Biōnte
ANIMAL NUTRITION

EVALUATION OF AN ANTI-MYCOTOXIN AGENT ON MYCOTOXIN BINDING AND RUMINAL CHEMICAL PROFILES IN RUMINANTS: AN *IN VITRO* STUDY

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INTRODUCTION

Ruminal microbiota plays a **pivotal role** in **degrading and deactivating** certain **mycotoxins** in ruminants´daily diet. However, this process can be **impaired by several factors** (e.g. low ruminal pH; ruminal dysbiosis; high-producing cows), reducing the ability of the rumen to mitigate mycotoxins effects (Debevere et al., 2020; Zhao et al., 2018). **Exposure** of **ruminants to mycotoxins** is responsible for a **decline in milk quality and quantity,** a **reduced** ruminal **fermentation efficiency** and an increased incidence of **reproductive disorders** (Gallo et al., 2015; Battacone et al., 2009; Korosteleva et al., 2007). To counteract these detrimental effects, **nutritional strategies** have been implemented, such as the inclusion of **anti-mycotoxin agents.**

OBJECTIVE

The aim of this study was to **evaluated the capacity of an anti-mycotoxin agent,** that included **adsorbing material, phytogenic extracts** and **yeast-based components, to adsorb mycotoxins in *in vitro* ruminal conditions.**

MATERIALS AND METHODS

EXPERIMENTAL DESIGN

2 Holstein **dairy cows fistulated** → **Ruminal fluid**

2 experimental replication

3 analytical replicate

2 time of medium incubation **(1H, 4H)**

Ruminal fluid

- **37 ºC**
- **pH 6.5**

- **UHPLC-HRMS**

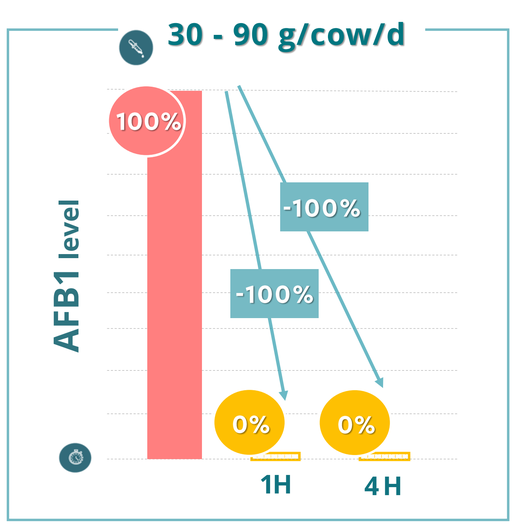
EXPERIMENTAL GROUPS

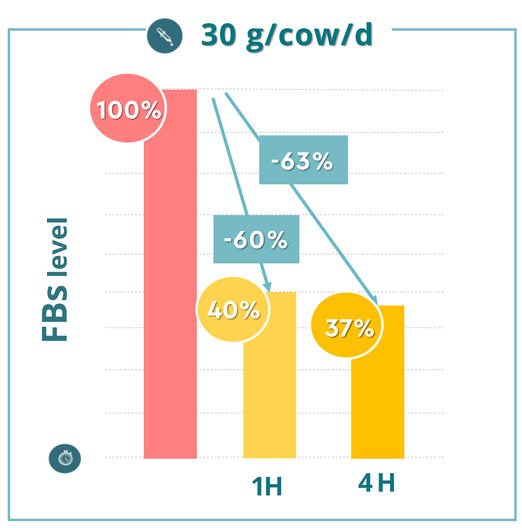
- Positive control (PC)
- PC + Treatment dose 1: **30 g/cow/day (0,1%)**
- PC + Treatment dose 2: **90 g/cow/day (0,3%)**

