

## THE EFFECT OF CURCUMIN AND SILYMARIN IN MITIGATING THE OXIDATIVE STRESS INDUCED BY DEOXYNIVALENOL IN HEPATIC CELLS

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### INTRODUCTION

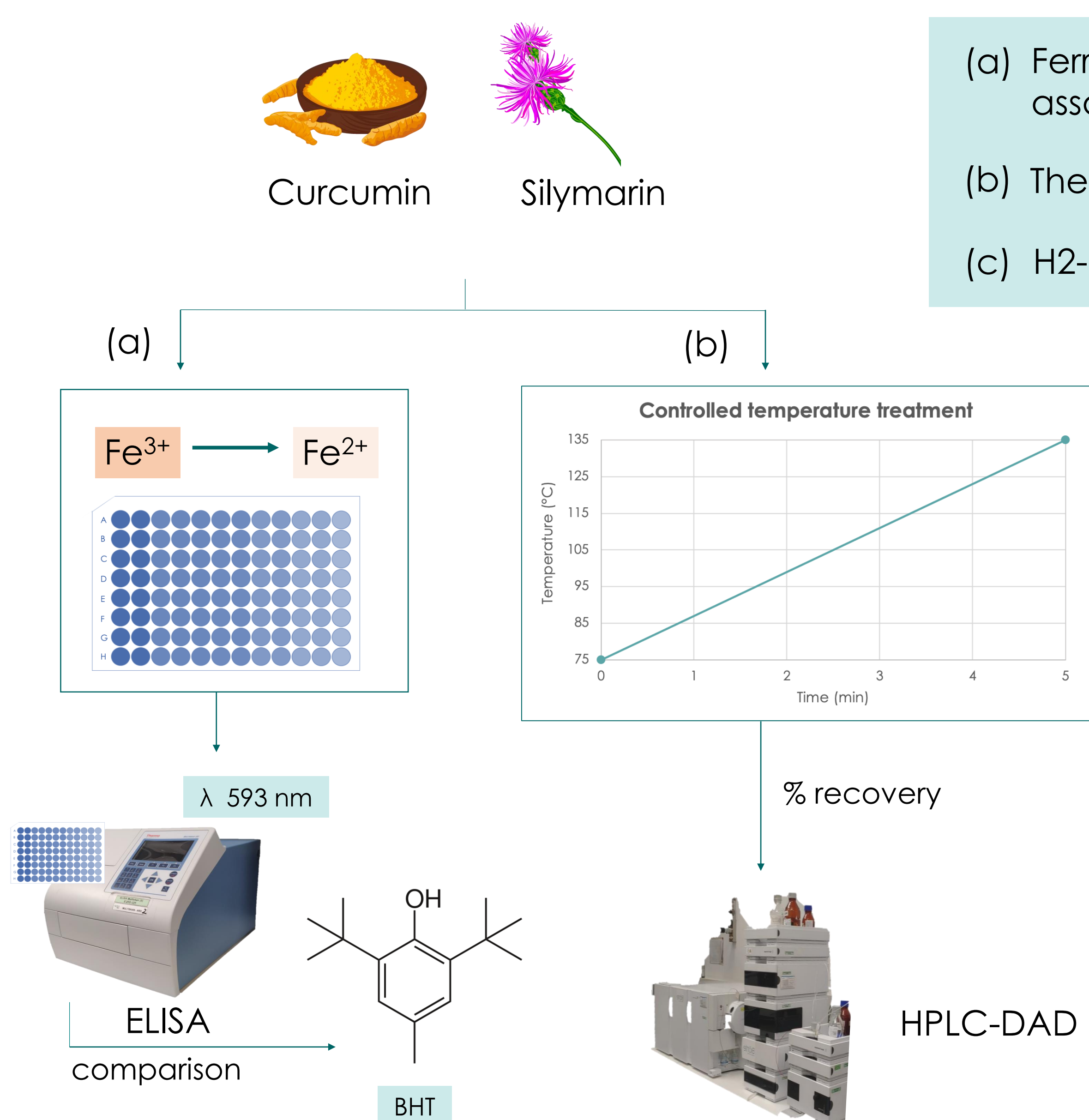
**Oxidative stress** is an important mechanism of deoxynivalenol (DON) toxicity. **DON** mycotoxin generates free radicals that disrupt the redox balance and induce DNA damage and apoptosis in the liver. In this context, natural **plant extracts** have received a great deal of attention due to their powerful **antioxidant** capacity, among a wide range of beneficial-health properties.

