

Effect of crude protein level in lamb feed on circulating malondialdehyde and cytokine expression in rumen and ileum

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INTRODUCTION

To optimize nutrients of intensive light lambs, it is necessary to understand how crude protein (CP) reduction affects the balance between immune mechanisms of defence and tolerance in gastrointestinal tract.

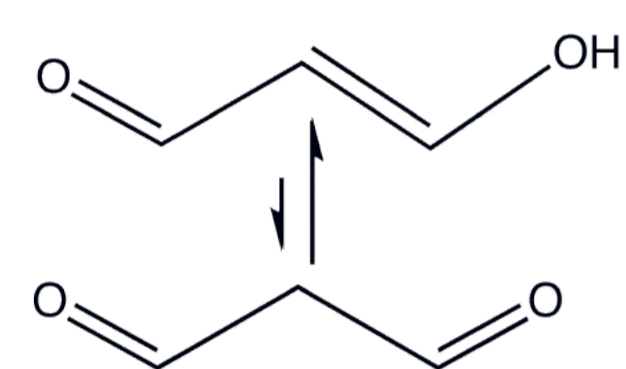
OBJECTIVE

To assess the effect of dietary CP on circulating malondialdehyde (MDA) concentration and gene expression of pro-inflammatory (*TNF-α*) and anti-inflammatory (*IL-10*, *TGF-β*) cytokines.

MATERIAL AND METHODS



Ripollesa male lambs (45-60 days; n=120).
Two phases: growth (14 to 19 kg of BW) and fattening (19 to 25 kg of BW).



Plasma MDA

24 blood samples from each treatment.
Determination by liquid chromatography with diode detector.



Real time PCR

Gene expression of *TNF-α*, *IL-10* and *TGF-β* by real-time PCR at the ruminal and ileal tissues in control (n=4) and low (n=4) group.

	CONTROL	LOW
n	60	60
Growth	20.4	18.3
Fattening	19.1	17.4

Table 1. Percentage of crude protein (CP) on dry matter in lamb feed.

RESULTS

CONTROL vs. LOW

MDA (μM)

