



## «ROLE OF BIOACTIVE MOLECULES AND PHYTONUTRIENTS IN ANTI-BIOTIC-FREE (ABF) AND NO-ANTIBIOTIC EVER (NAE) PRODUCTIONS.»

### Background

The recent identification of the endocannabinoid system (ECS) in gastrointestinal tract (GIT) suggests a role in controlling intestinal inflammation not only through cannabinoid receptors (CB1, CB2, TRPV1) but also thanks to endogenous agonists (2-AG), as well as mechanisms for their biosynthesis and inactivation.

### Materials & Methods

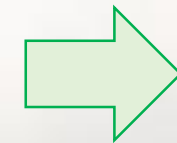


Aim of this study was to investigate if thymol can modulate the endocannabinoid system *in vivo*.

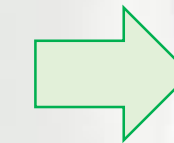
#### In vivo

Piglets were divided in 5 groups:

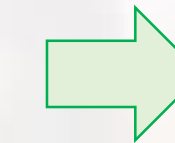
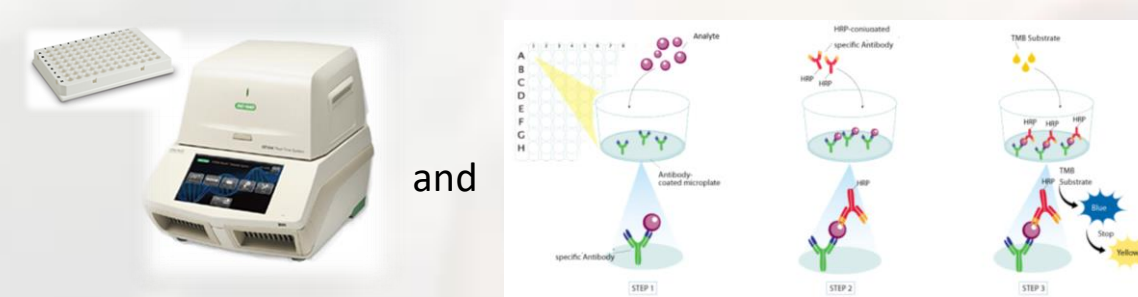
- ❖ T1 → control group
- ❖ T2 → 25.5 mg thymol/kg feed
- ❖ T3 → 51 mg thymol/kg feed
- ❖ T4 → 153 mg thymol/kg feed
- ❖ T5 → 510 mg thymol/kg feed



Ileal and duodenal mucosa scrapings were collected, snap-frozen in LN2 and stored at  $-80^{\circ}\text{C}$ .



- Gene expression analysis
- ELISA assay



Statistical analysis with one-way ANOVA ( $p < 0.05$ ).

n = 8

After 14 days piglets were sacrificed.

### Results



All data are presented as means and SEM represented by vertical bars

### Conclusions

Thymol was able to modulate gene expression of CB1 and CB2 receptors both in duodenum and ileum. It was also able to modulate the mRNA levels of enzymes involved in biosynthesis and degradation of endocannabinoid molecules, highlighting the potential anti-inflammatory capacity of thymol.