Table S1. Phytochemical composition content (determined by LC-MS) and anthocyanidin and free glucose and fructose coontent (measured by HPLC) of persimmon soluble, insoluble treated and untreated by-products. The following compounds were analysed but not found: m-Hydroxybenzoic Acid, 2,3-Dihydroxybenzoic Acid, 2,4-Dihydroxybenzoic Acid, 2,6-Dihydroxybenzoic Acid, 3,5-Dihydroxybenzoic Acid, o-Anisic Acid, m-Anisic Acid, 3,4-Dimethoxybenzoic Acid, Isovanillin, 1,3-Hydroxybenzene, 4-Hydroxyacetophenone, 4-Hydroxy-3,5-Dimethoxyacetophenone, 2OHBAlc, o-Coumaric Acid, m-Coumaric Acid, 3-Methoxycinnamic Acid, 4-Methoxycinnamic Acid, 3,4-Dimethoxycinnamic Acid, 3,4,5-Trimethoxycinnamic Acid, Ellagic Acid, Ferulic Dimer (5-5 linked), Ferulic Dimer (8-8 linked), Ferulic Dimer (8-5 linked), Hydrogenated Ferulic Dimer H5-5, Matairesinol, Enterodiol, Enterolactone, Pinoresinol, Lariciresinol, HydroxyMatairesinol, 2-Hydroxyphenylpropionic Acid, 3-Hydroxyphenylpropionic Acid, 3-Methoxyphenylpropionic Acid, Phenylpropionic Acid, 3-Hydroxyphenylacetic Acid, 4-Hydroxy-3-Methoxyphenylacetic Acid, 4-Methoxyphenylacetic Acid, Phenylpyruvic Acid, Mandelic Acid, Chlorogenic Acid, 0-Hydroxyhippuric Acid, Indole-3-Acetic Acid, Indole-3-Propionic Acid, Indole-3-Carboxylic Acid, Isoliquiritigenin, Phloretin, Eriocitrin, Naringenin, Naringin, Hesperitin, Morin, Taxifolin, 7,8-Dihydroxy-6-Methyl Coumarin, Neohesperidin, Hesperidin, Quercitrin, Poncirin, Didymin, Phloridzin, Daidzein, Luteolin, Equol, Neoeriocitrin, Isorhamnetin, Formononetin, Apigenin, Gossypin, Peonidin, Malvidin, Petunidin, Genistein, Rutin, Vitexin and Resveratrol. ^{a,b,c} Statistically significant ($p < 0.05$) differences between substrates. RBR: Red untreated soluble fraction, RBF: Red fermented soluble fraction, RBRI: Red untreated insoluble fraction, RBRIF: Red fermented insoluble fraction.

Compound	RBR	RBF	RBRI	RBRIF
Benzoic Acid	1.6 ± 0.3^{a}	1.3 ± 0.1^{a}	0.6 ± 0.1^{b}	0.2 ± 0^{b}
Salicylic Acid	0.2 ± 0^{a}	0.1 ± 0^{b}	0.1 ± 0^{b}	n/d
p-Hydroxybenzoic Acid	$2 \pm 0.2^{a,b}$	3.2 ± 0.2^{a}	$0.6 \pm 0^{a,b}$	0.5 ± 0^{b}
2,5-Dihydroxybenzoic Acid	0.1 ± 0^{a}	n/d	n/d	n/d
Protocatechuic Acid	$5.3 \pm 0.3^{a,b}$	38.3 ± 2.2^{a}	4.5 ± 0.4^{b}	$11.4 \pm 1.8^{a,b}$
p-Anisic Acid	0.1 ± 0^{a}	0.1 ± 0^{a}	n/d	n/d
Gallic Acid	89.6 ± 8^{b}	193 ± 12.5^{a}	36.3 ± 2^{c}	97.4 ± 5.7^{b}
Vanillic Acid	4.3 ± 0.3^{a}	$3.8 \pm 0.2^{a,b}$	$2.1 \pm 0.1^{a,b}$	1.9 ± 0^{b}
Syringic Acid	1.7 ± 0.2^{a}	1 ± 0^{c}	$1.5 \pm 0.2^{a,b}$	$1.2 \pm 0^{b,c}$
p-Hydroxybenzaldehyde	n/d	0.1 ± 0^{a}	0.1 ± 0^{a}	n/d
Protocatachaldehyde	1.5 ± 0.1^{c}	7.8 ± 0.5^{a}	2.2 ± 0.3^{c}	5 ± 0.4^{b}
3,4,5-Trihydroxybenzaldehyde	$1 \pm 0.1^{a,b}$	14.7 ± 3.2^{a}	0.9 ± 0.1^{b}	$4.8 \pm 0.7^{a,b}$
Vanillin	0.2 ± 0^{b}	$0.3 \pm 0^{a,b}$	1.6 ± 0.1^{a}	$0.9 \pm 0.1^{a,b}$
Syringin	0.1 ± 0^{b}	0.1 ± 0^{b}	1 ± 0.1^{a}	$0.5 \pm 0.1^{a,b}$
1,2-Hydroxybenzene	n/d	0.1 ± 0^{a}	n/d	0.1 ± 0^{a}
1,2,3-Trihydroxybenzene	n/d	0.3 ± 0.1^{a}	n/d	n/d
4-Hydroxy-3-Methoxyacetophenone	n/d	n/d	0.1 ± 0^{a}	n/d
Tyrosol	n/d	1.2 ± 0.1^{a}	0.1 ± 0^{b}	$0.4 \pm 0^{a,b}$
Cinnamic Acid	0.2 ± 0^{a}	0.2 ± 0^{a}	0.1 ± 0^{a}	0.1 ± 0^{a}
p-Coumaric Acid	1.6 ± 0.2^{a}	1.3 ± 0.1^{a}	0.8 ± 0^{b}	0.5 ± 0^{b}
Caffeic Acid	0.2 ± 0^{b}	0.4 ± 0^{a}	0.1 ± 0^{c}	0.1 ± 0^{c}
Ferulic Acid	0.9 ± 0.1^{c}	1.2 ± 0^{b}	1.8 ± 0.1^{a}	1.2 ± 0.1^{b}
Sinapic Acid	0.1 ± 0^{a}	n/d	0.1 ± 0^{a}	0.1 ± 0^{a}
Secoisolariciresinol	0.1 ± 0^{b}	0.1 ± 0^{b}	0.1 ± 0^{b}	0.2 ± 0^{a}
Syringaresinol	$0.6 \pm 0^{a,b}$	0.2 ± 0^{b}	18.2 ± 0.5^{a}	$12.1 \pm 0.3^{a,b}$
Hydroxytyrosol	0.1 ± 0^{b}	1.1 ± 0.3^{a}	n/d	n/d
Ethylferulate	n/d	n/d	0.2 ± 0^{a}	0.1 ± 0^{a}
4-Hydroxyphenylpropionic Acid	0.5 ± 0.1^{a}	0.7 ± 0^{a}	n/d	n/d
3,4-Dihydroxyphenylpropionic Acid	n/d	0.3 ± 0^{a}	n/d	n/d
4-Hydroxy-3-methoxyphenylpropionic Acid	0.1 ± 0^{a}	0.1 ± 0^{a}	n/d	n/d

