Biōnte
ANIMAL NUTRITION

JULY 4-5, 2024
ICM
HUAHIN, THAILAND

The use of a novel anti-mycotoxin agent to counteract the detrimental effects induced by fumonisins B1 and B2 in broiler chickens

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INTRODUCTION

Fumonisins, which adversely affect **animal performance** and **gut health** in **poultry specie,** are extensively present in cereal grains and their negative effects include **intestinal barrier disruption, oxidative stress** and **inflammation** (Sousa et al., 2020). Therefore, effective solutions must be found to counteract these effects.

OBJECTIVE

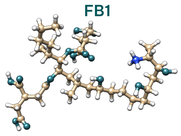
This study aims to evaluate the **efficacy of an anti-mycotoxins agent (AMA)**, containing **selected binding material** combined with **natural extracts** and **yeasts**, on **animal performance** and **intestinal lesions in broiler chickens challenged by fumonisins (FB1+FB2).**

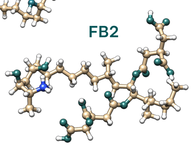
MATERIALS AND METHODS

Experimental animals
480 male broilers (Cobb 500)
12 replicates/treatment
10 broilers/replicate
Non-antibiotic administration
Naturally contaminated diets
Fed *ad libitum*

Dietary treatments

- Control diet
- FBs = fumonisins B1 + fumonisins B2 100 ppm
- AMA = anti-mycotoxin agent
- FBs + AMA = FB1 + FB2 with AMA treatment





Controls and sampling (21 days)

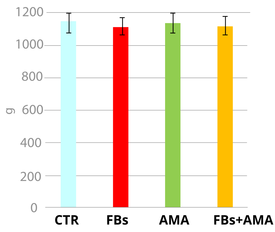
ANIMAL PERFORMANCE
- FEED INTAKE
- BODY WEIGHT GAIN (BWG)

INTESTINAL HISTOMORPHOMETRY
- VILLUS HEIGHT (VH)
- CRYPT DEPTH (CD)
- VH/CD RATIO
- ABSORPTION SURFACE

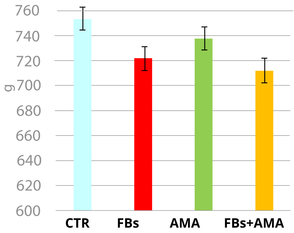
RESULTS

ANIMAL PERFORMANCE

FEED INTAKE



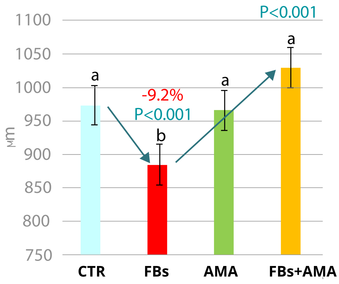
BWG



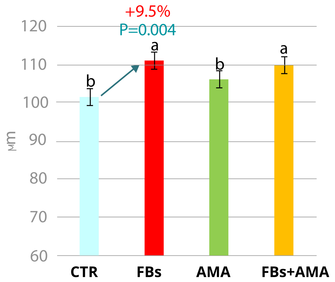
The **exposure to FB1 and FB2** reduced the **feed intake** and **BWG**, while the supplementation with **AMA restored these parameters**, thus **improving the feed intake and BWG.**

INTESTINAL HISTOMORPHOMETRY

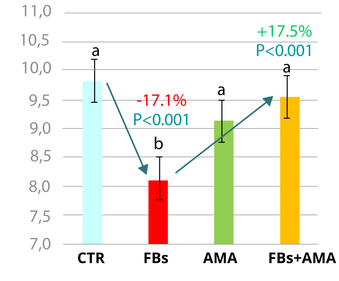
VH



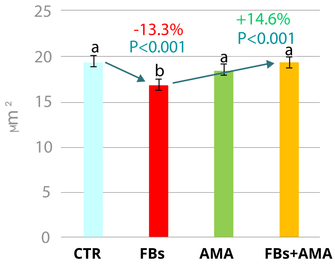
CD



VH/CD



Absorption surface



FB1 and FB2 exposure reduced VH, VH/CD ratio, and the absorbtion surface; and increased CD.
The **inclusion of AMA allowed** to counteract these effects, **increasing VH, VH/CD ratio and absorption surface.**

CONCLUSIONS

These results highlight the **importance of including the anti-mycotoxin agent** to **counteract mycotoxins negative effects,** thus **enhancing animal performance** and **improving the gut integrity** in **broiler chickens challenged by fumonisins.**

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