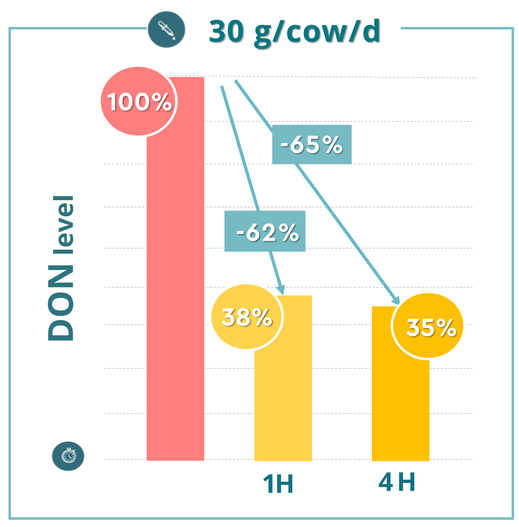
CONTAMINATION LEVELS

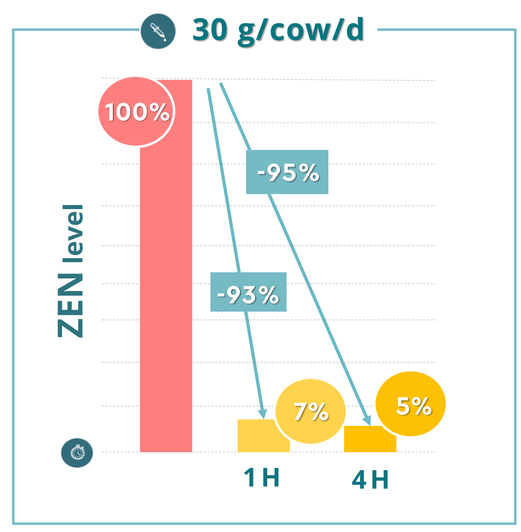
Mycotoxins	Concentration (ppm)
Aflatoxins (AFs)	0.002
Fumonisins (FBs)	10
Deoxynivalenol (DON)	2
Zearalenone (ZEN)	1
T-2 and H-T2	1

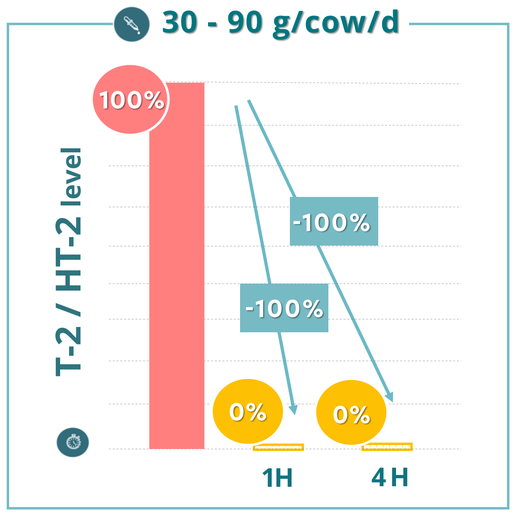
RESULTS

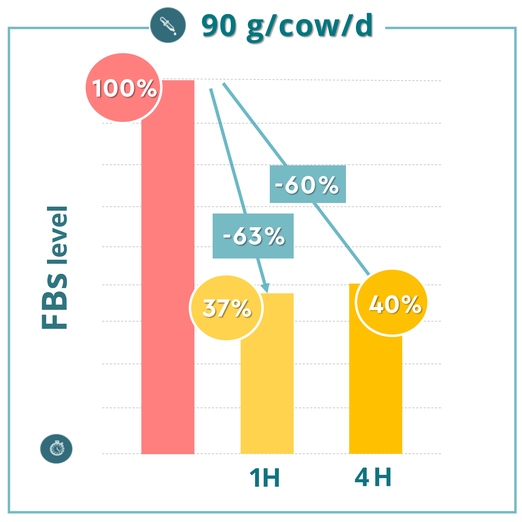


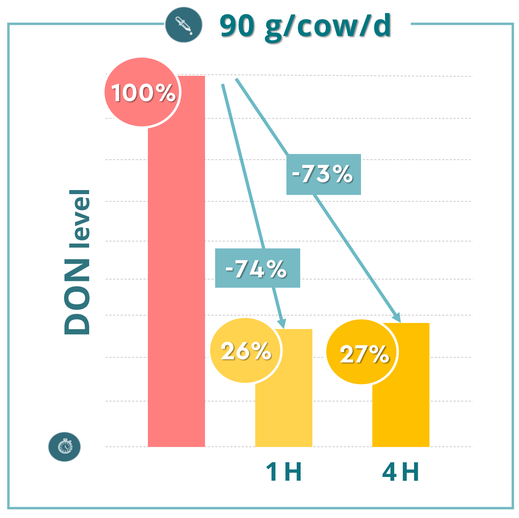


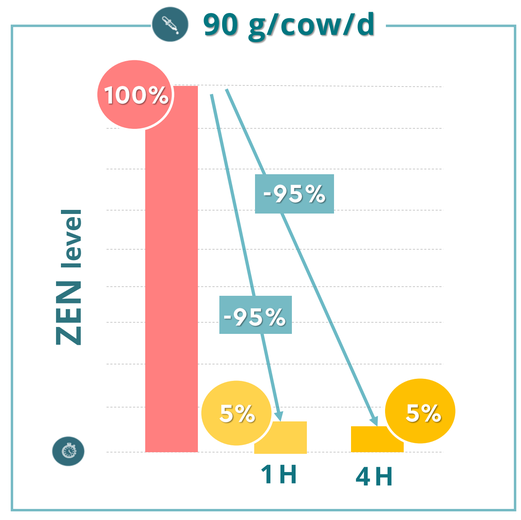












CONCLUSIONS

The **anti-mycotoxins agent** containing minerals, phytogenics and organic components demonstrated **high mycotoxin binding capacity,** even at low dose, and **positively influenced ruminal chemical profiles** in *in vitro* conditions.

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