Table S1. Cont.

Compound	RBR	RBF	RBRI	RBRIF
Phenylacetic Acid	n/d	0.2 ± 0^{a}	n/d	n/d
4-Hydroxyphenylacetic Acid	n/d	0.2 ± 0^{a}	n/d	n/d
3,4-Dihydroxyphenylacetic Acid	$3 \pm 0.5^{a,b}$	14.9 ± 0.3^{a}	0.2 ± 0^{b}	$0.8 \pm 0.1^{a,b}$
Phenyllactic Acid	n/d	0.8 ± 0^{a}	n/d	0.1 ± 0^{b}
4-Hydroxyphenyllactic Acid	0.2 ± 0^{b}	0.8 ± 0^{a}	n/d	n/d
3-Hydroxymandelic Acid	0.6 ± 0.1^{b}	1.4 ± 0.3^{a}	0.9 ± 0.1^{b}	0.8 ± 0.2^{b}
4-Hydroxymandelic Acid	1.1 ± 0^{b}	2 ± 0.2^{a}	0.5 ± 0^{c}	2.5 ± 0.3^{a}
3,4-Dihydroxymandelic Acid	n/d	0.1 ± 0.1^{a}	n/d	n/d
4-Hydroxy-3-Methoxymandelic Acid	0.1 ± 0^{a}	n/d	0.1 ± 0^{a}	n/d
Catechin	n/d	0.1 ± 0^{a}	n/d	n/d
Epicatechin	n/d	0.1 ± 0^{a}	n/d	n/d
Gallocatechin	0.1 ± 0^{b}	0.4 ± 0.1^{a}	0.1 ± 0^{b}	$0.2 \pm 0^{a,b}$
Epigallocatechin	n/d	n/d	0.1 ± 0^{b}	0.6 ± 0^{a}
Kaempferol	0.7 ± 0.1^{a}	0.4 ± 0^{b}	0.5 ± 0^{b}	0.2 ± 0^{c}
Quercetin	0.6 ± 0.2^{a}	0.6 ± 0^{a}	0.4 ± 0^{a}	0.5 ± 0^{a}
Myricetin	n/d	0.7 ± 0.8^{a}	n/d	0.1 ± 0^{b}
Quercetin-3-Glucoside	0.7 ± 0.1^{a}	$0.3 \pm 0^{a,b}$	$0.4 \pm 0^{a,b}$	0.2 ± 0^{b}
Scopoletin	0.5 ± 0^{b}	1 ± 0^{a}	0.5 ± 0^{b}	$0.8 \pm 0.1^{a,b}$
Umbelliferone	0.2 ± 0^{b}	0.4 ± 0^{a}	0.1 ± 0^{c}	0.2 ± 0^{b}
Galangin	n/d	n/d	0.1 ± 0^{a}	n/d
Fisetin	0.7 ± 0.1^{a}	0.4 ± 0^{b}	n/d	n/d
Delphinidin*	5.5 ± 0.1^{c}	340.6 ± 28.6^{a}	53.6 ± 3.1^{b}	298 ± 2.1^{a}
Cyanidin*	5.2 ± 0.2^{c}	265.8 ± 22.5^{b}	3936.1 ± 57^{a}	4101.8 ± 8^{a}
Pelargonidin*	n/d	n/d	31.4 ± 2.1^{b}	128.1 ± 4.1^{a}
Hyperoside*	0.4 ± 0^{a}	0.1 ± 0^{c}	0.2 ± 0^{b}	0.1 ± 0^{c}
Free glucosa*	20312 ± 1233.2^{a}	n/d	2281.6 ± 476.7^{b}	n/d
Free fructose*	18465.4 ± 102.9^{a}	n/d	2341.9 ± 22.1^{b}	n/d

*-measured by HPLC

Table S2. Microbial metabolites composition of persimmon fractions after 24h of faecal fermentation measured by LC-MS analysis. The following compounds were analysed but not found: Vanillin, 4-Hydroxy-3-Methoxyacetophenone, Sinapic Acid, Syringaresinol, Catechin, Hesperitin, Kaempferol, Quercetin, Scopoletin, Umbelliferone, Hesperidin and Isorhamnetin. Two media plus slurry controls (facial samples of the donors without persimmon matrix) are included for comparative purposes. [a,b,c] Statistically significant ($p < 0.05$) differences between substrates. RBR: Red untreated soluble fraction, RBF: Red fermented soluble fraction, RBRI: Red untreated insoluble fraction, RBRIF: Red fermented insoluble fraction.