### OBJECTIVE

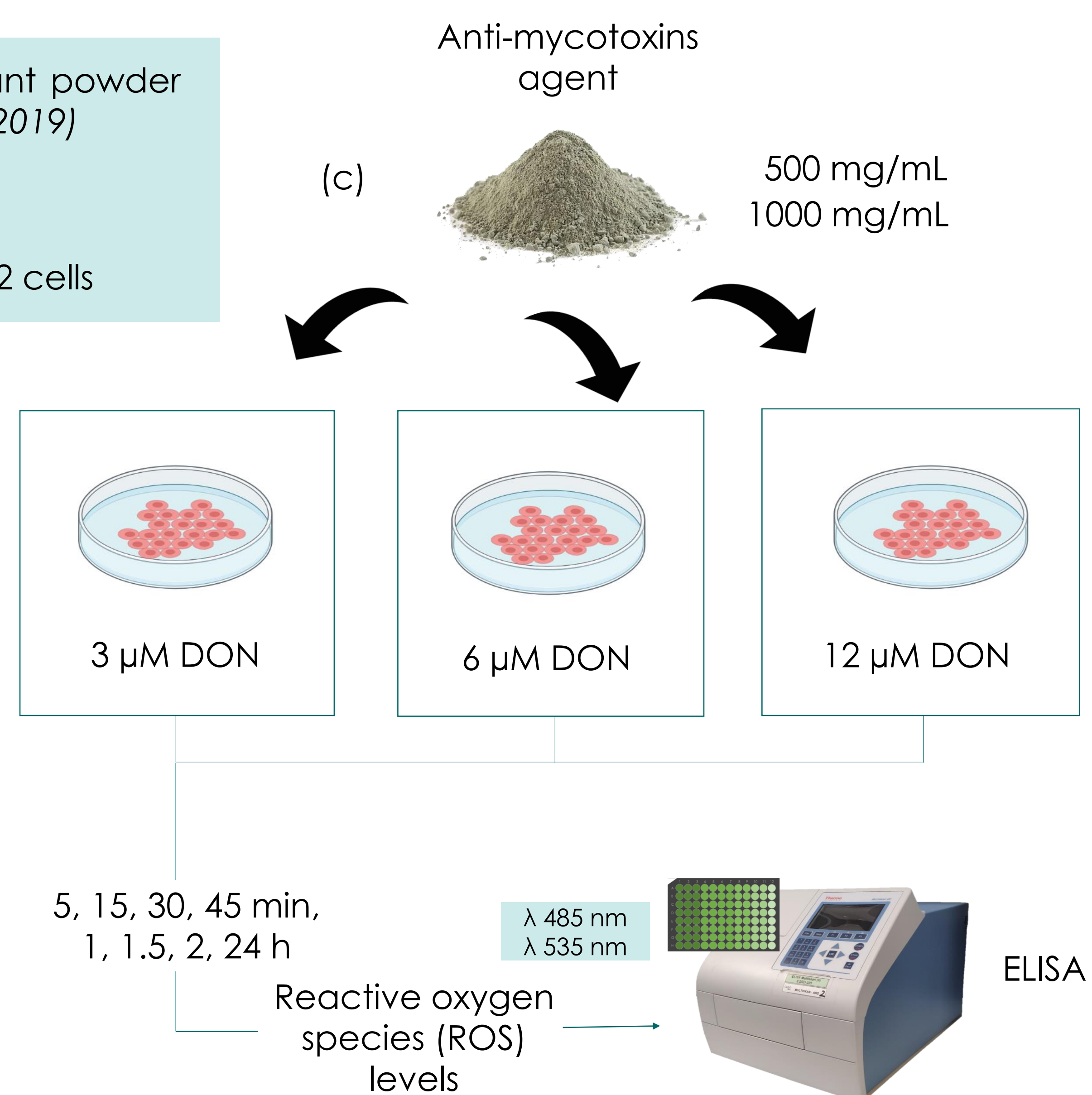
The aim of the present study was to evaluate the *in vitro* capacity of an anti-mycotoxins agent that contains a combination of polyphenolic compounds from turmeric (curcumin) and milk thistle (silymarin) extracts to reduce the oxidative stress induced in hepatic cells by DON.

