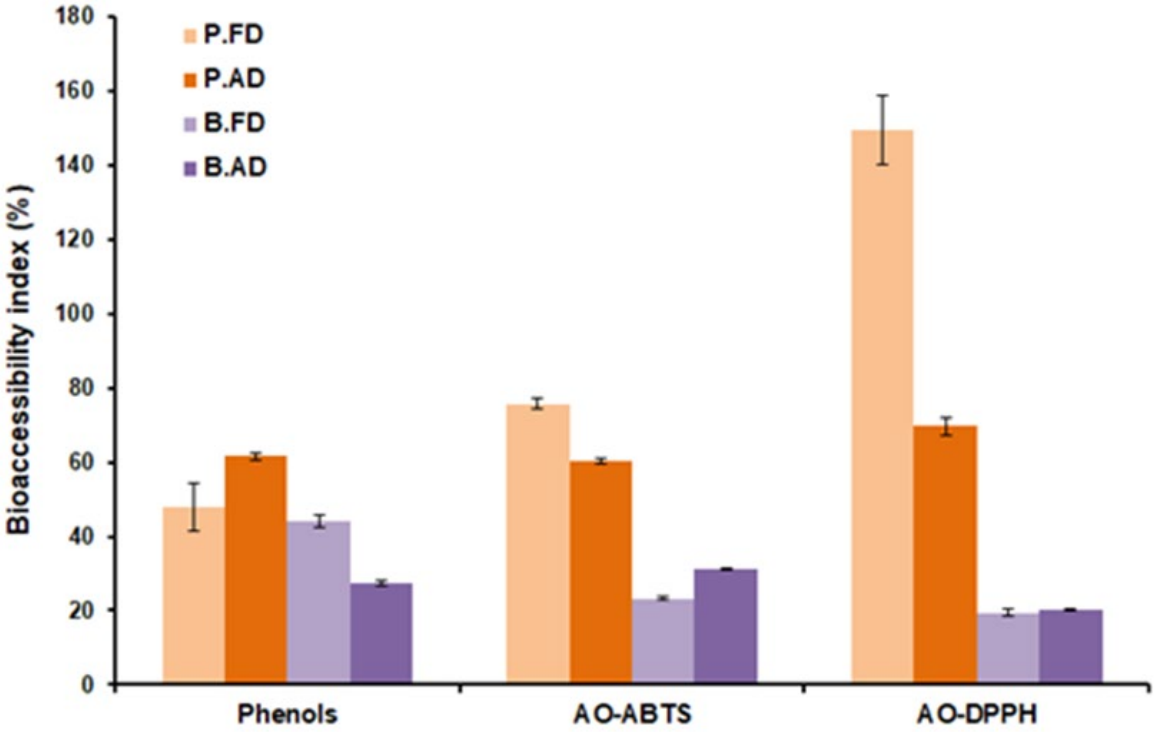
Supporting information: Figure 1, Table1, Table2

Supporting information Figure 1. Bioaccessibility index (%) of phenols and ABTS- DPPH- antioxidant activities of persimmon and blueberry residues powders (freeze dried and air dried) subjected to *in vitro* simulated digestion. P.FD: persimmon freeze-dried, P.AD: persimmon air-dried, B.FD: blueberry freeze-dried, B.AD: blueberry air-dried.



Supporting information Table 1. Wilcoxon rank-sum test of relative abundance of the bacterial genera in feces control fermentation versus blueberry, persimmon and inulin fermentations.

Genus	Blueberry	Persimmon	Inulin
Streptococcus		0.001 (P.FD [a], P.AD [b])	0.0001
Bifidobacterium			0.05
Ruminococcaceae UCG-014	0.03 (B.AD [c])		
Faecalibacterium	0.036 (B.FD [d])	0.07/0.02 (P.FD/P.AD)	
Lactobacillus	0.03 (B.AD)	0.02 (P.FD)	0.003
Collinsella	0.036 (B.AD)		
Megamonas	0.03 (B.FD,B.AD)	0.01(P.AD)	0.0006
Dialister			0.046
Christensenellaceae R-7 group	0.17 (B.AD)		

a, lyophilized persimmon waste
b, air dried persimmon waste
c, air dried blueberry bagasse
d, lyophilized blueberry bagasse

Supporting information Table 2: Statistical parameters of sparse partial least squared analysis and lineal model