Compound	Control 1	RBR	RBF	Control 2	RBRI	RBRIF
Benzoic Acid	913.3 ± 265.9[a]	970.8 ± 204.6[a]	941.7 ± 290.8[a]	1240 ± 107.4[a]	1287.5 ± 71.4[a]	1191.7 ± 121.7[a]
Salicylic Acid	46.3 ± 14[a]	43.5 ± 5.4[a]	39 ± 6.8[a]	30.2 ± 3[a]	31.2 ± 4.6[a]	31.8 ± 5.1[a]
m-Hydroxybenzoic Acid	89.2 ± 6.5[a]	88.6 ± 6.5[a]	81.8 ± 6.8[a]	79.9 ± 6[a]	77 ± 14.5[a]	83.7 ± 14.5[a]
p-Hydroxybenzoic Acid	203.8 ± 46[a]	158.1 ± 40.7[a,b]	212.3 ± 28.8[a]	112.2 ± 45.1[b]	113.7 ± 46.3[b]	98.1 ± 37.7[b]
2,3-Dihydroxybenzoic Acid	52 ± 2.4[a,b]	52.7 ± 4.2[a,b]	54.9 ± 3.3[a]	30.2 ± 4.8[b]	34.1 ± 11.8[a,b]	44.8 ± 24.1[a,b]
2,4-Dihydroxybenzoic Acid	2.2 ± 3.6[a]	4.1 ± 6.4[a]	10.1 ± 16.1[a]	n/d	n/d	n/d
2,5-Dihydroxybenzoic Acid	22.3 ± 34.5[a]	25.3 ± 39.2[a]	25.6 ± 39.6[a]	5.9 ± 9.1[a]	6.1 ± 9.5[a]	6.7 ± 10.5[a]
2,6-Dihydroxybenzoic Acid	6.9 ± 0.3[a]	6.9 ± 0.5[a]	6.7 ± 0.4[a]	n/d	n/d	n/d
Protocatechuic Acid	40.5 ± 23.3[a]	34.1 ± 9.7[a]	57.7 ± 10.7[a]	38.8 ± 19.5[a]	42.3 ± 46.9[a]	69.3 ± 54.6[a]
3,5-Dihydroxybenzoic Acid	n/d	n/d	n/d	n/d	n/d	6 ± 9.3[a]
Gallic Acid	n/d	n/d	303.5 ± 152.9[a]	1.7 ± 2.6[b]	47.8 ± 104.9[a,b]	109.1 ± 108.7[a,b]
Vanillic Acid	21 ± 17[a]	29.8 ± 25[a]	43.1 ± 42.9[a]	18.6 ± 15.1[a]	24 ± 22.5[a]	20.9 ± 25.8[a]
Syringic Acid	n/d	n/d	n/d	31.6 ± 49[a]	32 ± 49.6[a]	34.2 ± 53.3[a]
p-Hydroxybenzaldehyde	13 ± 20.2[a]	14.7 ± 17[a]	14.6 ± 14.2[a]	2.7 ± 4.1[a]	n/d	2.2 ± 4.1[a]
3,4,5-Trihydroxybenzaldehyde	n/d	n/d	140 ± 23.4[a]	n/d	8.7 ± 13.6[c]	79.2 ± 52[b]
Syringin	0.5 ± 0.7[a]	0.2 ± 0.4[a]	n/d	n/d	n/d	n/d
Phenol	876500 ± 319483.2[a]	116383.3 ± 102128.5[a,b]	935000 ± 437378.4[a]	18876.3 ± 20964.1[b]	18804 ± 20048.1[b]	6311.8 ± 7469.7[b]
1,2-Hydroxybenzene	54.6 ± 42.9[b]	128.8 ± 22.5[a,b]	473.5 ± 34.7[a]	69.9 ± 9.4[b]	198 ± 21.1[a,b]	509.9 ± 40.6[a]
1,3-Hydroxybenzene	n/d	n/d	2866.7 ± 4644.5[a]	n/d	n/d	n/d
1,2,3-Trihydroxybenzene	n/d	n/d	254.2 ± 622.6[a]	n/d	2.6 ± 6.5[a]	44.1 ± 85.5[a]
4-Hydroxyacetophenone	6.3 ± 4.4[a]	5.1 ± 4.1[a]	4.7 ± 3.7[a]	2.1 ± 1.3[a]	2.1 ± 2.5[a]	3 ± 3.1[a]
4-Hydroxy-3,5-Dimethoxyacetophenone	n/d	n/d	n/d	1.4 ± 1.9[a]	1.3 ± 2[a]	1.2 ± 1.9[a]
Tyrosol	441.3 ± 140.3[a]	429 ± 185.8[a]	435.3 ± 159.9[a]	531.5 ± 210.1[a]	530 ± 189.1[a]	506.5 ± 196.4[a]
p-Cresol	1246000 ± 1506958.1[a]	1454166.7 ± 1914073.3[a]	1111500 ± 1447554.8[a]	123345 ± 89324.9[a]	126804.8 ± 93574.5[a]	123858.5 ± 96544.2[a]
4-Ethylphenol	1777.5 ± 172.3[a]	1850 ± 92.7[a]	2249.2 ± 225.9[a]	n/d	n/d	n/d
4-Methylcatechol	148.3 ± 210.4[b]	368.6 ± 348.5[a,b]	569.7 ± 354.5[a]	n/d	n/d	n/d
Cinnamic Acid	n/d	n/d	n/d	3.6 ± 4.5[a]	4.2 ± 4.8[a]	3.4 ± 5.3[a]
p-Coumaric Acid	29.7 ± 46.1[a]	28.8 ± 44.8[a]	n/d	17.3 ± 30.7[a]	14.8 ± 20.9[a]	5 ± 3.9[a]
Caffeic Acid	1.3 ± 3.2[a]	1.8 ± 2.9[a]	2.4 ± 3.7[a]	n/d	n/d	n/d
Ferulic Acid	n/d	n/d	n/d	0.2 ± 0.4[a]	n/d	n/d
4-Methoxycinnamic Acid	n/d	n/d	1.8 ± 4.3[a]	n/d	n/d	n/d