### MATERIALS AND METHODS

#### *In vitro* antioxidant capacity and thermostability



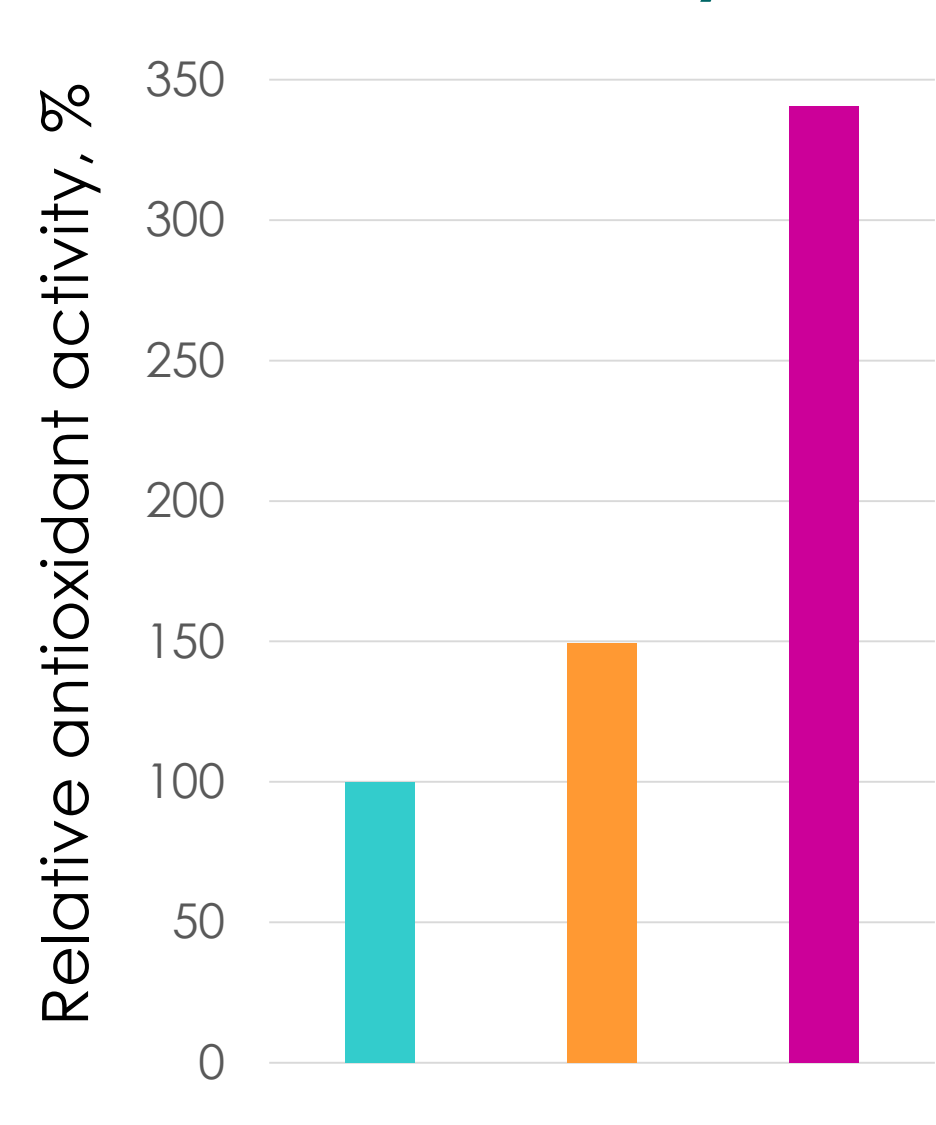
#### *In vitro* oxidative stress induced by DON in hepatic cells



