

Evaluation of the efficacy of an advanced anti-mycotoxins agent on the biomarkers of exposure and effects, in broiler chickens exposed to fumonisins

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1. INTRODUCTION

Fumonisin (FBs), including fumonisin B1 (FB1) and fumonisin B2 (FB2), are known to **reduce animal performance** and **feed efficiency**, **increase mortality** and **impair the immune system** in animals.

In **broiler chickens**, the FBs can **adversely affect feed intake** and **weight gain**, as well as **liver** and **kidney relative weights**. In addition, indirect effects such as **oxidative stress** have been observed during intoxication.

The aim of this study was to evaluate the efficacy of an anti-mycotoxins agent (AMA) through:

- 1) the determination of **biomarkers of exposure to fumonisins** (sphinganine/sphingosine ratio, SA/SO);
- 2) the assessment of the **serum biochemistry** and the determination of **oxidative stress markers**;
- 3) the mitigation of **liver damage** in broiler chickens challenged by FB1 and FB2.

2. MATERIALS AND METHODS



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

Dietary treatments:

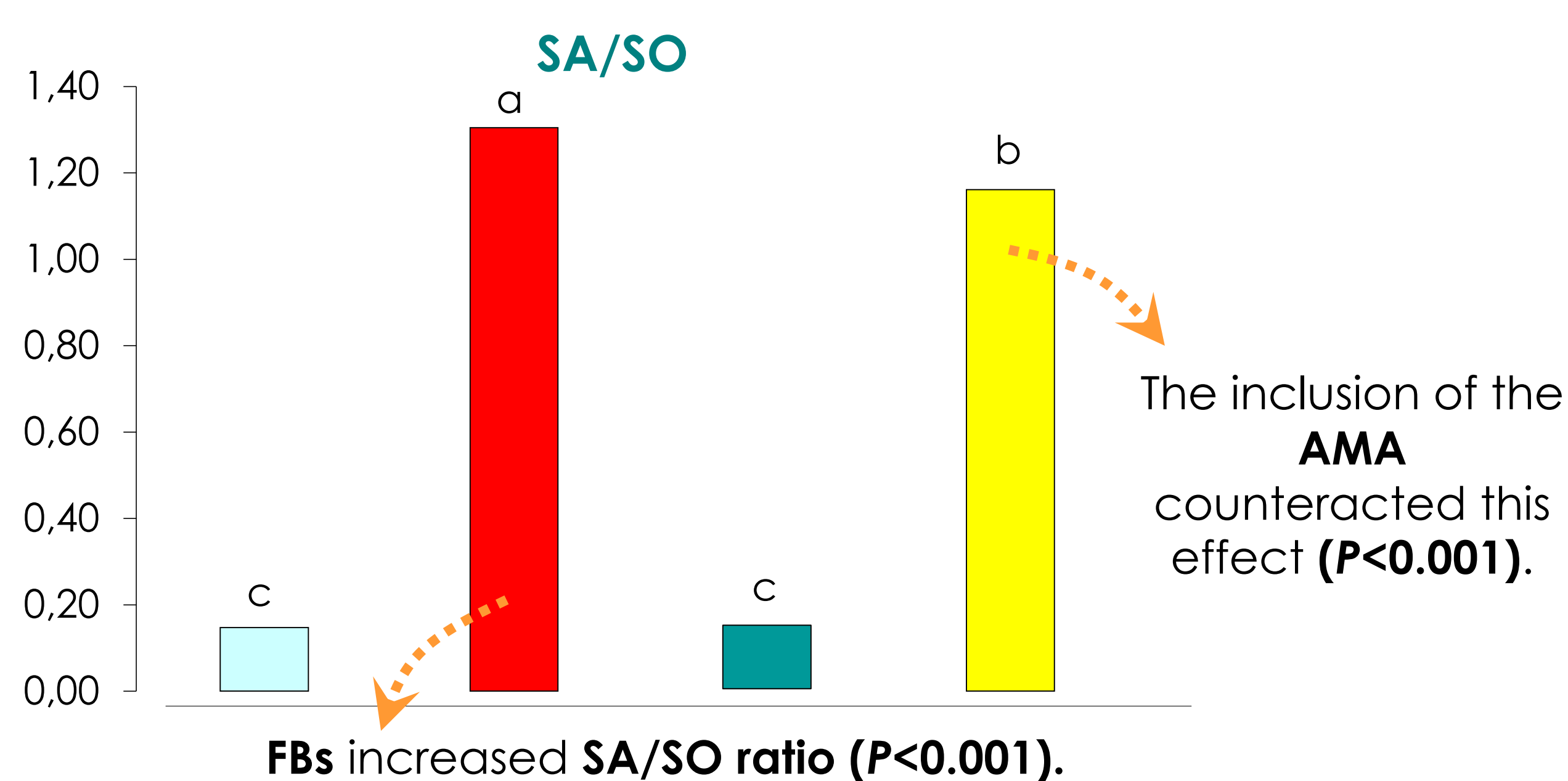
- CTR = control
- FBs = fumonisins (95,8 ppm FB1+ 4,2 ppm FB2)
- AMA = anti-mycotoxins agent
- FBs+AMA = FBs with AMA treatment

