***Supplementary Table S1.*** Analysed chemical composition (g/kg DM) and energy content (MJ/kg DM) of the experimental diets

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | Diets | | | | |
|  |  | Pectin-rich | |  | Arabinoxylan-rich | |
|  |  | CFO | SBP |  | WB | GM |
| Ash |  | 53 | 32 |  | 38 | 34 |
| Crude protein |  | 16.8 | 16.6 |  | 16.3 | 15.6 |
| NSP | Total | 99.4 | 94.1 |  | 93.0 | 104.7 |
|  | Insoluble | 77.6 | 77.4 |  | 92.4 | 100.4 |
| Arabinose | Total | 3.1 | 13.1 |  | 11.0 | 4.2 |
|  | Insoluble | 1.5 | 7.8 |  | 11.0 | 4.2 |
| Xylose | Total | 12.2 | 8.5 |  | 24.9 | 26.0 |
|  | Insoluble | 11.7 | 8.5 |  | 24.9 | 25.5 |
| Uronic Acid | Total | 16.7 | 12.6 |  | 2.1 | 2.7 |
|  | Insoluble | 3.3 | 2.5 |  | 2.0 | 2.3 |
| Cellulose |  | 52.9 | 49.2 |  | 44.0 | 60.0 |
| Klason lignin |  | 3.9 | 1.7 |  | 8.9 | 15.1 |
| Dietary fibre |  | 103.9 | 95.8 |  | 101.9 | 119.8 |
| Energy |  | 18.2 | 19.1 |  | 18.7 | 18.6 |

**Supplementary Table S2.** Oligonucleotide primers used for qPCR

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Target bacterial group | Orientation | Primer sequence | Annealing temperature | Reference |
| *Lactobacillus* spp. | F | AGCAGTAGGGAATCTTCCA | 60°C | (Karlsson *et al.,* 2011#) |
|  | R | CACCGCTACACATGGAG |  |  |
| *Enterobacteriaceae* | F | CATTGACGTTACCCGCAGAAGAAGC | 63°C | (Rinttilä *et al.,* 2004\*) |
|  | R | CTCTACGAGACTCAAGCTTGC |  |  |
| *Bacteroides-Prevotella-Porphyromonas* | F | GGTGTCGGCTTAAGTGCCAT | 60°C | (Rinttilä *et al.,* 2004\*) |
|  | R | CGGAYGTAAGGGCCGTGC |  |  |

#Karlsson CLJ, Molin G, Cilio CM and Ahrne S 2011. The pioneer gut microbiota in human neonates vaginally born at term-a pilot study. Pediatric Research 70,282-286.

\*Rinttilä T, Kassinen A, Malinen E, Krogius L and Palva A 2004. Development of an extensive set of 16S rDNA-targeted primers for quantification of pathogenic and indigenous bacteria in faecal samples by real-time PCR. Journal of Applied Microbiology 97,1166-1177.

**Supplementary Table S3**. Oligonucleotide primers and run conditions used to target the beta-xylosidase gene (EC 3.2.1.37) xynB

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Target Gene | Bacterial group | Orientation | Primer sequence\* | Primer position (bp) | Primer concentration | Annealing temperature |
| *xynB* | *Bacteroidetes* | F | GGCATYGAYCCYTCKTTYTTYTTYTTC | 561 | 0.5 µM | 58.3°C |
|  |  | R | GGNCCYTCAATCCARATVGG | 773 | 0.5 µM | 58.3°C |
| *xynB* | *Firmicutes* | F | GTRTATGTHTAYGGHTC | 81 | 1 µM | 53.9°C |
|  |  | R | ATNACDCCCTCAWAHCT | 197 | 1 µM | 53.9°C |

\*Aligned bacteria belonging to *Firmicutes* were *Ruminococcus albus* (RUMAL\_2839), *Roseburia intestinalis* (RO1\_29910), and *Clostridium cellulolyticum* (CCEL\_1235). The bacteria belonging to *Bacteroidetes* were *Bacteroides salanitronis* (BACSA\_2805), *Bacteroides vulgatus* (BVU\_1983), *Prevotella buccae* (HMPREF6485\_0458) and *Prevotella bergensis* (HMPREF0645\_1744).

**Supplementary Table S4.** Amplification slopes, efficiencies and correlation coefficients for the real-time PCR assays for the different bacteria used as positive control for standard curves to target the beta-xylosidase gene (EC 3.2.1.37), xynB among the Bacteroides and Firmicutes groups

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | Slope | PCR efficiency (%) | Correlation coefficient |
| *Bacteroides* |  |  |  |  |
|  | *Prevotella buccae* DSM19025 | 3.216 | 104.6 | 0.998 |
|  | *Bacteroides salanitronis* DSM18170 | 3.339 | 99.3 | 0.999 |
|  | *Prevotella bergensis* DSM17361 | 3.230 | 103.9 | 0.996 |
|  | *Bacteroides vulgatus* DSM1447 | 3.415 | 96.2 | 1.000 |
| *Firmicutes* |  |  |  |  |
|  | *Roseburia intestinalis* DSM14610 | 3.222 | 104.4 | 0.999 |
|  | *Ruminococcus albus* DSM20455 | 3.382 | 97.5 | 0.999 |
|  | *Clostridium cellulolyticum* DSM5812 | 3.675 | 87.1 | 0.999 |