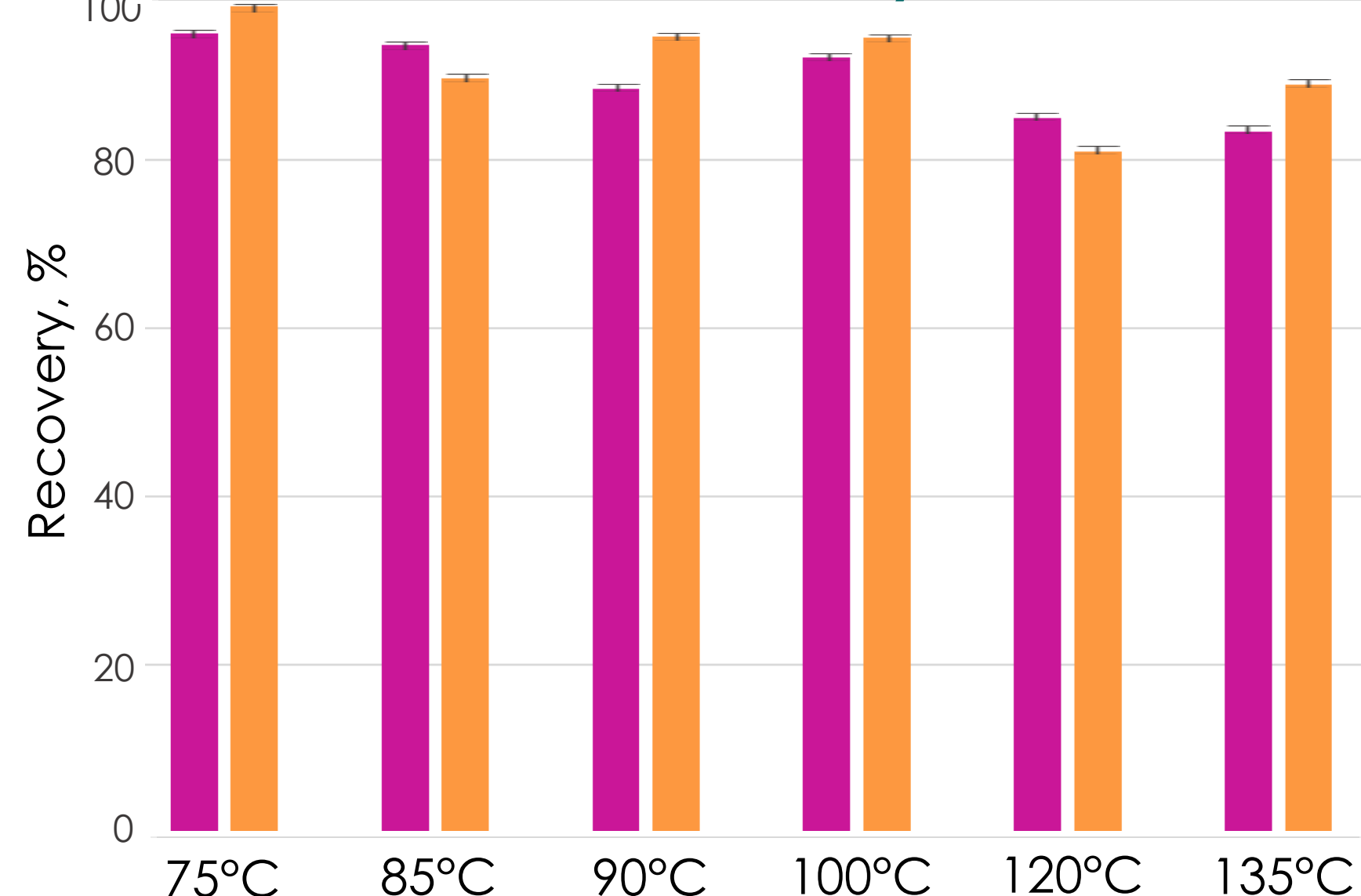
### RESULTS

- BHT
- Curcumin
- Silymarin
- Control
- DON 12 μM (Control)
- DON 12 μM + 500 mg/mL anti-mycotoxins agent
- DON 12 μM + 1000 mg/mL anti-mycotoxins agent