Controls and sampling

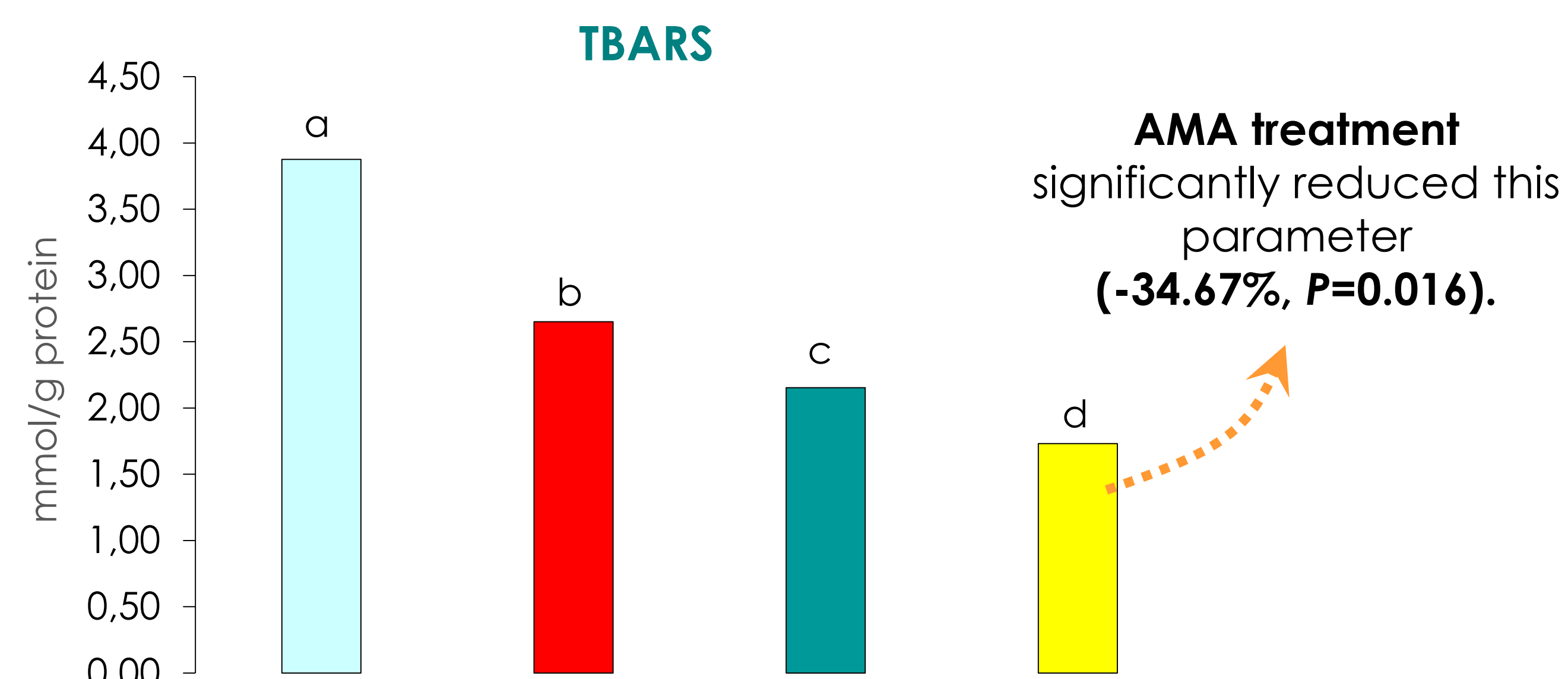
- Biomarkers exposure to FBs** (SA/SO)
- Oxidative stress biomarkers** (Thiobarbituric acid reactive substances, TBARS)
- Liver tissue analysis** (Relative liver weight and histopathology)

