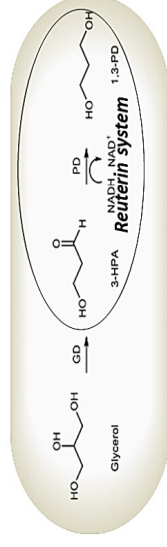


73 % of chickens worldwide test positive for *Campylobacter*

Transmission to human

Lactobacillus reuteri

- *Lb. reuteri* is a persistent colonizer of chicken gut
- Forms biofilm in the crop of chicken
- Produces reuterin using glycerol
- Reuterin is a broad spectrum antimicrobial

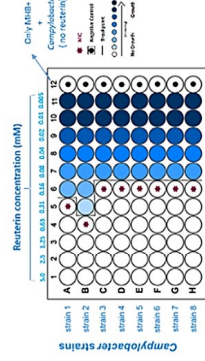
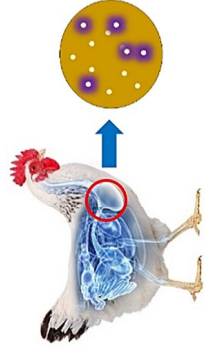


Aim and objectives

- Isolation and characterization of *Lb. reuteri* from Swiss chicken exhibiting high ability to produce reuterin.
- Establish *in vitro* activity of reuterin against *Campylobacter*spp.

Methods

- Reuterin-producing *Lb. reuteri* were isolated broiler chickens in Zurich, Switzerland.
- Strains were characterized by 16S RNA sequencing and antibiotic resistance profiling
- Selected isolates were screened for their efficiency to produce reuterin capacity of isolate.
- The antibacterial activity of reuterin against 17 different chicken-related species of *Campylobacter* were assessed.



Conclusions

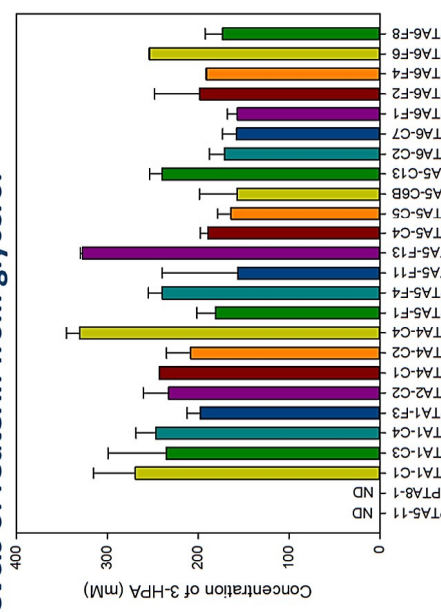
- Reuterin-producing *L. reuteri* were present and successfully isolated from broiler chicken gut.
- *C. jejuni* and *C. coli* were sensitive to the antimicrobial effect of reuterin.
- Reuterin showed a promising antimicrobial effect against *Campylobacter*

Perspectives

Four *Lb. reuteri* isolates with potent reuterin production capacity and minimal AB resistance were selected for testing *in vitro* and *in vivo* against *Campylobacter* colonization in chicken gut

Results

1. Chicken isolates of *Lb. reuteri* produced high levels of reuterin from glycerol



* Strains with less antibiotic resistance by microbroth dilution test

2. *Campylobacter* spp. are sensitive to the antimicrobial effect of reuterin

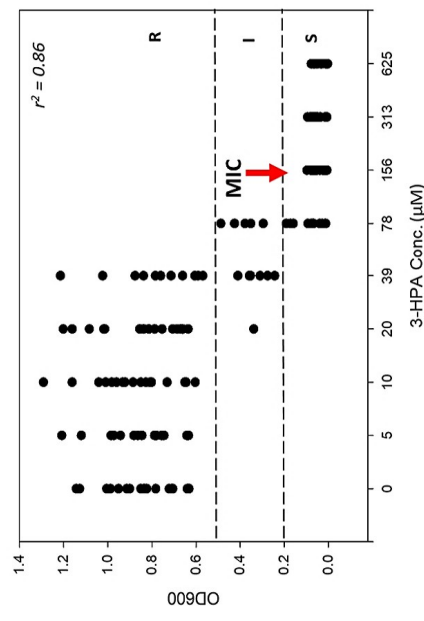


Figure 2: The minimum inhibitory concentrations (MICs) in the micro-broth dilution test of reuterin against 17 *Campylobacter* species (*C. jejuni* and *C. coli*). Each dot represents the growth of one *Campylobacter* strain. R: Resistant, I: Intermediate, S: Sensitive

Acknowledgment

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