Supplemental Table 1: pH changes during fermentation of spinach ingredient digesta[1]

		FERMENTATION PH									
	Fermentation Hour	0	5	9	14	19	24	29	34	39	45
FERMENTATION #1	Fresh	7.72±0	7.26±0.03	6.45±0.0	5.66±0.27	6.12±0.21	5.58±0.8	5.92±0.91	5.93±0.84	5.9±0.83	6.08±0.94
	Dehydrated	7.73±0.01	7.17±0.03	6.44±0.06	6.14±0.24	5.89±0.12	5.82±0.09	6.23±0.12	6.68±0.1	6.6±0.14	6.8±0.12
	Spray Dried	7.7±0	7.02±0.04	6.81±0.27	6.18±0.13	5.95±0.11	5.86±0.18	6.2±0.19	6.83±0.18	6.85±0.08	6.69±0.12
	Freeze Dried	7.52±0.35	6.91±0.02	6.64±0.02	6.47±0.19	6.35±0.48	6.05±0.09	6.41±0.15	6.9±0.22	6.75±0.14	6.77±0.06
	No Fecal Fresh Control	7.7±0.01	7.61±0	6.7±0.1	6.36±0.21	5.86±0.11	5.71±0.07	6.32±0.21	6.32±0.21	6.43±0.11	6.45±0.2
	No Treatment Control	7.96±0	7.06±0.01	7.05±0.02	6.98±0.2	6.41±0.16	6.65±0.23	7.07±0.08	7±0.01	7.15±0.11	7.06±0.21
	Inulin	7.95±0.01	6.78±0.03	4.61±0.01	4.9±0.13	4.43±0.3	5.15±0.58	5.31±0.65	5.08±0.54	5.5±0.19	5.09±0.33
FERMENTATION #2	Extract	7.86±0.02	7.36±0.04	6.86±0.04	6.44±0.12	6.5±0.2	6.26±0.92	6.73±0.94	6.84±0.81	6.77±0.91	6.74±0.7
	No Fecal Extract Control	7.89±0.03	7.73±0.02	7.23±0.24	6.55±0.08	6.54±0.05	6.77±0.23	6.94±0.17	7.11±0.19	7.27±0.11	7.48±0.23
	No Treatment Control	7.94±0.11	7.43±0.22	6.87±0.03	6.69±0.22	6.72±0.12	7.22±0.38	7.6±0.19	7.66±0.35	7.64±0.37	7.6±0.51
	Inulin	7.99±0.01	7.28±0.03	4.78±0.01	4.28±0.03	4.14±0.08	4.8±0.95	4.32±0.37	4.42±0.47	4.39±0.37	4.32±0.61
	Inulin with DMSO	7.82±0.03	6.87±0.05	4.75±0.02	4.28±0.02	4.21±0.02	5.25±0.01	4.02±0.2	4.08±0.24	4.15±0.12	3.96±0.24

[1]Data represents an average of mean ± SD from n=4 independent measurements.

Supplemental Table 2: Qualitative depiction of individual carotenoid and chlorophyll Compounds detected in in starting material samples.[2]

Compound	*Retention Time (minutes)*	*Fresh Spinach*	*Processed Spinach*	*Digested Spinach*
Chlorophyllide a	2.2		X	
Pheophorbide b	3.3		X	
Chlorophyllide a	3.5		X	
Pheophorbide a	4.7		X	
Lutein	7.3	X	X	X
Chlorophyll b derivative	10.9			X
Chlorophyll b	11.4	X	X	X
Chlorophyll b'	11.7		X	X
Chlorophyll b derivative	12.1		X	
Pheophytin b	12.2			X
Chlorophyll a	12.4	X	X	
Chlorophyll a derivative	12.7		X	
Pheophytin b	12.8			X
Chlorophyll a'	13.1		X	
Pheophytin a	13.9	X	X	X
Pheophytin a'	14.1			X
Beta-Carotene	15.8	X	X	X

[2] Presence of "X" referes to presence of identified chorophyll or carotenoid form at the limit of detection (defined as signal to noise >3) in the starting material prior to digestion.

Supplemental Information

Spinach Extract Preparation for Vegetable Matrix Free Control Fermentation Experiments:

A spinach extract was prepared by homogenizing spinach material in acetone. Filtrate was collected through vacuum filtration and repeated until no residual color remained. Acetone was quantitatively transferred to a separatory funnel for partitioning into a petroleum ether layer. The organic layer was washed with sodium sulfate and excess water and then the petroleum ether layer was collected and dried under nitrogen. The extract was then resolubilized in acetone and acidified for the complete conversion of chlorophylls to pheophytins. After neutralization, the extract was divided into equal aliquots and dried. Extracts were resolubilized in DMSO and diluted in test media (<1% DMSO v/v) for in-vitro fermentation analysis.