#### *In vitro* antioxidant activity of curcumin and silymarin

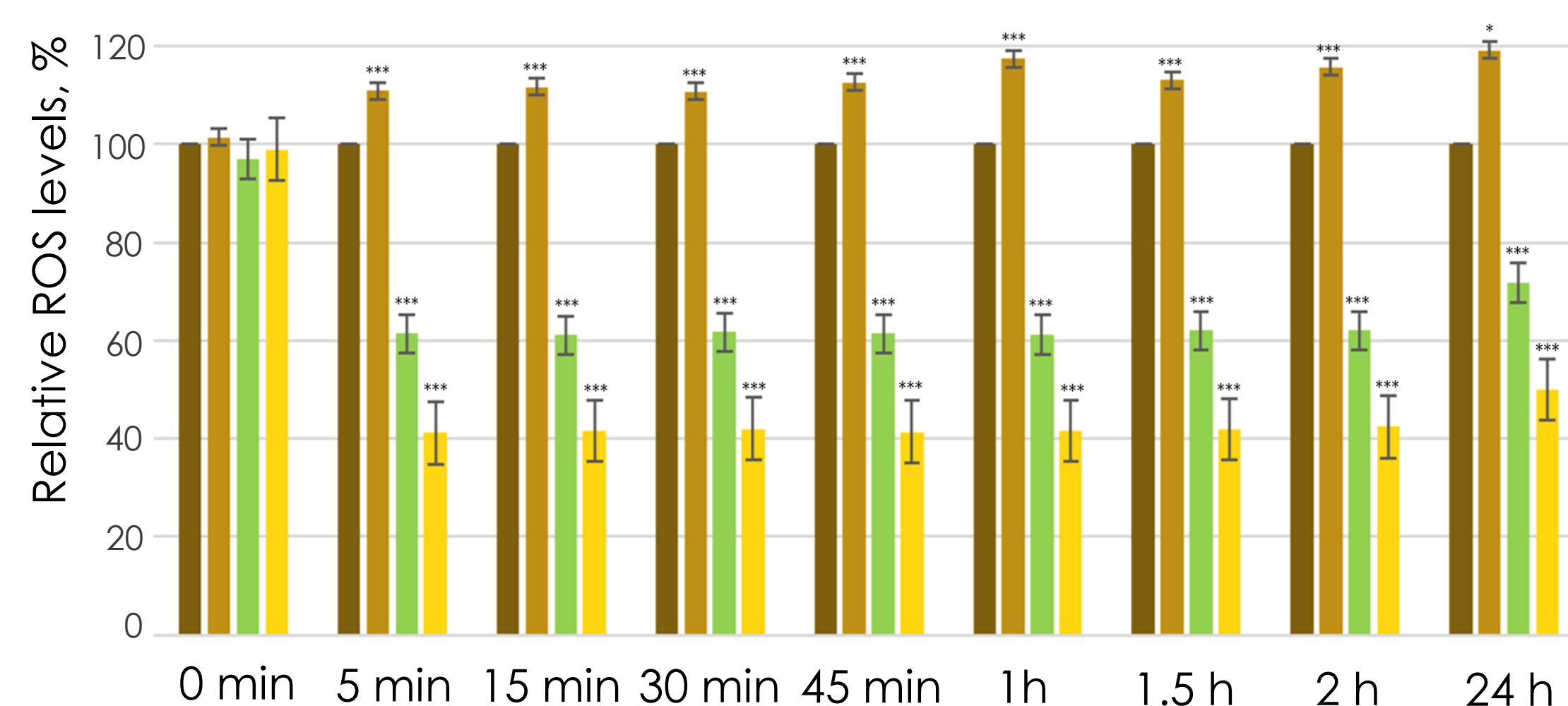


#### Thermostability assay of curcumin and silymarin



#### ROS levels in HepG2 cells challenged by DON 12 μM from 0 to 24 h

Studies carried out with DON at 3 and 6 μM presented the same tendency.



### CONCLUSIONS

The **combination of curcumin and silymarin** is a thermostable combination of natural extracts that provide **effective antioxidant** activity to alleviate the oxidative stress induced by **DON** in hepatic cells.