

INHIBITION OF INTESTINAL PATHOGEN ADHERENCE BY *Pichia guilliermondii* IN AN IN-VITRO MODEL

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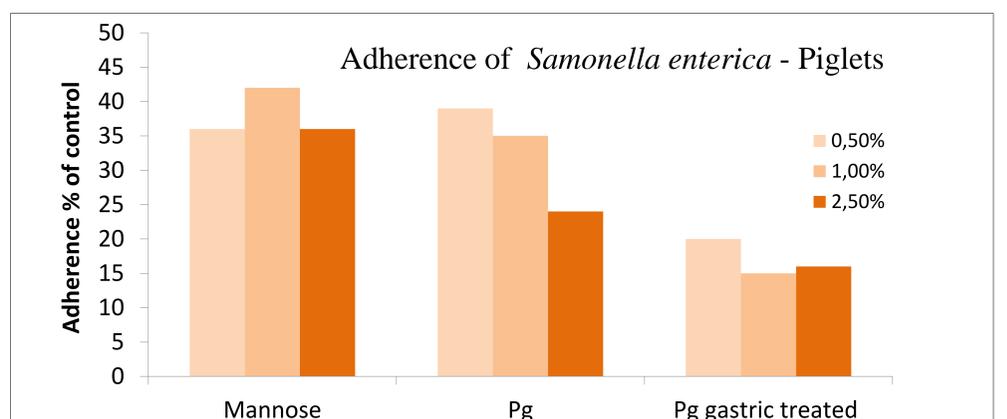
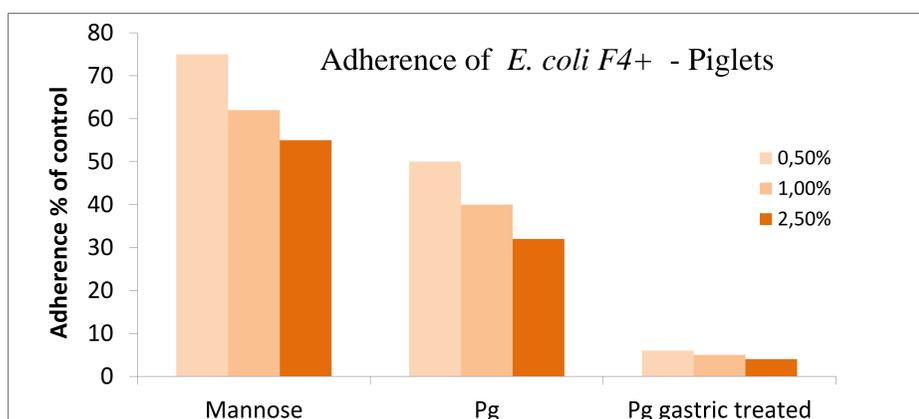
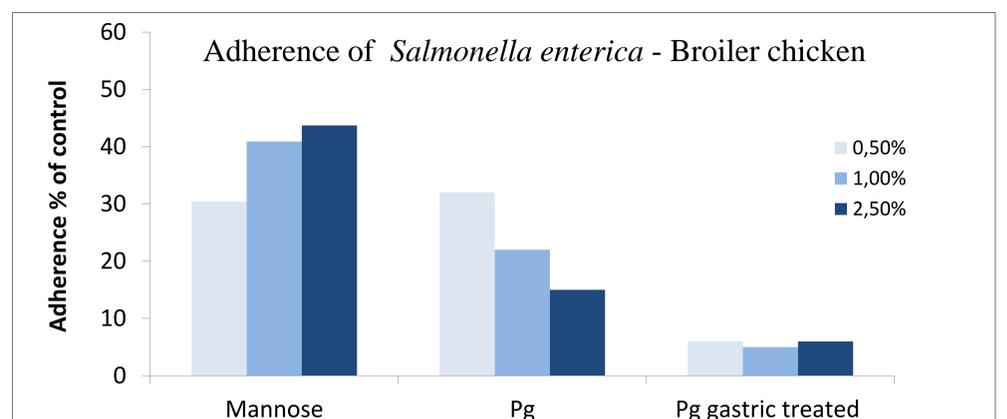
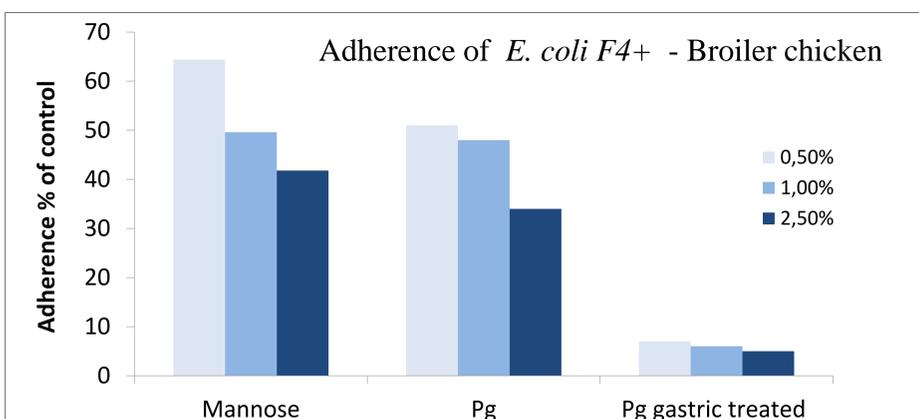
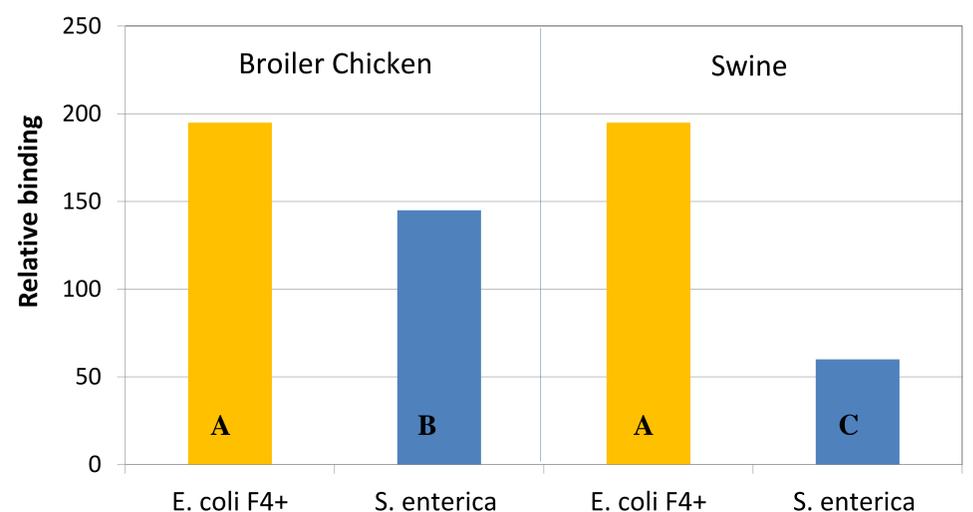
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The search for viable alternatives to antibiotics is still on-going. Yeast products have been proven as promising candidates for supporting the animals' immune system and preventing intestinal adhesion of foodborne pathogens. Mannan-Oligosaccharides (MOS) and beta-glucans as components of the yeast cell wall exert specific functions. With this study the pathogen binding effect of *Pichia guilliermondii* in intestinal mucous of broiler chicken and piglets was assessed in comparison with pure mannose.