Table S2. Cont.

Compound	Control 1	RBR	RBF	Control 2	RBRI	RBRIF
3,4,5-Trimethoxycinnamic Acid	3.5 ± 5.4[a]	3.6 ± 5.7[a]	n/d	n/d	n/d	n/d
Hydrogenated Ferulic Dimer H5-5	3.3 ± 5.1[a]	2.3 ± 3.7[a]	3 ± 4.9[a]	69.1 ± 76.8[a]	74.1 ± 85.8[a]	78.3 ± 81.5[a]
Enterodiol	9 ± 10.2[a]	6.4 ± 5.2[a]	6 ± 6.5[a]	9.7 ± 15.8[a]	12.7 ± 13[a]	10.9 ± 12.5[a]
Enterolactone	598.6 ± 508.9[a]	612.8 ± 483.7[a]	556.1 ± 419.4[a]	236.4 ± 41.9[a]	229.3 ± 53.8[a]	242.3 ± 60.9[a]
Hydroxytyrosol	n/d	n/d	51.3 ± 23.7[a]	n/d	15.4 ± 25.2[a]	81.3 ± 90.4[a]
2-Hydroxyphenylpropionic Acid	64.6 ± 29.2[a,b]	68.3 ± 30.2[a]	53.6 ± 24.8[a,b]	32.2 ± 7.9[a,b]	27.1 ± 5.9[a,b]	23.1 ± 6.8[b]
3-Hydroxyphenylpropionic Acid	6531.7 ± 8072.5[a]	6615.8 ± 7900[a]	4863.3 ± 4992.8[a]	3598.1 ± 3549.6[a]	4363.5 ± 3488[a]	3549.4 ± 3025.1[a]
4-Hydroxyphenylpropionic Acid	25006.9 ± 37983[a]	21183.4 ± 32042.8[a]	5309.3 ± 7518.3[a]	3657.8 ± 6848.8[a]	2818.3 ± 4477.4[a]	424.2 ± 334.9[a]
3,4-Dihydroxyphenylpropionic Acid	114.5 ± 92.3[a]	141.9 ± 67.1[a]	161.4 ± 84.8[a]	36.9 ± 58.7[a]	46.6 ± 72.3[a]	46.7 ± 72.6[a]
4-Hydroxy-3-methoxyphenylpropionic Acid	11.4 ± 11.4[a]	n/d	10.2 ± 17.4[a]	23.7 ± 42.7[a]	16 ± 26.4[a]	24.5 ± 38.7[a]
Phenylpropionic Acid	41691.7 ± 33416.1[a]	49033.3 ± 42438.2[a]	36916.7 ± 27036.4[a]	34940.9 ± 35806.3[a]	36886.9 ± 36302.2[a]	36959.2 ± 39945.8[a]
Phenylacetic Acid	69225 ± 30641.8[a]	66133.3 ± 30308.8[a]	64741.7 ± 26470.4[a]	111907.4 ± 67914[a]	111127.6 ± 68646.3[a]	103490.8 ± 67380.9[a]
3-Hydroxyphenylacetic Acid	276.8 ± 141[a]	296.8 ± 162.8[a]	288.7 ± 156.3[a]	452.2 ± 166.5[a]	415 ± 157.1[a]	378 ± 192.1[a]
4-Hydroxyphenylacetic Acid	12925.8 ± 15644.6[a]	17484.8 ± 20487.6[a]	20737 ± 24627.1[a]	31345.7 ± 43944[a]	30702 ± 43132.1[a]	26395 ± 36583.7[a]
3,4-Dihydroxyphenylacetic Acid	44.3 ± 69.2[a]	102.2 ± 79.3[a]	609.3 ± 643.9[a]	n/d	n/d	n/d
Phenylpyruvic Acid	10.3 ± 9.7[a,b]	6 ± 9.3[b]	7.5 ± 11.7[a,b]	72.6 ± 71.1[a]	46.2 ± 24.2[a]	41.8 ± 2.1[a,b]
Phenyllactic Acid	28.7 ± 23.9[a,b]	61.6 ± 70.8[a,b,c]	26.5 ± 23.4[c]	349.4 ± 294.2[a,b]	329.4 ± 335[a,b,c]	410.3 ± 240.4[a]
3-Hydroxymandelic Acid	n/d	n/d	9.4 ± 14.7[a]	n/d	n/d	n/d
4-Hydroxymandelic Acid	26.3 ± 40.7[b]	25.8 ± 40[b]	24.8 ± 38.4[b]	340.2 ± 42.9[a]	320.2 ± 36.6[a]	286.7 ± 40.7[a]
3,4-Dihydroxymandelic Acid	n/d	n/d	n/d	22.9 ± 35.8[a]	19.4 ± 30.1[a]	n/d
Quinadilic Acid	2.3 ± 3.6[a]	2.3 ± 3.5[a]	2.3 ± 3.5[a]	2.7 ± 1.1[a]	2.5 ± 1[a]	2.9 ± 1.6[a]
Indole	12.8 ± 19.8[a]	12.8 ± 19.9[a]	17.8 ± 28[a]	17.5 ± 27.2[a]	17.5 ± 27.1[a]	16.1 ± 24.9[a]
Indole-3-Acetic Acid	754.2 ± 146.1[a]	611.7 ± 86.2[a]	821.8 ± 487.9[a]	2444.6 ± 2092.6[a]	2429.9 ± 1899.7[a]	1828.1 ± 1325[a]
Indole-3-Acrylic Acid	n/d	n/d	1.2 ± 2.8[a]	n/d	n/d	n/d
Indole-3-Propionic Acid	590 ± 55[a,b,c]	889.2 ± 49.3[a]	637.1 ± 147.8[a,b]	424.1 ± 80[a,b]	443.5 ± 95[b,c]	329.3 ± 54.2[c]
Indole-3-Carbinol	n/d	29.7 ± 46[a]	n/d	n/d	n/d	n/d
Indole-3-Carboxylic Acid	304.4 ± 165.3[a]	233.4 ± 125.6[a]	294.9 ± 220.3[a]	115 ± 37.7[a]	116.2 ± 38.2[a]	106.1 ± 37.9[a]
Indole-3-Pyruvic Acid	86266.7 ± 39414.5[a]	91666.7 ± 35352[a]	78033.3 ± 28250.1[a]	n/d	n/d	n/d
Indole-3-Methyl	76.1 ± 83.7[a]	n/d	34.2 ± 83.7[a]	1027.9 ± 1599.3[a]	656.4 ± 1017.7[a]	287.6 ± 445.6[a]
Indole-3-lactic Acid	n/d	n/d	n/d	27.8 ± 43[a]	n/d	21 ± 32.6[a]
I3-Carboxaldehyde	22.1 ± 5.1[a,b,c]	27.4 ± 2.7[a,b]	31.9 ± 3.5[a]	17.6 ± 2[b,c]	16.4 ± 1.8[c]	16.8 ± 3.2[b,c]
Caffeine	34.6 ± 42.3[a]	34.4 ± 40[a]	40.5 ± 51.1[a]	12.6 ± 2.9[a]	12.6 ± 2.8[a]	12.4 ± 2.8[a]

