

scFOS STIMULATE *LACTOBACILLUS REUTERI* FROM CANINE ORIGIN

KEYWORDS

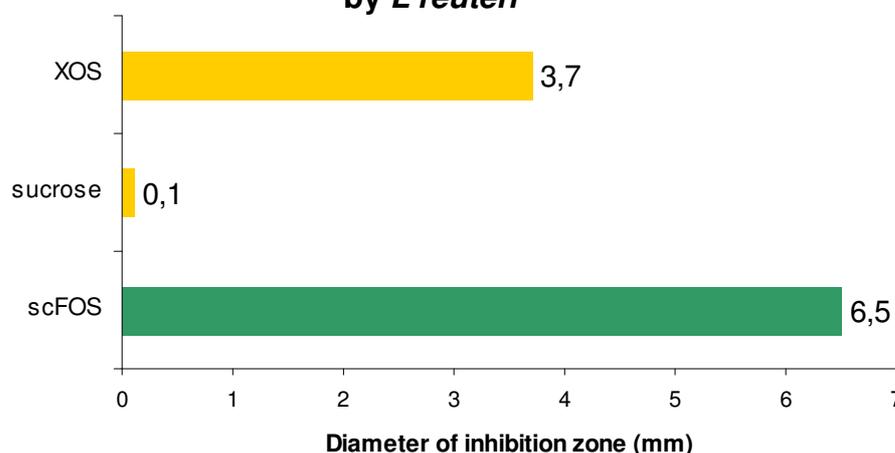
Dogs – digestive flora – lactobacilli – probiotics

EXPERIMENTAL DESIGN

Lactobacillus strains were obtained from large intestine samples of healthy adult dogs. Bacterial growth was measured with an automatic turbidometer on different type of substrate (glucose, sucrose, scFOS and XOS). It records the kinetic changes in the absorbance of liquid samples. The growth rate of bacteria was determined by calculating the slope of the growth curve (h^{-1}). Then antimicrobial activity of *L reuteri* against *E coli* was assessed on the different substrates. *L reuteri* was grown on one of the growth substrate. A filter disk soaked on the supernatant was placed on agar plates seeded with 0.5ml of a 24h culture of *E coli* HE320. After incubation at 37°C for 24h, the degree of inhibition was measured as the diameter of the clear zone around the paper discs.

RESULTS

Effects of the growth substrates on *E coli* inhibition by *L reuteri*



	<i>L acidophilus</i>	<i>L mucosae</i>	<i>L reuteri</i>
scFOS	5.58 ± 0.24 ^b	2.76 ± 0.27 ^f	9.90 ± 0.28 ^e
glucose	12.06 ± 0.49 ^d	8.40 ± 0.24 ^c	6.90 ± 0.29 ^c
sucrose	10.32 ± 0.48 ^e	6.84 ± 0.23 ^b	5.64 ± 0.27 ^b
XOS	4.14 ± 0.19 ^a	3.84 ± 0.18 ^a	7.50 ± 0.33 ^c

^{a,b,c,d,e,f}: values with different superscript differ; p<0.05

In comparison to glucose, sucrose or XOS, scFOS stimulate in a greater extent (p<0.05) the growth rate of *L reuteri* from canine origin.

Strains from the *Lactobacillus reuteri* group produce a bactericide molecule called reuterin. The synthesis of this molecule is enhanced by the presence of other bacteria like *E. coli*. The antimicrobial activity of *L reuteri* was highest when they were grown on scFOS. There was no inhibition of *E coli*, when *L reuteri* were grown on sucrose and it was about half time lower than scFOS when XOS was used as the growth substrate.

CONCLUSION

scFOS particularly stimulate the growth of *Lactobacillus reuteri*, which demonstrated an antimicrobial activity against *E coli*.

Ref : P.04.04.D (UK)

Tzortzis G, Baillon ML, Gibson GR, Takagi S, Rastall RA. Modulation of anti-pathogenic activity in canine-derived *Lactobacillus* species by carbohydrate growth substrate. J Appl Microbiol 2004; 96(3):552-559.