

Table S1- Bacterial quantification (log (CFU/mL), mean \pm SD) of the different bacterial populations present in the colonic fermentations for the different conditions. Different letters mark statistically significant ($p < 0.05$) differences between each condition for each bacterial group at same sampling time. IC- inoculum control; SKM- skim milk; GOS- Galacto-oligosaccharide; FOS- fructo-oligosaccharides; MOS- mannan-oligosaccharides; SB- *Saccharomyces boulardii*.

		Bacterial concentration (log (CFU/mL))						
Condition	Time	Firmicutes (Firm)	Bacteroidetes (Bdt)	<i>Lactobacillus</i> group (Lac)	<i>Bacteroides</i> (Bac)	<i>Bifidobacterium</i> (Bif)	<i>Enterobacteriaceae</i> family (Enb)	<i>Clostridium</i> cluster IV (CIV)
IC	0	7.83 \pm 0.03 ^a	5.78 \pm 0.23 ^a	3.01 \pm 0.41 ^a	5.84 \pm 0.52 ^{a, b}	5.15 \pm 0.13 ^a	4.57 \pm 0.09 ^a	4.72 \pm 0.19 ^a
	24	8.01 \pm 0.27 ^c	6.83 \pm 0.19 ^a	3.64 \pm 0.08 ^c	7.40 \pm 0.09 ^{b, c}	4.86 \pm 0.25 ^{b, c}	6.37 \pm 0.23 ^a	3.75 \pm 0.24 ^e
	48	7.78 \pm 0.03 ^a	7.38 \pm 0.23 ^a	4.02 \pm 0.10 ^d	7.20 \pm 0.09 ^a	4.72 \pm 0.14 ^a	6.63 \pm 0.10 ^a	4.24 \pm 0.22 ^{a, b}
SKM	0	8.47 \pm 0.02 ^b	6.93 \pm 0.06 ^b	3.22 \pm 0.04 ^a	6.44 \pm 0.12 ^{b, c}	5.45 \pm 0.12 ^{a, b}	5.15 \pm 0.05 ^b	5.30 \pm 0.08 ^b
	24	7.35 \pm 0.19 ^a	6.74 \pm 0.11 ^a	2.62 \pm 0.27 ^b	6.86 \pm 0.07 ^{a, b}	4.54 \pm 0.08 ^b	6.49 \pm 0.18 ^{a, b}	2.87 \pm 0.14 ^b
	48	8.18 \pm 0.06 ^b	7.96 \pm 0.22 ^{b, c}	2.55 \pm 0.05 ^{a, b, c}	6.97 \pm 0.52 ^a	5.29 \pm 0.12 ^b	7.02 \pm 0.04 ^c	4.93 \pm 0.17 ^c
SKM + 1% (w/v) GOS	0	8.40 \pm 0.35 ^b	6.71 \pm 0.35 ^b	3.05 \pm 0.31 ^a	7.03 \pm 0.37 ^c	5.54 \pm 0.30 ^b	5.05 \pm 0.38 ^b	5.44 \pm 0.23 ^b
	24	7.71 \pm 0.09 ^{b, c}	6.69 \pm 0.16 ^a	2.37 \pm 0.17 ^b	7.16 \pm 0.08 ^{a, b, c}	5.02 \pm 0.24 ^c	6.59 \pm 0.01 ^{a, b, c}	3.05 \pm 0.09 ^{b, c}
	48	7.89 \pm 0.31 ^{a, b}	7.88 \pm 0.17 ^{b, c}	2.32 \pm 0.25 ^{a, b}	7.41 \pm 0.42 ^{a, b}	4.93 \pm 0.44 ^{a, b}	6.95 \pm 0.12 ^{b, c}	4.06 \pm 0.67 ^a
SKM + 1% (w/v) MOS	0	8.28 \pm 0.04 ^b	6.74 \pm 0.04 ^b	2.97 \pm 0.02 ^a	6.17 \pm 0.10 ^{a, b}	5.36 \pm 0.08 ^{a, b}	4.84 \pm 0.03 ^{a, b}	5.23 \pm 0.04 ^b