Table S2. Cont.

Compound	Control 1	RBR	RBF	Control 2	RBRI	RBRIF
Dopamine	n/d	n/d	n/d	10.6 ± 17.4[a]	8.9 ± 14.4[a]	10.5 ± 9.3[a]
Serotonin	n/d	n/d	n/d	42.9 ± 5.8[a]	36 ± 5[a]	30.9 ± 3.2[a]
Kynurenic Acid	7.8 ± 12.2[b,c]	6.6 ± 10.3[c]	12 ± 18.6[b,c]	74.4 ± 9.4[a,b,c]	76.3 ± 7.8[a,b]	91.3 ± 20.8[a]
Niacin	86.5 ± 85.8[a]	71.3 ± 41.3[a]	149.3 ± 201.6[a]	94.8 ± 118.6[a]	100.2 ± 106.1[a]	64.9 ± 83.7[a]
Spermine	n/d	n/d	3.8 ± 5.9[a]	n/d	n/d	n/d
Spermidine	366.5 ± 169.4[a,b]	392.9 ± 178.1[a,b]	114.2 ± 68.4[b]	1233.4 ± 613.9[a]	991.9 ± 532.5[a]	433.7 ± 347.6[a,b]
Tyramine	12864.2 ± 18456.4[a,b]	19852.5 ± 27259.7[a]	19956.7 ± 28704.7[a]	843.8 ± 635.9[a,b]	615 ± 458.3[a,b]	360.8 ± 420.8[b]
Pyrrolidine	3035 ± 1567.1[a]	4178.3 ± 3216.7[a]	4116.7 ± 2632.8[a]	1756.7 ± 1294[a]	1669.3 ± 1250.6[a]	1662.5 ± 916.6[a]
Histamine	5110.2 ± 7399.3[a]	6313.1 ± 9285[a]	5102.1 ± 7447.9[a]	317.7 ± 113.7[a]	308.7 ± 125.3[a]	330 ± 107.6[a]
Piperidine	4754.2 ± 767.1[a]	4704.2 ± 1144.7[a]	4478.3 ± 1384.7[a]	4593.3 ± 2125[a]	4498.3 ± 2175.2[a]	5235 ± 2058.1[a]
Cadaverine	75091.7 ± 32602.5[a]	73041.7 ± 36733[a]	78250 ± 32237.8[a]	43675 ± 18224[a]	41058.3 ± 15369.6[a]	44100 ± 17743.2[a]
Putrescine	28039.8 ± 42614.6[a]	30969.2 ± 40114.2[a]	19310 ± 27147.6[a]	58180 ± 46844.9[a]	58800.8 ± 46635.7[a]	47878.3 ± 42153.8[a]
Tangeretin	n/d	n/d	0.2 ± 0.6[b]	5.5 ± 5.5[a]	4.7 ± 5.7[a]	5.3 ± 4.7[a]
Epicatechin	n/d	8.2 ± 12.9[a]	8.7 ± 14[a]	n/d	n/d	n/d
Gallocatechin	n/d	n/d	21 ± 18[a]	n/d	n/d	n/d
Myricetin	42.8 ± 66.4[a]	42.5 ± 65.8[a]	42.9 ± 66.5[a]	n/d	n/d	n/d
Daidzein	1.2 ± 1.8[a]	1.3 ± 2[a]	1.5 ± 2.4[a]	n/d	n/d	n/d
Fisetin	n/d	n/d	n/d	37.7 ± 10.9[a]	35.4 ± 13.3[a]	33.8 ± 9.7[a]
Resveratrol	3 ± 2.4[a]	2.8 ± 2.2[a]	5.8 ± 1.2[a]	n/d	n/d	n/d

