

Fermentative metabolism of a transgalactosylated oligosaccharide by pig hindgut microflora in a continuous system. N Faisant, P Beaumatin, G Hannequart, C Cordelet, M Durand (*INRA, Laboratoire de Nutrition et Sécurité Alimentaire, 78352 Jouy-en-Josas Cedex, France*)

Introduction

A transgalactosylated oligosaccharide (TOS), with the molecular formula: galactose-(galactose) *n*-glucose (*n* = 1 to 3), is synthesized in Japan (Yakult Institute) and incorporated into

bohydrates, trace elements and vitamins, simulating the composition of ileal contents. After 7 d adaptation to the basal solution, 2 vessels were supplemented daily by 10 g TOS delivered twice. SCFA, gas, NH₃-N were analysed on the 2 d just before TOS distribution and on the 5th and 6th d after.

TOS utilization was almost total (94.2%). It decreased pH and its main clear-cut effect was propionate and methane productions (table I). It therefore modified hydrogen-utilizing reactions.

Significant lower branched chain fatty acids and NH₃-N (-189 mg N/day) productions were observed with TOS, indicating both an inhibition

Table I. SCFA and CH₄ daily productions (mmol/d m ± SE, *n* = 4) (*a* ≠ *b* : *P* < 0.05).

	C ₂	C ₃	C ₄	IC ₄ + IC ₅	CH ₄
Basal (B)	41.9 ± 2.2 ^b	15.9 ± 1.7 ^b	7.3 ± 1.2 ^b	5.23 ± 0.2 ^a	4.0 ± 1.0 ^b
B + TOS	88.4 ± 5.4 ^a	47.3 ± 3.9 ^a	9.5 ± 1.0 ^a	3.7 ± 0.4 ^b	17.4 ± 1.7 ^a

some food products. Scarcely absorbed from the intestinal tract, this product is available for fermentation by hindgut microflora. The aim of this work was to study the fermentative metabolism in a continuous culture system (Rusitec) (Denis *et al*, 1990). Four 1-l vessels were inoculated with the solid and liquid phases of colon and caecum contents from pigs. These vessels were continuously perfused with a medium (basal solution) containing mucus, proteins, car-

of proteolysis and an increase of bacterial protein synthesis. It appears from these results that ingestion of indigestible oligosaccharides may result in changes in hindgut fermentation pathways.

Reference

Denis I, Durand M, Stévani J, Hannequart G, Dumay C (1990) *Sci Aliments* 10, 265-274