	24	$8.00 \pm 0.01^{b, c}$	7.06 ± 0.08^b	1.86 ± 0.41^a	$7.36 \pm 0.15^{b, c}$	4.09 ± 0.02^a	$6.45 \pm 0.10^{a, b}$	2.46 ± 0.17^a
	48	8.51 ± 0.05^c	$7.85 \pm 0.22^{b, c}$	2.98 ± 0.12^c	$7.40 \pm 0.14^{a, b}$	4.73 ± 0.13^a	6.83 ± 0.02^b	$4.74 \pm 0.11^{b, c}$
SKM + 1% (w/v) FOS	0	8.37 ± 0.29^b	6.60 ± 0.28^b	3.01 ± 0.37^a	5.73 ± 0.18^a	5.71 ± 0.18^b	$5.02 \pm 0.28^{a, b}$	5.34 ± 0.18^b
	24	$7.68 \pm 0.08^{a, b, c}$	7.37 ± 0.11^c	3.21 ± 0.25^c	6.77 ± 0.35^a	5.78 ± 0.28^d	6.83 ± 0.04^c	4.20 ± 0.07^f
	48	8.73 ± 0.09^c	8.32 ± 0.04^d	4.31 ± 0.07^d	7.98 ± 0.07^b	6.67 ± 0.10^c	$6.92 \pm 0.12^{b, c}$	5.49 ± 0.05^d
SKM + 1% (w/v) SB	0	8.38 ± 0.06^b	6.80 ± 0.05^b	2.95 ± 0.03^a	$5.91 \pm 0.16^{a, b}$	$5.44 \pm 0.04^{a, b}$	5.13 ± 0.12^b	5.38 ± 0.08^b
	24	$7.86 \pm 0.05^{b, c}$	7.82 ± 0.09^c	2.49 ± 0.13^b	7.43 ± 0.08^c	$4.85 \pm 0.12^{b, c}$	$6.70 \pm 0.09^{b, c}$	$3.50 \pm 0.27^{d, e}$
	48	7.85 ± 0.06^a	$7.77 \pm 0.06^{b, c}$	$2.79 \pm 0.08^{b, c}$	7.15 ± 0.35^a	$5.06 \pm 0.08^{a, b}$	$6.80 \pm 0.06^{a, b}$	$4.46 \pm 0.03^{a, b, c}$
SKM + 1% (w/v) inulin	0	$8.17 \pm 0.13^{a, b}$	6.89 ± 0.15^b	2.92 ± 0.09^a	$5.93 \pm 0.22^{a, b}$	$5.37 \pm 0.14^{a, b}$	5.10 ± 0.20^b	5.23 ± 0.16^b
	24	$7.67 \pm 0.20^{a, b}$	7.57 ± 0.24^c	$2.21 \pm 0.28^{a, b}$	6.75 ± 0.61^a	$4.86 \pm 0.03^{b, c}$	6.39 ± 0.09^a	$3.28 \pm 0.08^{c, d}$
	48	7.74 ± 0.24^a	$7.59 \pm 0.25^{a, b}$	2.16 ± 0.60^a	$7.37 \pm 0.47^{a, b}$	5.21 ± 0.03^b	$6.87 \pm 0.11^{b, c}$	$4.49 \pm 0.10^{a, b, c}$

Table S2- Concentration (mM, means \pm SD) of the different organic acids produced during 48 h of colonic fermentation. Nd- not detected. Different letters mark statistically significant ($p < 0.05$) differences between each condition at same sampling time. IC- inoculum control; SKM- skim milk; GOS- Galacto-oligosaccharide; FOS- fructo-oligosaccharides; MOS- mannan-oligosaccharides; SB- *Saccharomyces boulardii*.

		Concentration (mM)								
Condition	Time (h)	Lactate	Acetate	Propionate	Butyrate	Isobutyrate	Isovalerate	Sum SCFA (A+P+B)	Ratio A:P: B	Ratio P: A
IC	0	Nd	Nd	Nd	Nd	Nd	Nd	0.00	Nd	Nd
	6	0.08 \pm 0.04 ^a	2.63 \pm 0.15 ^a	Nd ^a	Nd ^a	0.59 \pm 0.06 ^{b, c}	Nd ^a	2.63	Nd	Nd
	24	Nd ^a	8.27 \pm 2.16 ^a	5.11 \pm 1.45 ^a	0.48 \pm 0.48 ^a	0.74 \pm 0.10 ^{a, b}	1.15 \pm 0.13 ^{a, b}	13.85	17:11:1	0.62
	30	Nd ^a	10.74 \pm 2.00 ^a	5.21 \pm 1.80 ^a	0.80 \pm 0.57 ^a	0.80 \pm 0.04 ^a	1.21 \pm 0.15 ^a	16.74	13:7:1	0.48
	48	Nd	16.31 \pm 2.99 ^a	6.71 \pm 1.11 ^a	1.70 \pm 0.72 ^a	1.15 \pm 0.25 ^{a, b}	1.39 \pm 0.05 ^a	24.72	10:4:1	0.41
SKM	0	Nd	Nd	Nd	Nd	Nd	Nd	0.00	Nd	Nd
	6	11.37 \pm 1.97 ^d	13.80 \pm 1.10 ^{b, c}	2.55 \pm 0.09 ^b	1.10 \pm 0.18 ^b	0.43 \pm 0.02 ^a	0.32 \pm 0.05 ^b	17.46	13:2:1	0.18
	24	3.85 \pm 0.48 ^{b, c}	37.96 \pm 5.12 ^{c, d}	11.57 \pm 0.38 ^b	5.30 \pm 0.51 ^{b, c}	0.59 \pm 0.15 ^{a, b}	1.78 \pm 0.60 ^{a, b, c}	54.83	7:2:1	0.30
	30	Nd	46.44 \pm 3.06 ^c	13.19 \pm 0.55 ^{b, c}	7.67 \pm 1.01 ^d	0.39 \pm 0.15 ^a	1.85 \pm 0.55 ^{a, b}	67.30	6:2:1	0.28
	48	Nd	50.03 \pm 3.90 ^c	18.03 \pm 0.35 ^{b, c}	6.39 \pm 0.08 ^d	1.59 \pm 0.10 ^{a, b, c}	4.01 \pm 0.38 ^{c, d}	74.45	8:3:1	0.36