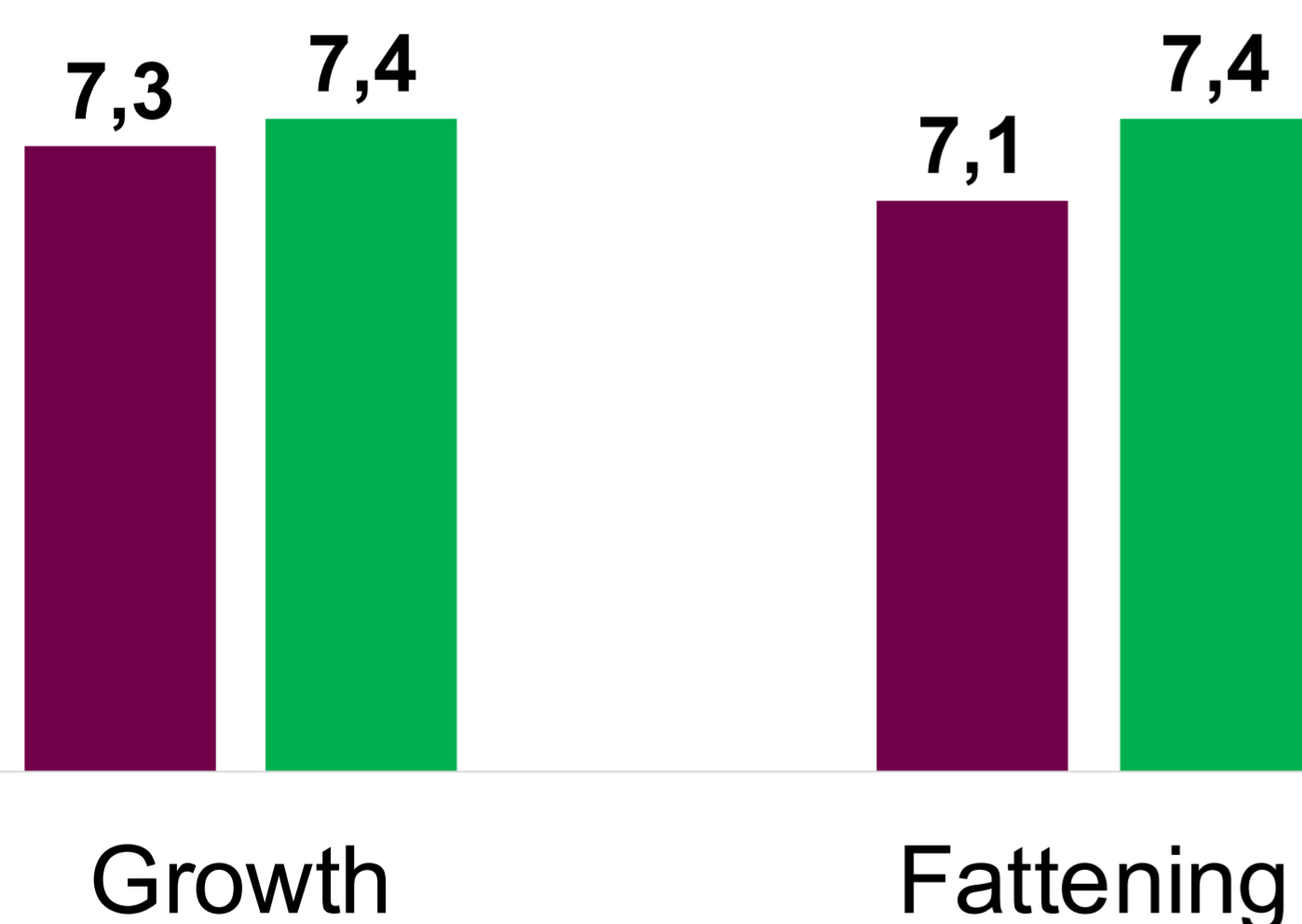


Fig. 1. Average MDA levels in the growth and fattening phases. Control vs. Low; P> 0.05.

Gene expression

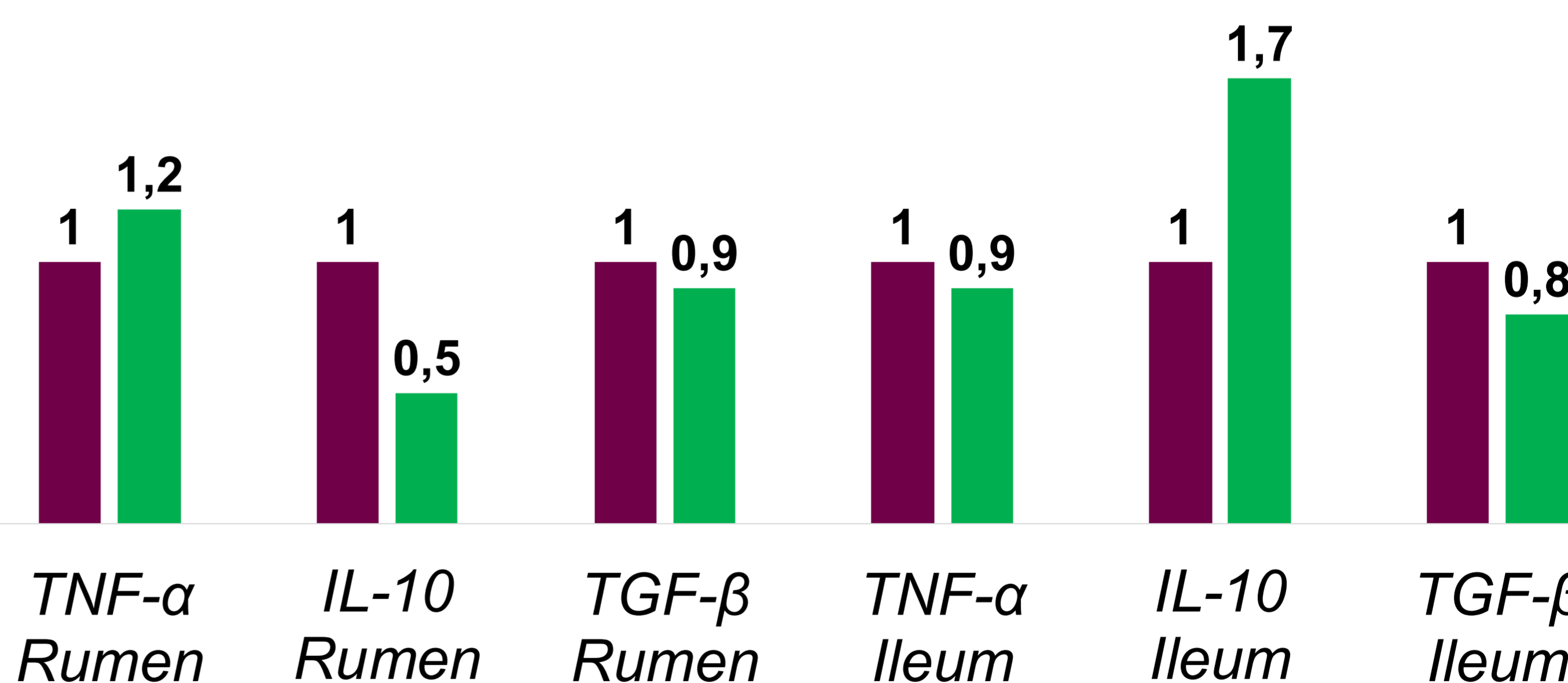


Fig. 2. Relative fold differences in cytokine gene expression recorded in rumen and ileum of lambs. Control vs. Low; P> 0.05.

CONCLUSION

The 2% reduction of crude protein in the lambs' diet did not negatively affect their oxidative blood status (MDA) or alter the immune response in the gastrointestinal tract.

ACKNOWLEDGEMENTS

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