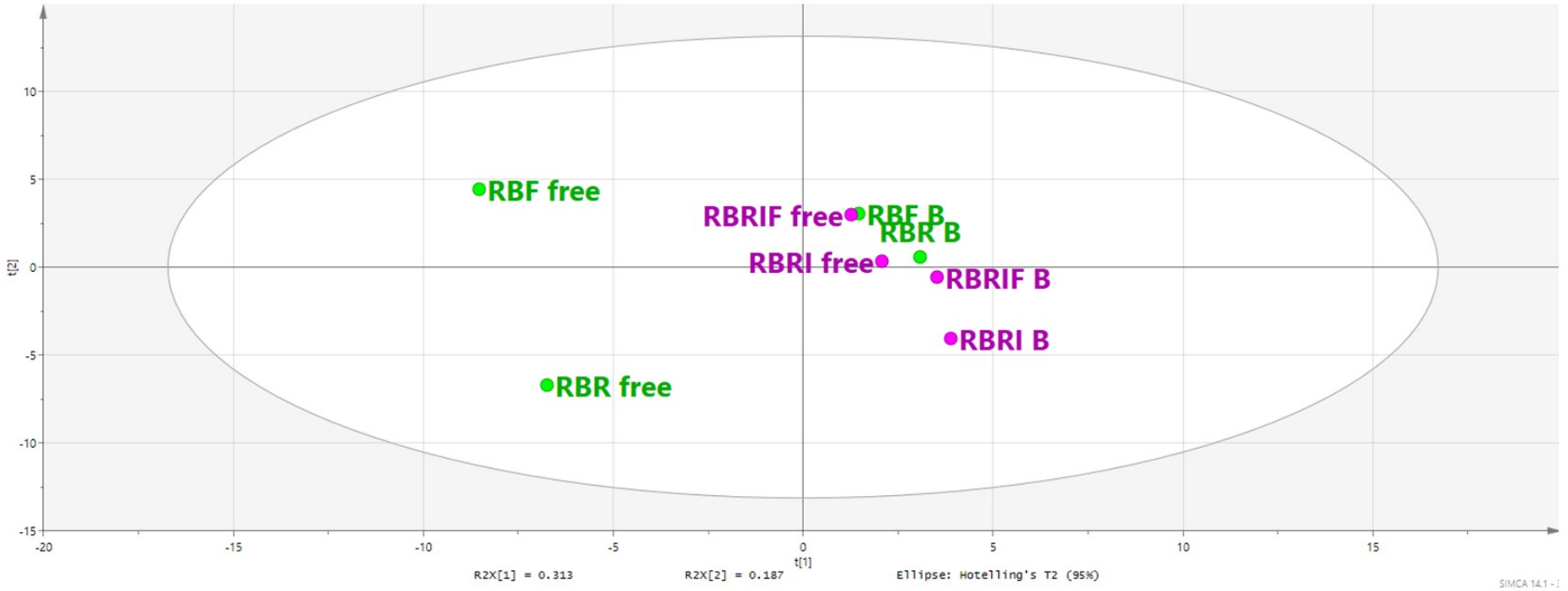

Fig. S1. Principal component analysis (PCA) of the phytochemicals measured by LCMS in free, extractable polyphenols (EPP), and bound, non-extractable polyphenols (NEPP), forms in persimmon fractions. RBR: Red untreated soluble fraction, RBF: Red fermented soluble fraction, RBRI: Red untreated insoluble fraction, RBRIF: Red fermented insoluble fraction, B: NEPP, free: EPP.

