

Anti-inflammatory effect of Cucumber extract in *in vitro* and *ex vivo* pig model

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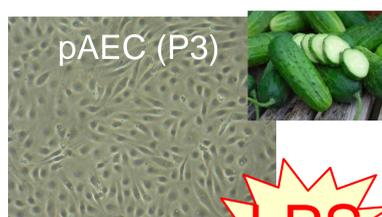
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INTRODUCTION

Belonging to the Cucurbitaceae family, cucumber (*Cucumis sativus* L) is a popular seasonal vegetable coming from India but now worldwide cultivated; the Indian traditional medicine described therapeutical benefits of cucumber since old times, including generic anti-inflammatory activity. The use of cucumber extract (Gherkin) as ingredient of functional food is of great interest but to translate the potential into effective use it is essential to document the mechanisms of action of its reported benefits. Increasing evidence indicate pig as an excellent model for studying human diseases concerning cardiovascular, digestive and urinary system.

The aim of the present study was to evaluate the effect of cucumber extract on *in vitro* and *ex vivo* pig models LPS-stimulated

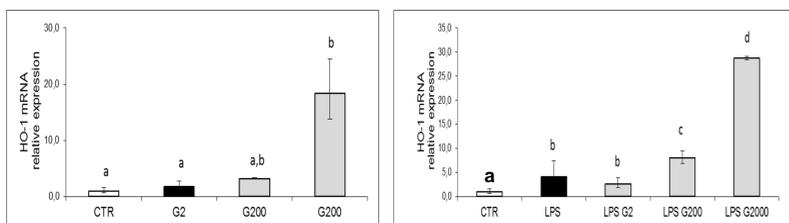
In vitro model: pAECs (porcine Aortic Endothelial Cells) + LPS treatment



Cucumber extract (Gherkin) (2, 200, 2000 µg/ml)
1, 7, 24 h
LPS 10 µg/ml

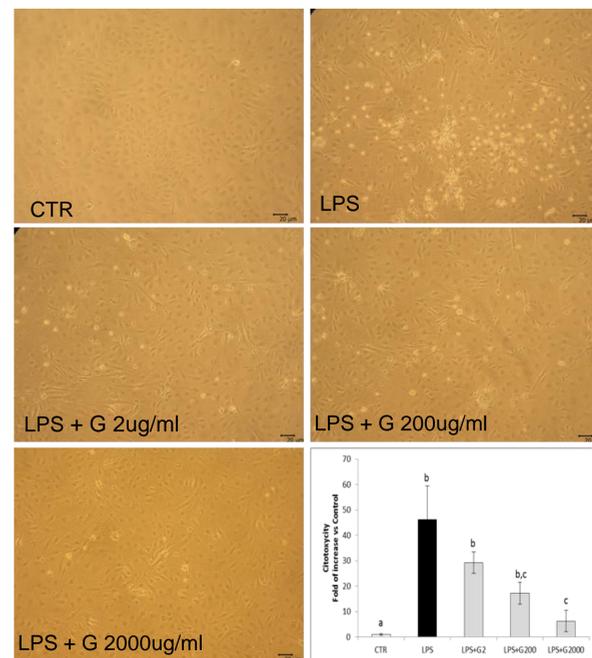
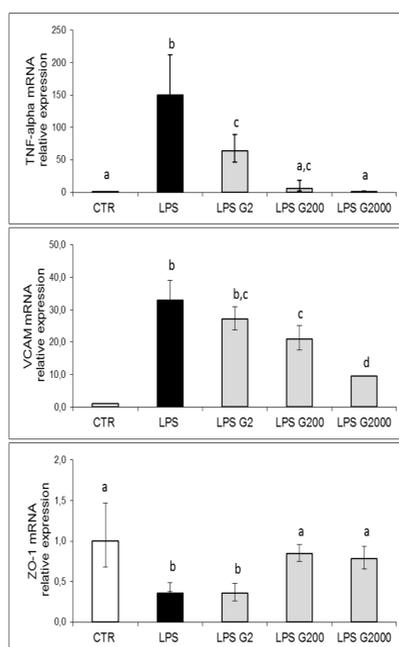
•CELL VIABILITY

•qPCR



Gherkin treated cells showed higher level of protective HO-1, during LPS treatment, than cells treated with LPS alone.

The gherkin extract reduced TNF- α and VCAM expression and increased ZO-1 expression in pAEC LPS treated cells.



Gherkin extract inhibited LPS effects in a dose dependent manner.

Ex vivo model: whole blood + LPS treatment



Heparinized blood sample (n=3)
Dil1:1 RPMI

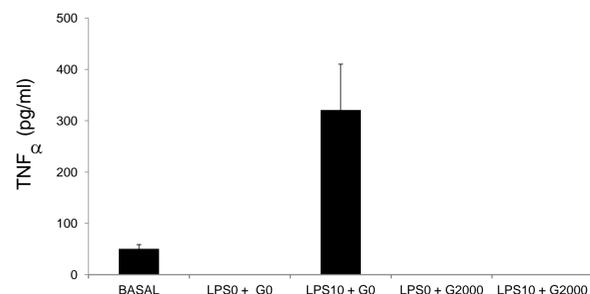


Cucumber extract (Gherkin, 2000 µg/ml)
18h at 39°C



LPS 10 µg/ml

CYTOKINES DETECTION (ELISA)



The gherkin extract reduced the pro-inflammatory TNF- α protein in LPS *ex-vivo* model.

CONCLUSIONS

Overall these results, whether deeply analyzed for a wider array of effects, could candidate botanic cucumber extract as promising ingredient of functional food.