THE *IN VITRO* EFFICACY OF A MULTI-ACTION COMPLEX: ANTIMICROBIAL ACTIVITY IN THE GASTROINTESTINAL TRACT

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INTRODUCTION

Poultry gastrointestinal tract microbiome has been extensively studied, due to its significant impact on the **immune system**, **physiology**, **productivity**, and it is influenced by many factors (Clavijo et al., 2018).

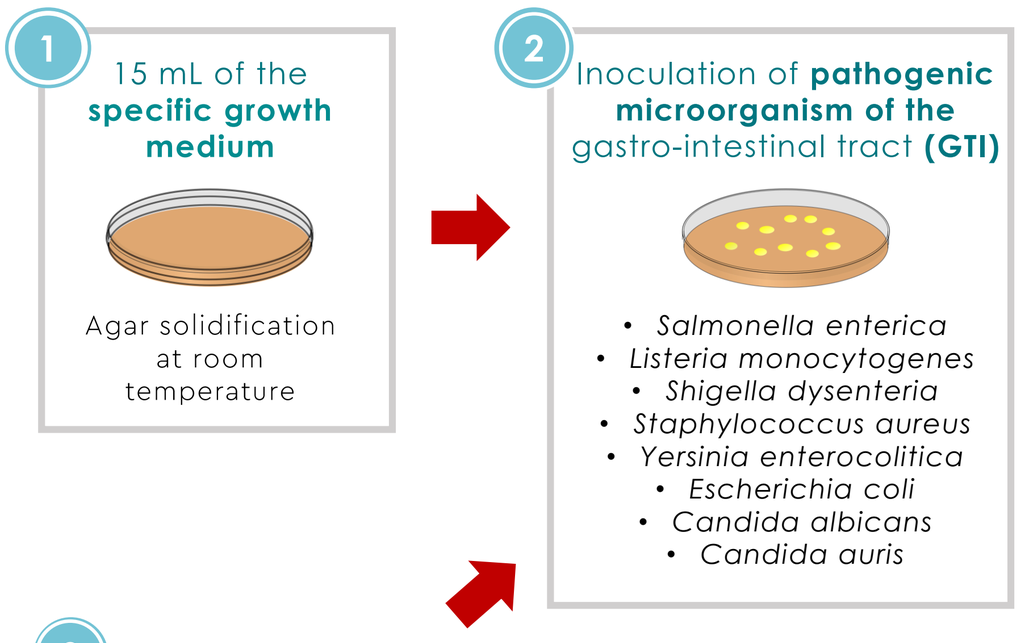
Diet is one of the **main factor** that **affect the microbiome** balance, and since the ban of antibiotic growth promoters (AGPs) in the EU, many **alternative substances** have been investigated for their potential to replace AGPs.

In fact, several food supplements have been designed in an attempt to modulate the GIT microbiota, such as probiotics, prebiotics and phytogenics (Grashorn, 2010).

OBJECTIVE

The aim of this study was to test the *in vitro* antimicrobial activity of a complex, formulated with grape and olive extracts, phytogenics with powerful antioxidant, anti-inflammatory and antimicrobial effects on animal performance.

2. MATERIALS AND METHODS



RESULTS

Halo diameters showing the antibacterial activity of the multi-action complex against pathogenic microorganism of the gastro-intestinal tract (GIT). *>10.0 mm = ++++; 10.0 mm a 6.7 mm = +++; 6.6 mm a 3.3 mm = ++; 3.2 mm a 0.1 mm = +; 0 mm = -

Salmonella Entérica	*Shigella dysenteriae*	*Staphylococcus aureus*	*Yersinia enterocolitica*
++	++++	+	+

Efficient antimicrobial activity, being ***S. dysenteriae*** the most sensitive microorganism to the tested solution (with an inhibition halo of 10 mm). The only microrganism that was sensitive to the product with a dilution 1/10 was *S. aureus*, with an inhibition halo of 0.1 mm.

CONCLUSIONS

These results showed that the multi-action solution exhibited significant *in vitro* antimicrobial efficacy against *Salmonella dysenteriae*, *Salmonella enterica*, *Staphylococcus aureus*, and *Yersinia enterocolitica*. In particular, *S. dysenteriae* displayed the highest sensitivity, with a substantial inhibition halo of 10 mm. Our findings highlight the capability of the examined complex to selectively suppress particular pathogenic microorganisms crucial to the health of the gastrointestinal tract (GIT).