	0	Nd	Nd	Nd	Nd	Nd	Nd	0.00	Nd	Nd
	6	11.92 ± 0.68 ^d	14.15 ± 1.45 ^{b, c}	2.56 ± 0.06 ^b	0.96 ± 0.09 ^b	0.69 ± 0.03 ^{c, d}	0.38 ± 0.03 ^b	17.66	15:3:1	0.18
SKM + 1% (w/v) GOS	24	3.88 ± 1.93 ^{b, c}	33.35 ± 3.18 ^c	10.99 ± 0.97 ^b	3.91 ± 0.40 ^b	0.73 ± 0.49 ^{a, b}	2.20 ± 1.27 ^{b, c}	48.25	9:3:1	0.33
	30	Nd	42.56 ± 2.08 ^c	14.69 ± 0.36 ^c	4.93 ± 0.92 ^{b, c}	0.71 ± 0.45 ^a	1.99 ± 0.98 ^{a, b, c}	62.18	9:3:1	0.35
	48	Nd	42.93 ± 3.70 ^{b, c}	17.28 ± 0.25 ^b	5.10 ± 0.35 ^{b, c}	1.98 ± 0.16 ^c	4.27 ± 0.52 ^{c, d}	65.31	8:3:1	0.40
	0	Nd	Nd	Nd	Nd	Nd	Nd	0.00	Nd	Nd
	6	7.36 ± 0.45 ^c	12.10 ± 0.20 ^b	2.52 ± 0.35 ^b	0.92 ± 0.09 ^b	0.68 ± 0.01 ^{c, d}	0.39 ± 0.01 ^b	15.53	13:3:1	0.21
SKM + 1% (w/v) MOS	24	6.41 ± 1.44 ^c	18.91 ± 1.31 ^b	9.21 ± 2.55 ^b	1.86 ± 0.60 ^a	0.20 ± 0.13 ^a	0.55 ± 0.14 ^a	29.97	10:5:1	0.49
	30	Nd	27.81 ± 2.95 ^b	10.76 ± 2.21 ^b	3.46 ± 0.10 ^b	0.42 ± 0.26 ^a	1.36 ± 0.70 ^a	42.03	8:3:1	0.39
	48	Nd	38.41 ± 6.02 ^b	16.08 ± 2.50 ^b	4.48 ± 0.13 ^b	0.91 ± 0.54 ^a	2.16 ± 0.79 ^{a, b}	58.97	9:4:1	0.42
	0	Nd	Nd	Nd	Nd	Nd	Nd	0.00	Nd	Nd
	6	25.69 ± 0.83 ^c	35.49 ± 3.80 ^d	2.64 ± 0.01 ^b	1.23 ± 0.28 ^b	0.41 ± 0.06 ^a	0.40 ± 0.09 ^b	39.36	29:2:1	0.07
SKM + 1% (w/v) FOS	24	Nd ^a	57.71 ± 1.48 ^e	20.27 ± 0.53 ^c	5.61 ± 0.41 ^c	0.42 ± 0.05 ^{a, b}	1.49 ± 0.06 ^{a, b, c}	83.59	10:4:1	0.35
	30	Nd	59.26 ± 2.12 ^d	21.62 ± 0.91 ^d	5.63 ± 0.06 ^c	1.20 ± 0.50 ^a	3.35 ± 0.95 ^{b, c}	86.50	11:4:1	0.36