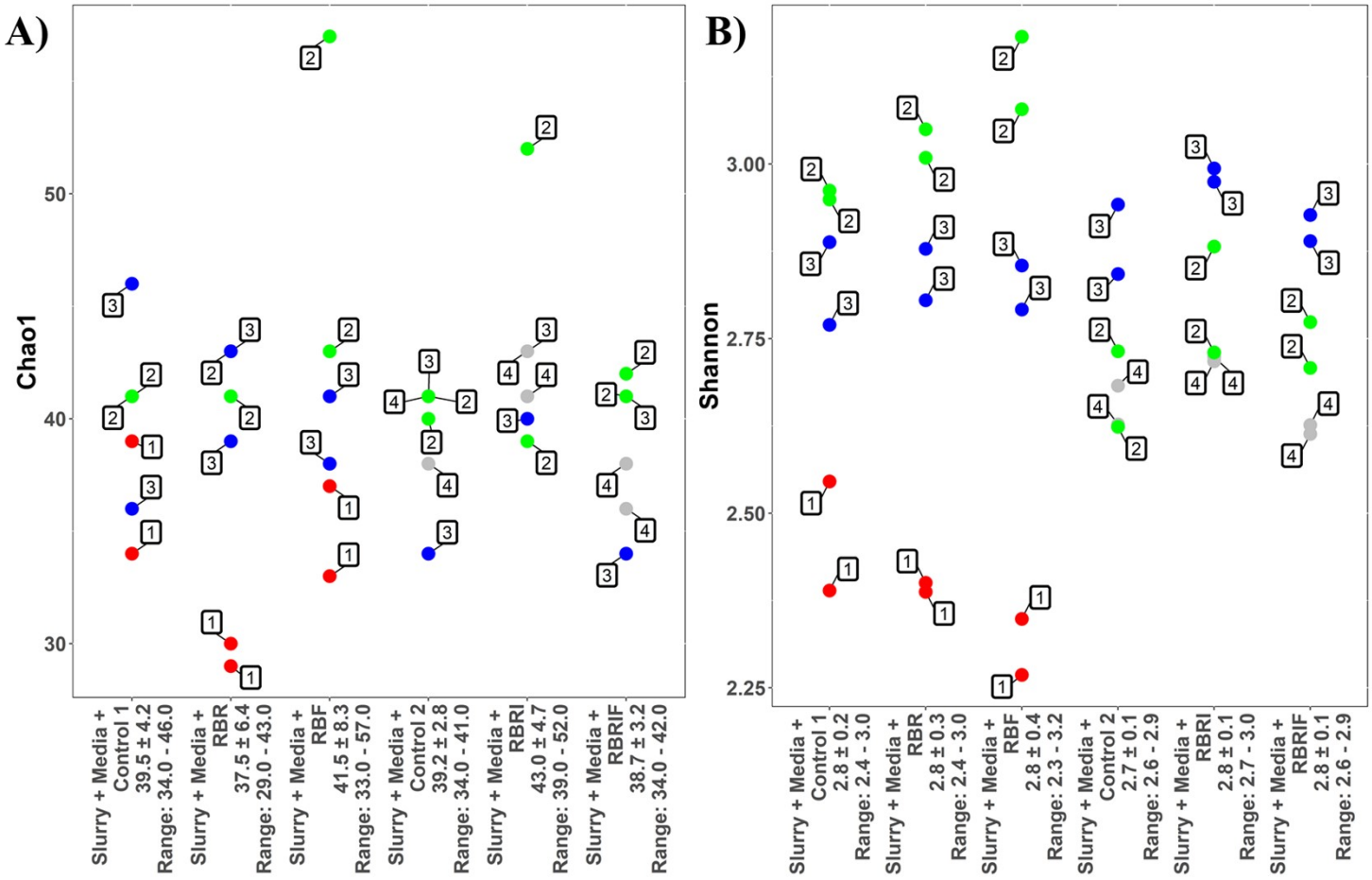

Fig. S2. Alpha diversity analysis of faecal fermentations of persimmon by-products at initial (0h) fermentation time expressed as Chao1 (**A**) and Shannon (**B**) coefficients. Donor numbers corresponding to each faecal fermentation experiment are indicated in the labels. Donor 1 showed significantly ($p < 0.05$) lower alpha diversity values compared to donor 2. RBR: Two media plus slurry controls (without persimmon matrix) are

included for comparative purposes. RBR: Red untreated soluble fraction, RBF: Red fermented soluble fraction, RBRI: Red untreated insoluble fraction, RBRIF: Red fermented insoluble fraction.

