SACN draft Carbohydrates and Health report - FDF response

Cargill additions to the response related to scientific substantiation on arabinoxylan-oligosaccharides (AXOS)

Chapter 9 of the SACN report: Non-digestible oligosaccharides

- **Faecal pH and SCFA**

One randomised controlled trial in adults *(Francois et al., 2012)* reports data on arabinoxylo-oligosaccharide (AXOS) supplementation (doses 2.3 and 8 g/day) in relation to pH and short chain fatty acid content. Intake of AXOS at 8 g/day increased total levels of faecal SCFA and the levels of acetic acid, propionic acid and butyric acid relative to placebo intake ($P<0.05$). Additionally, at the dose of 2.3 g/day, AXOS significantly increased faecal propionic acid levels ($P<0.05$). Faecal pH after intake of AXOS at 8 g/day was significantly lower as compared after placebo intake ($p<0.05$).

References:

- François IEJA, Lescroart O, Veraverbeke WA, Marzorati M, Possemiers S, Evenepoel P, Hamer H, Houben E, Windey K, Welling GW, Delcour JA, Courtin CM, Verbeke K, Broekaert WF. Effects of a wheat bran extract containing arabinoxylan oligosaccharides on gastrointestinal health parameters in healthy adult human volunteers: a double-blind, randomised, placebo-controlled, cross-over trial. BJN 2012;108: 2229–2242.

- **Faecal bacteria**

Four randomised controlled trials, three in adults *(Maki et al.,2012; Francois et al., 2012; Cloetens et al., 2010)* and one in children *(Francois et al., 2014)* present evidence on arabinoxylo-oligosaccharide (AXOS) supplementation (doses 4.8-10g/day) in relation to faecal bacteria content. All trials compared AXOS-supplemented groups to either non-supplemented or maltodextrin control groups.

Effects of AXOS supplementation on increasing faecal *Bifidobacterium* spp. content relative to baseline and/or control group is reported in these studies.

References:

- François IEJA, Lescroart O, Veraverbeke WS, Marzorati M, Possemiers S, Hamer H, Windey K, Welling GW, Delcour JA, Courtin CM, Verbeke K, Broekaert WF. Effects of Wheat Bran Extract Containing Arabinoxylan Oligosaccharides on Gastrointestinal Parameters in Healthy Preadolescent Children. JPGN 2014;58: 647–653.
- Maki KC, Gibson GR, Dickmann RS, Kendall CWC, Chen C-Y O, Costabile A, Comelli EM, McKay DL, Almeida NG, Jenkins D, Zello GA, Blumberg JB. Digestive and physiologic effects

of a wheat bran extract, arabino-xylan-oligosaccharide, in breakfast cereal. Nutrition 2012;28: 1115-21.

- François IEJA, Lescroart O, Veraverbeke WA, Marzorati M, Possemiers S, Evenepoel P, Hamer H, Houben E, Windey K, Welling GW, Delcour JA, Courtin CM, Verbeke K, Broekaert WF. Effects of a wheat bran extract containing arabinoxylan oligosaccharides on gastrointestinal health parameters in healthy adult human volunteers: a double-blind, randomised, placebo-controlled, cross-over trial. BJN 2012;108: 2229–2242.
- Cloetens L, Broekaert WF, Delaedt Y, Ollevier F, Courtin CM, Delcour JA, Rutgeerts P, Verbeke K. Tolerance of arabinoxylan-oligosaccharides and their prebiotic activity in healthy subjects: a randomised, placebo-controlled cross-over study. BJN 2010;103: 703–713.

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