	48	Nd	62.74 ± 0.66^d	24.27 ± 0.48^d	$5.50 \pm 0.28^{c,d}$	$1.91 \pm 0.13^{b,c}$	4.65 ± 0.05^d	92.50	11:4:1	0.39
SKM + 1% (w/v) SB	0	Nd	Nd	Nd	Nd	Nd	Nd	0.00	Nd	Nd
	6	$9.59 \pm 0.32^{c,d}$	16.61 ± 0.47^c	2.46 ± 0.17^b	1.01 ± 0.10^b	0.79 ± 0.05^d	0.68 ± 0.12^c	20.07	16:2:1	0.15
	24	$1.97 \pm 1.97^{a,b}$	42.78 ± 2.26^d	11.77 ± 0.17^b	$4.68 \pm 0.59^{b,c}$	0.76 ± 0.07^b	2.84 ± 0.37^c	59.23	9:3:1	0.28
	30	Nd	44.55 ± 2.38^c	16.18 ± 0.24^c	5.56 ± 0.13^c	1.29 ± 0.55^a	3.89 ± 1.00^c	66.30	8:3:1	0.36
	48	Nd	$46.15 \pm 2.70^{b,c}$	20.35 ± 0.31^c	$5.65 \pm 0.11^{c,d}$	2.04 ± 0.06^c	5.12 ± 0.07^d	72.14	8:4:1	0.44
SKM + 1% (w/v) inulin	0	Nd	Nd	Nd	Nd	Nd	Nd	0.00	Nd	Nd
	6	3.40 ± 0.26^b	$13.60 \pm 0.22^{b,c}$	2.29 ± 0.63^b	1.33 ± 0.43^b	$0.51 \pm 0.08^{a,b}$	0.43 ± 0.09^b	17.22	10:2:1	0.17
	24	$1.24 \pm 1.24^{a,b}$	41.84 ± 4.17^d	11.34 ± 0.57^b	$4.62 \pm 1.03^{b,c}$	0.89 ± 0.02^b	$2.40 \pm 0.24^{b,c}$	57.80	9:2:1	0.27
	30	Nd	43.29 ± 3.76^c	14.45 ± 0.71^c	$4.99 \pm 0.62^{b,c}$	0.81 ± 0.04^a	$3.05 \pm 0.29^{a,b,c}$	62.73	9:3:1	0.33
	48	Nd	$46.08 \pm 5.09^{b,c}$	17.04 ± 0.75^b	$5.23 \pm 0.47^{b,c}$	1.13 ± 0.41^a	$3.27 \pm 0.53^{b,c}$	68.34	9:3:1	0.37

Table S3- Concentration (mM, means \pm SD) of total ammonia nitrogen produced during 48 h of colonic fermentation. Different letters mark statistically significant ($p < 0.05$) differences between each condition at same sampling time. IC- inoculum control; SKM- skim milk; GOS- Galacto-oligosaccharide; FOS- fructo-oligosaccharides; MOS- mannan-oligosaccharides; SB- *Saccharomyces boulardii*.

	Time (h)	Condition						
		IC	SKM	SKM + 1% (w/v) GOS	SKM + 1% (w/v) MOS	SKM + 1% (w/v) FOS	SKM + 1% (w/v) SB	SKM + 1% (w/v) inulin
Total ammonia nitrogen (mM)	0	1.64 \pm 0.05 ^a	3.44 \pm 0.10 ^c	9.31 \pm 0.31 ^f	8.65 \pm 0.53 ^f	2.51 \pm 0.01 ^b	6.12 \pm 0.12 ^e	4.91 \pm 0.01 ^d
	6	11.47 \pm 0.34 ^c	8.47 \pm 0.06 ^a	10.98 \pm 0.11 ^{b, c}	10.43 \pm 0.63 ^b	10.55 \pm 0.05 ^b	15.00 \pm 0.09 ^d	11.04 \pm 0.46 ^{b, c}
	24	21.26 \pm 2.77 ^a	31.53 \pm 1.98 ^b	36.40 \pm 2.52 ^c	23.13 \pm 0.84 ^a	27.84 \pm 0.42 ^b	31.64 \pm 0.93 ^b	28.67 \pm 2.61 ^b
	30	25.41 \pm 2.62 ^a	36.24 \pm 2.39 ^{c, d}	39.65 \pm 2.25 ^d	31.08 \pm 1.89 ^b	32.77 \pm 1.43 ^{b, c}	36.33 \pm 1.22 ^{c, d}	30.76 \pm 2.21 ^b
	48	29.27 \pm 1.63 ^a	42.44 \pm 1.55 ^{c, d}	45.82 \pm 0.74 ^d	36.68 \pm 1.71 ^b	39.39 \pm 0.76 ^{b, c}	42.15 \pm 0.09 ^{c, d}	36.97 \pm 3.66 ^b