Powder						
predictor variable	**response variable**	**r. association index**	**spearman.cor**	**cor.p.val**	**lm.p.val**	**cor.adj.p.val**
% cellulose	p.Actinobacteria;g.Bifidobacterium	0.9304	0.8000	0.3333	0.0969	0.7698
% cellulose	p.Firmicutes;g.Faecalibacterium	0.8419	1.0000	0.0833	0.1960	0.6056
% cellulose	p.Firmicutes;g.Streptococcus	-0.9544	-1.0000	0.0833	0.0406	0.6056
antioxidants	p.Actinobacteria;g.Bifidobacterium	0.8983	0.6000	0.4167	0.1470	0.7968
antioxidants	p.Firmicutes;g.Faecalibacterium	0.8509	0.8000	0.3333	0.2150	0.7968
antioxidants	p.Firmicutes;g.Streptococcus	-0.9870	-0.8000	0.3333	0.0114	0.7968
polyphenols	p.Actinobacteria;g.Bifidobacterium	0.8865	0.8000	0.3333	0.1694	0.7698
polyphenols	p.Firmicutes;g.Faecalibacterium	0.8765	1.0000	0.0833	0.2020	0.6056
polyphenols	p.Firmicutes;g.Streptococcus	-0.9906	-1.0000	0.0833	0.0009	0.6056
% insoluble fiber	p.Actinobacteria;g.Bifidobacterium	0.9375	0.8000	0.3333	0.0915	0.7698
% insoluble fiber	p.Firmicutes;g.Faecalibacterium	0.8581	1.0000	0.0833	0.1806	0.6056
% insoluble fiber	p.Firmicutes;g.Streptococcus	-0.9560	-1.0000	0.0833	0.0350	0.6056
% total fiber	p.Actinobacteria;g.Bifidobacterium	0.9421	0.8000	0.3333	0.0858	0.7698
% total fiber	p.Firmicutes;g.Faecalibacterium	0.8623	1.0000	0.0833	0.1739	0.6056
% total fiber	p.Firmicutes;g.Streptococcus	-0.9525	-1.0000	0.0833	0.0367	0.6056
flavonoids	p.Actinobacteria;g.Bifidobacterium	0.8852	0.8000	0.3333	0.1698	0.7698
flavonoids	p.Firmicutes;g.Faecalibacterium	0.8700	1.0000	0.0833	0.2080	0.6056
flavonoids	p.Firmicutes;g.Streptococcus	-0.9919	-1.0000	0.0833	0.0017	0.6056
% hemicellulose	p.Actinobacteria;g.Bifidobacterium	0.9639	0.8000	0.3333	0.0582	0.7698
% hemicellulose	p.Firmicutes;g.Faecalibacterium	0.8826	1.0000	0.0833	0.1406	0.6056
% hemicellulose	p.Firmicutes;g.Streptococcus	-0.9302	-1.0000	0.0833	0.0491	0.6056
% lignin	p.Actinobacteria;g.Bifidobacterium	0.9488	0.8000	0.3333	0.0833	0.7698
% lignin	p.Firmicutes;g.Faecalibacterium	0.8869	1.0000	0.0833	0.1528	0.6056
% lignin	p.Firmicutes;g.Streptococcus	-0.9560	-1.0000	0.0833	0.0271	0.6056
Digested-powder						
predictor variable	**response variable**	**r. association index**	**spearman.cor**	**cor.p.val**	**lm.p.val**	**cor.adj.p.val**
Cap.AOABTS	p.Actinobacteria;g.Bifidobacterium	0.9033	0.8000	0.3333	0.1231	0.7759
Cap.AOABTS	p.Firmicutes;g.Faecalibacterium	0.8321	1	0.0833	0.2177	0.6000
Cap.AOABTS	p.Firmicutes;g.Streptococcus	-0.9773	-1	0.0833	0.0297	0.6000
Cap.AODPPH	p.Actinobacteria;g.Bifidobacterium	0.8814	0.8000	0.3333	0.1426	0.7759
Cap.AODPPH	p.Firmicutes;g.Faecalibacterium	0.8376	1	0.0833	0.2102	0.6000
Cap.AODPPH	p.Firmicutes;g.Streptococcus	-0.9921	-1	0.0833	0.0117	0.6000
% cellulose	p.Actinobacteria;g.Bifidobacterium	0.9275	0.8000	0.3333	0.0969	0.7759
% cellulose	p.Firmicutes;g.Faecalibacterium	0.8515	1	0.0833	0.1960	0.6000
% cellulose	p.Firmicutes;g.Streptococcus	-0.9642	-1	0.0833	0.0406	0.6000
antioxidants	p.Actinobacteria;g.Bifidobacterium	0.9118	1	0.0833	0.1197	0.6923
antioxidants	p.Firmicutes;g.Streptococcus	-0.9384	-0.8000	0.3333	0.0758	0.7059
polyphenols	p.Actinobacteria;g.Bifidobacterium	0.8761	0.8000	0.3333	0.1628	0.6923
polyphenols	p.Actinobacteria;g.Collinsella	0.8036	1	0.0833	0.1708	0.4500
polyphenols	p.Firmicutes;g.Ruminococcaceae_UCG-014	0.8554	1	0.0833	0.1180	0.4500
polyphenols	p.Firmicutes;g.Streptococcus	-0.8127	-0.6000	0.4167	0.2136	0.6923
polyphenols	p.Verrucomicrobia;g.Akkermansia	0.8931	1	0.0833	0.0832	0.4500
% insoluble fiber	p.Actinobacteria;g.Bifidobacterium	0.9308	0.8000	0.3333	0.0915	0.7759
% insoluble fiber	p.Firmicutes;g.Faecalibacterium	0.8650	1	0.0833	0.1806	0.6000
% insoluble fiber	p.Firmicutes;g.Streptococcus	-0.9673	-1	0.0833	0.0350	0.6000
flavonoids	p.Firmicutes;g.Streptococcus	-0.9716	-0.8000	0.3333	0.0517	0.8036
% hemicellulose	p.Actinobacteria;g.Bifidobacterium	0.9589	0.8000	0.3333	0.0582	0.7759
% hemicellulose	p.Firmicutes;g.Faecalibacterium	0.8995	1	0.0833	0.1406	0.6000
% hemicellulose	p.Firmicutes;g.Streptococcus	-0.9473	-1	0.0833	0.0491	0.6000
% lignin	p.Actinobacteria;g.Bifidobacterium	0.9350	0.8000	0.3333	0.0833	0.7759
% lignin	p.Firmicutes;g.Faecalibacterium	0.8890	1	0.0833	0.1528	0.6000
% lignin	p.Firmicutes;g.Streptococcus	-0.9702	-1	0.0833	0.0271	0.6000