3. RESULTS

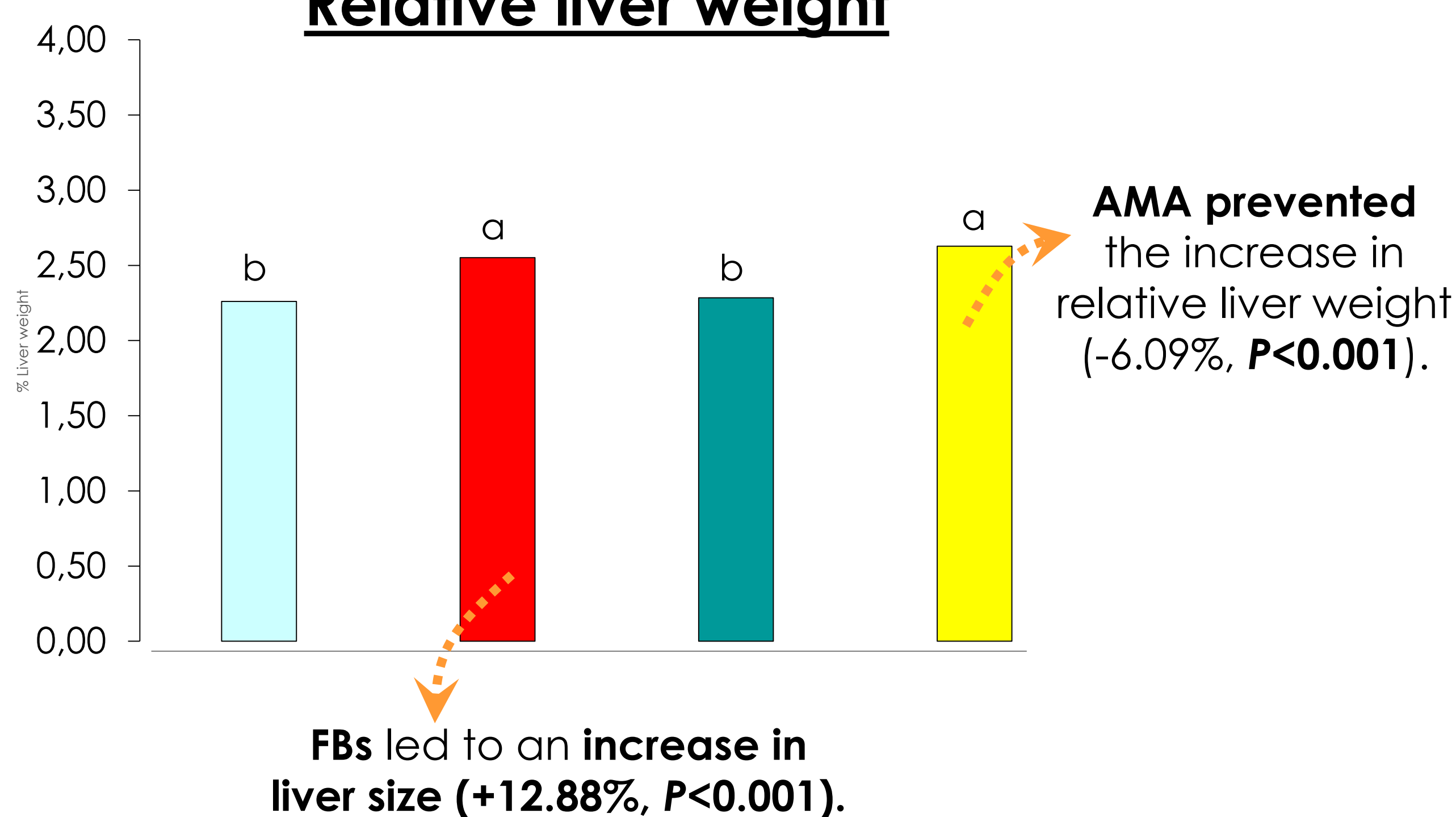
FBs biomarkers exposure



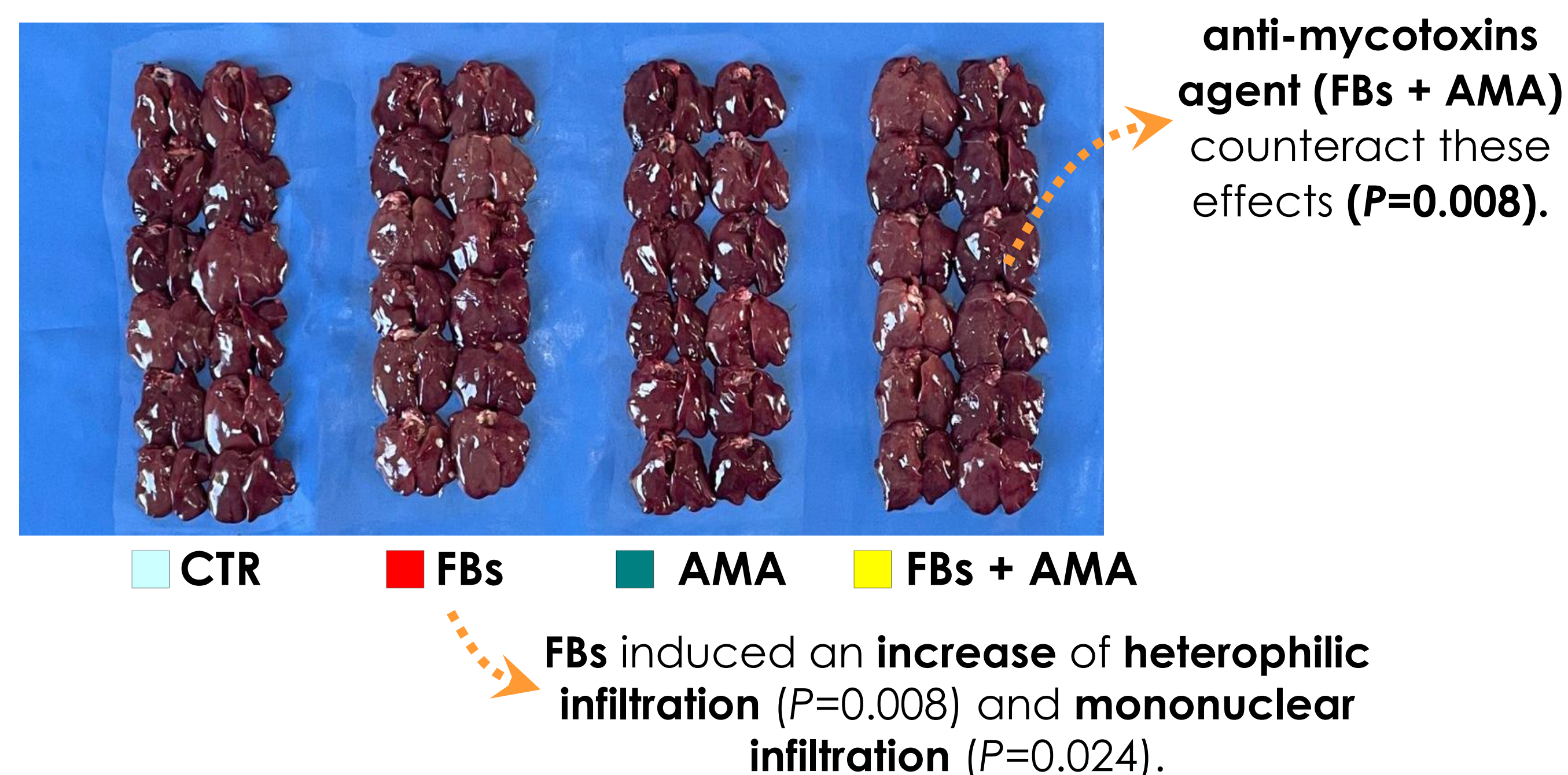
Oxidative stress biomarkers



Relative liver weight



Histopathology



4. CONCLUSIONS

The **anti-mycotoxins agent** showed **high efficacy** on the **biomarkers of exposure to FBs**. Furthermore, the product showed to be **effective** in **alleviating the oxidative stress** and **counteracting the liver damage**. This highlights the potential of the **anti-mycotoxins agent** to protect the **health** and **performance** in **broilers chickens** exposed to FBs.