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Exploring the dietary effects of a medium chain fatty acids and monoglycerides premixture in weaned piglets challenged with *Streptococcus suis*

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INTRODUCTION

Medium chain fatty acids and monoglycerides (MCFA) are caloric nutrients rapidly available for piglets. Gram+ bacteria, grown *in vitro*, are sensitive to MCFA. Therefore, a trial was conducted to describe effects of a MCFA premixture in weaned piglets challenged with *S. suis* serotype 9 (SS9).

MATERIAL & METHODS

Trial design and schedule

		Week post-weaning								
	Week	I	II	III				IV		
	day on experiment		d0	d8	d11	d12	d13	d14	d15	d18
-C	diet	adaptation	experimental A							
	housing	cage lab								
	challenge				3 mL PBS (oral+nasal)					
+C	diet	adaptation	experimental A							
	housing	commercial barn			cage lab + mixing					
	challenge				10^9 CFU SS9 (oral+nasal)					
+MCFA	diet	adaptation	experimental B: A+0,2% MCFA							
	housing	commercial barn			cage lab + mixing					
	challenge				10^9 CFU SS9 (oral+nasal)					
measurements and samples	weight		x		x					x
	rectal temperature			x	x	x	x	x	x	
	tonsil swab			x		x	x			x
	ileum content									x

Animals : 30 weaned piglets (15 gilts + 15 males) from SFR research farm (Tempo × TN70), 26 d old.

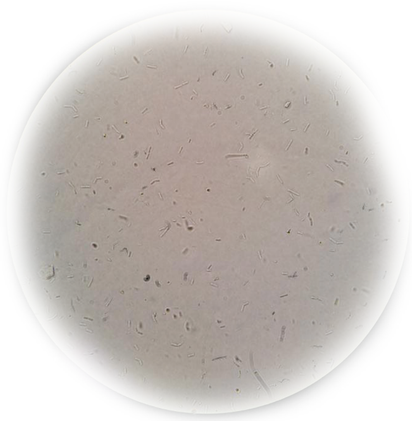
Analysis :

- SS9 was quantified by qPCR on tonsil swabs and ileal content.
- To analyze the data, effects of day, treatment and interaction were included in a mixed model with random effect of pen.

RESULTS

No mortality resulted from SS9 challenge. Challenge reduced growth numerically (-10% between D11 and 18).

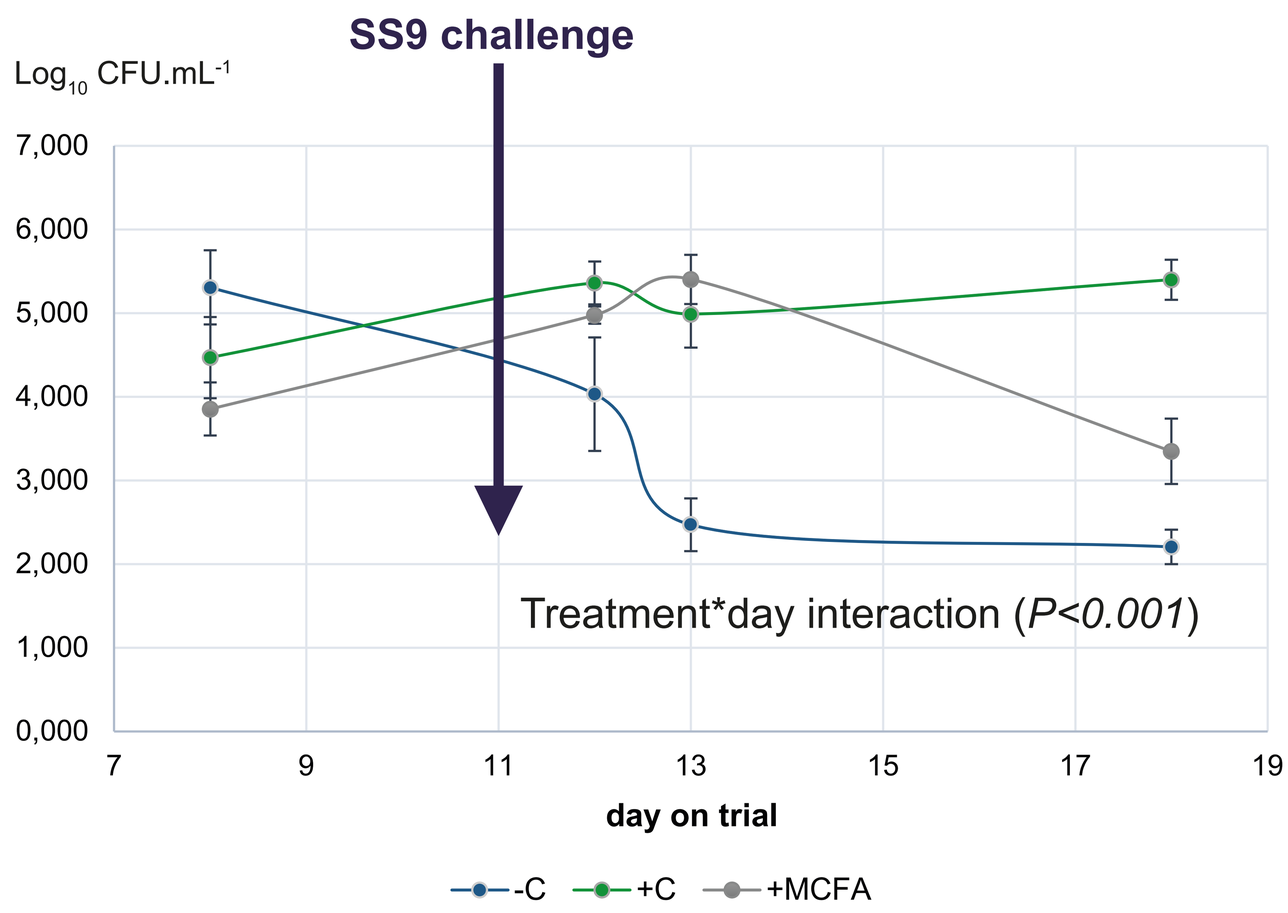
Streptococcus suis type 9 culture (x100)



Courtesy of Marilyne Harang, miXscience

Ileal SS9 concentration was lower (*P=0.014*) for **-C** than for **+C** and **+MCFA** (2.1 *vs.* 5.2 and 5.1 log_{10} $CFU.mL^{-1}$).

SS9 concentration in the tonsil swabs



DISCUSSION & CONCLUSION

In this trial, piglets carried SS9 before being challenged. Despite this, oral and nasal challenge resulted in increased SS9 concentration in tonsils and ileal chyme.

MCFA premixture mitigated tonsil colonization, but did not reduce SS9 presence in ileal digesta.The consequences of such dietary manipulation on SS9 infection remain to be described.

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