Material & Methods

- Mucous recovered from 2-wk old broiler chicks and piglets 2-wks after weaning
- Adherence test in mucous coated microtitre wells
- Pathogens: *E. coli* F4+ (K88)
Salmonella enterica Serovar Enteritidis
- Test substances: Mannose
Pichia guilliermondii (Pg)
Pichia guilliermondii gastric treated
- Dose level 0.5 – 2.5 %

Relative bacterial binding efficiency of pathogens on intestinal mucous from different host animals



Conclusions

- *E. coli* F4+ adhered equally well on intestinal mucus from broiler chicken and piglets, whereas *Salmonella enterica* adhered more efficiently on intestinal mucus from broiler chicken.
- Reduction of mucosal adherence of pathogens is a direct measurement of their binding to the intestinal wall. The results reflect the ability of *Pichia g.* cells to attract and bind pathogens, reducing / preventing adherence to the host's mucosa.
- *Pichia guilliermondii* inhibited the adhesion of both tested pathogens compared to pure mannose (except *S. enterica* in piglet mucous at lower dose levels) in a dose dependent manner.
- Pre-treatment of *Pichia guilliermondii* with gastric juices (pepsin/pancreatin = simulating in-vivo conditions) further reduced mucosal adherence of pathogens in both species for both tested pathogens.