EX VIVO EFFICACY TRIAL OF AN ANTI-MYCOTOXIN AGENT IN COUNTERACTING THE DETRIMENTAL EFFECTS OF *FUSARIUM* MYCOTOXINS IN PORCINE ILEAL ORGANOID MONOLAYERS

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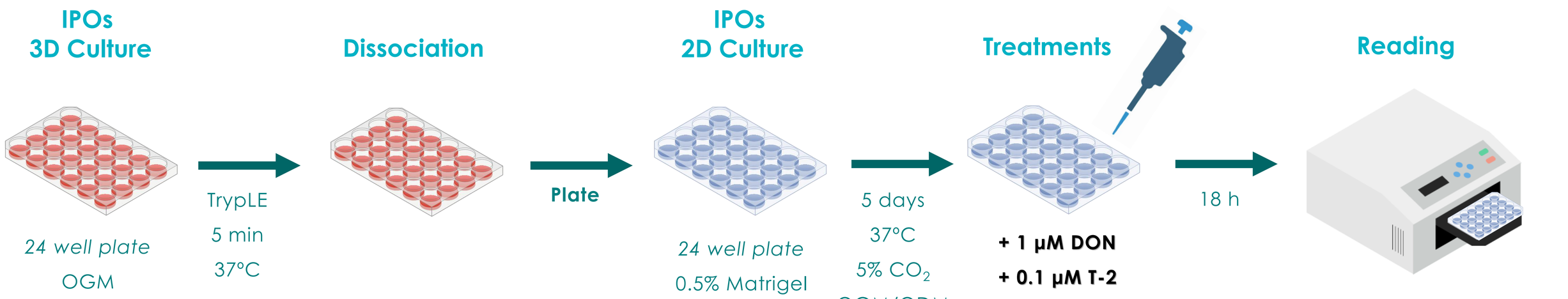
INTRODUCTION

Deoxynivalenol (DON) and **T-2 toxin** are **mycotoxins** generated by ***Fusarium* fungi** that have been proven to **damage** the **intestinal epithelial cell layer integrity**, **increasing** animal **susceptibility** to **pathogens** and other toxic compounds (Antonissen et al., 2014). In this context, **natural plant extracts** have received special attention due to their wide range of **beneficial health properties**, such as antioxidant, antimicrobial and anti-inflammatory capacities, that might **counteract** the **detrimental effects of mycotoxins** in the **gastrointestinal tract** (Abdel-Moneim et al., 2020).

OBJECTIVE

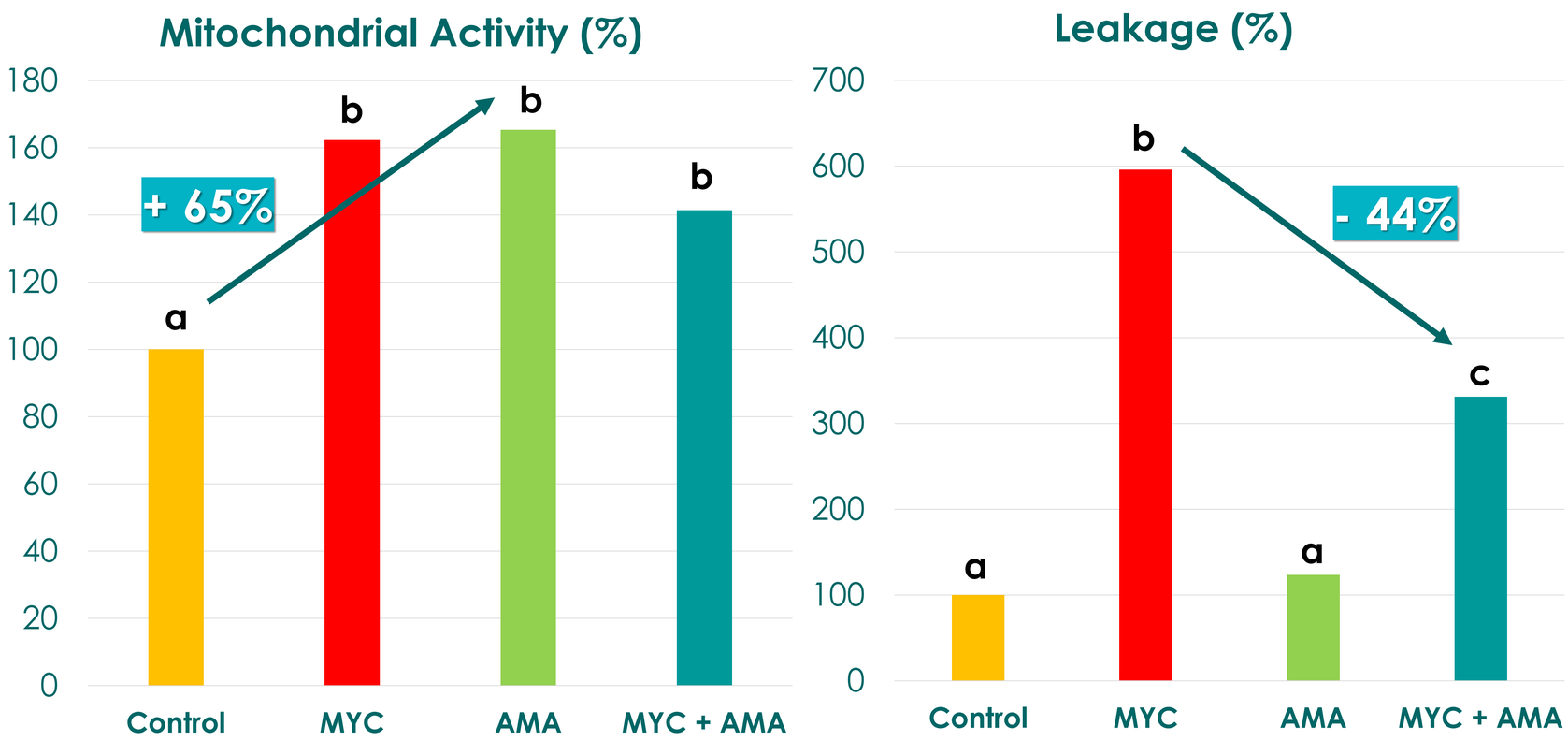
The aim of the present study was to evaluate the capacity of an anti-mycotoxin agent (AMA) that contains a combination of inorganic and organic adsorbents, and polyphenolic compounds from turmeric (*Curcuma longa*) and milk thistle (*Silybum marianum*) extracts, to reduce the negative effects induced by DON and T-2 exposure in the ileal porcine organoid (IPO) monolayers in an *ex vivo* model.

MATERIALS AND METHODS



IPO= Ileal porcine organoid, OGM= Organoid growth medium,
ODM= Organoid differentiation medium, AMA= anti-mycotoxin agent.

RESULTS



MYC= mycotoxins (DON+T-2), AMA= anti-mycotoxin agent.

AMA increased the mitochondrial activity, augmenting the cell viability in comparison to control ($p \leq 0.05$).

Besides, the exposure of IPOs to MYC (DON and T-2 toxin) significantly increased the FITC-dextran permeability ($p \leq 0.05$), indicating leakage. The supplementation by AMA in the presence of the MYC resulted in a significant reduction of leakage by 44% ($p \leq 0.05$).

CONCLUSIONS

The **anti-mycotoxin agent** containing **inorganic and organic adsorbents** and **phytogenics** from natural extracts was **effective** to **counteract** the **detrimental effects induced** by ***Fusarium* mycotoxins** in the **ileal porcine organoid monolayers**.