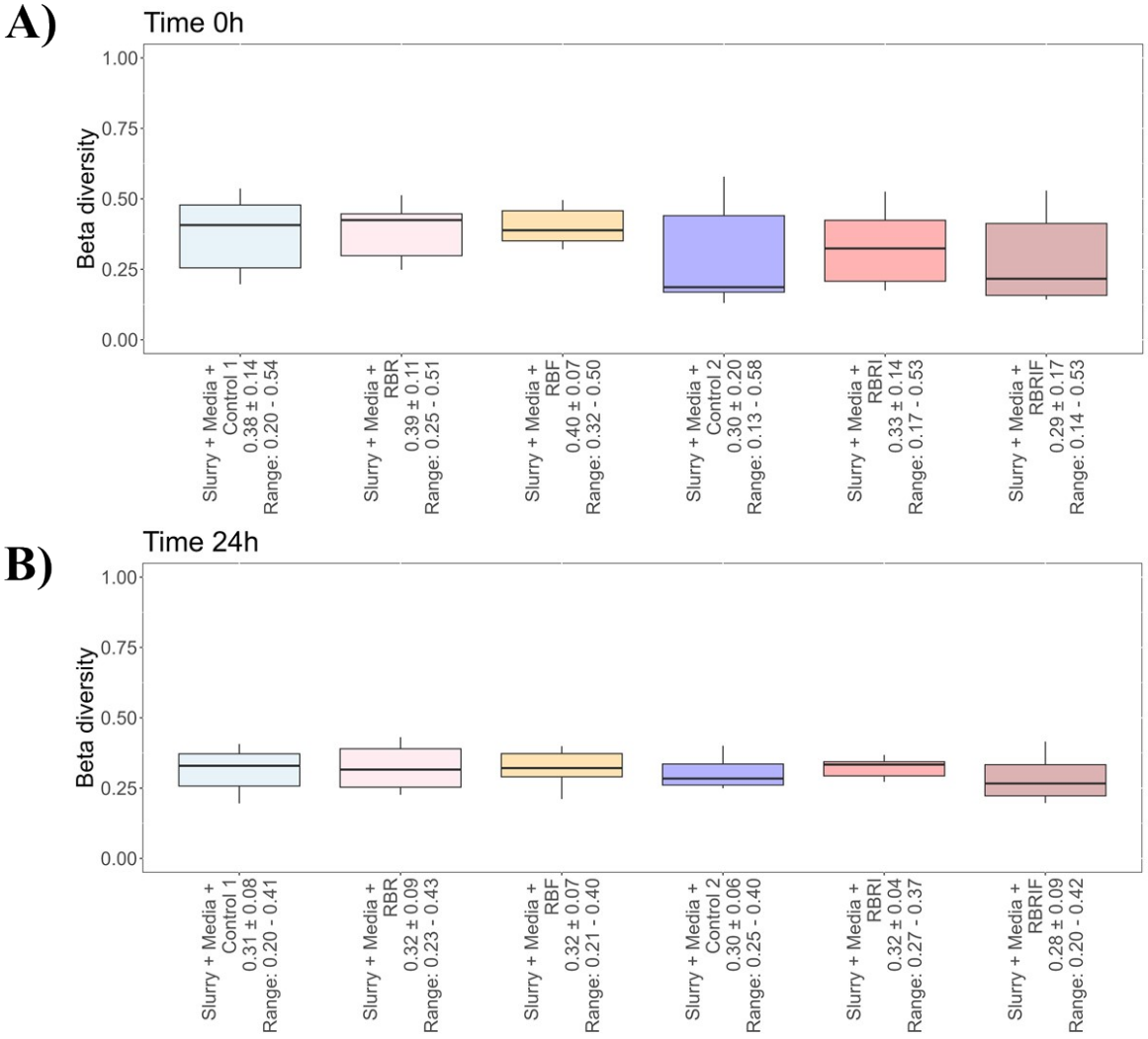

Fig. S3. Beta-diversity analysis of faecal fermentations of persimmon by-products at initial (0h, **A**) and final (24h, **B**) fermentation times. Bray-Curtis dissimilarity method was selected for the calculation. Two media plus slurry controls (without persimmon matrix) are included for comparative purposes. No statistically significant ($p < 0.05$) differences between substrates were found. RBR: Red untreated soluble fraction, RBF: Red fermented soluble fraction, RBRI: Red untreated insoluble fraction, RBRIF: Red fermented insoluble fraction.

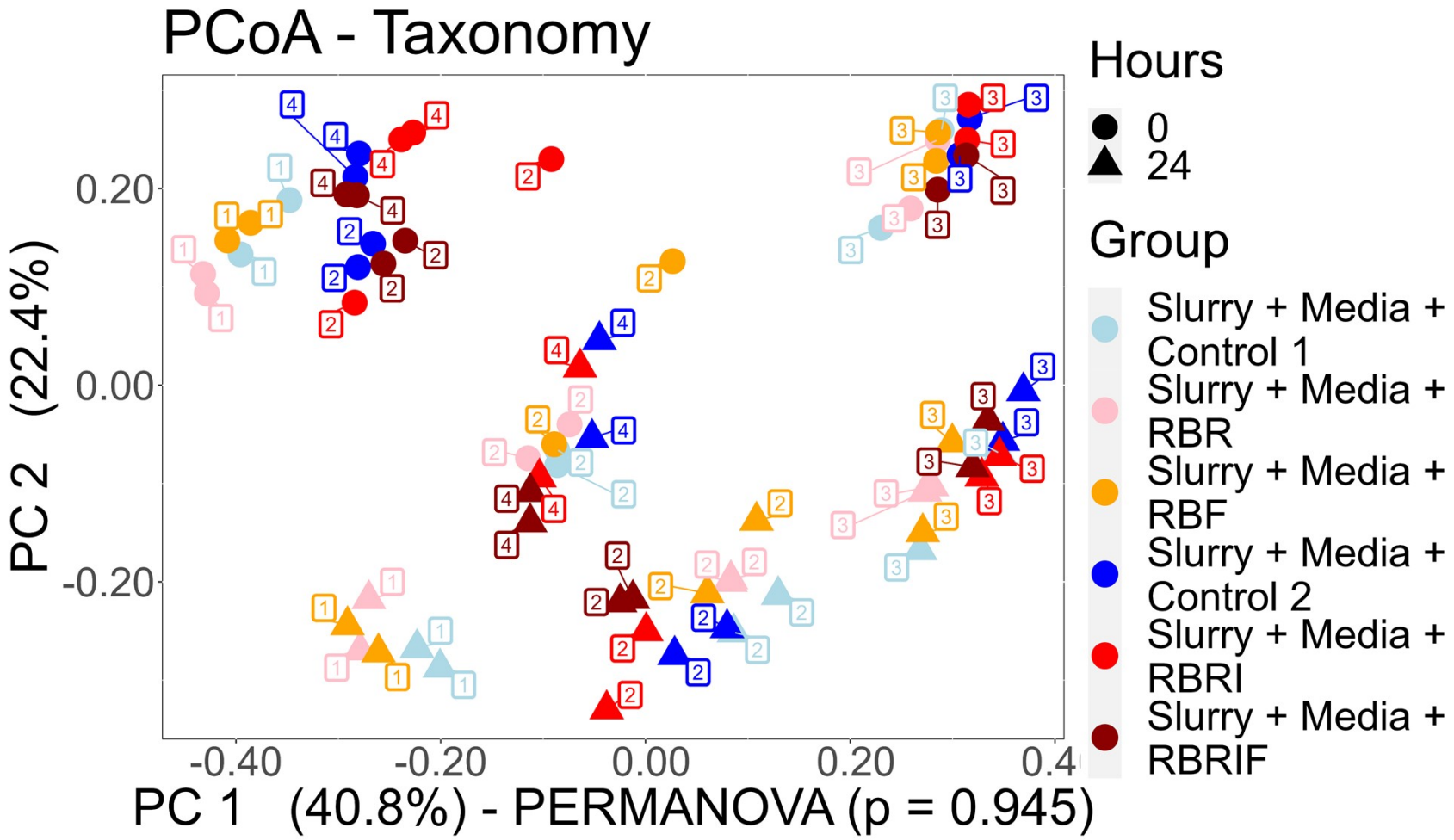

Fig. S4. Principal coordinates analysis (PCoA, **B**) of faecal fermentations of persimmon by-products. Samples corresponding to different fermentation times (0 and 24h) are represented. **PCoA**: principal coordinate. The percentage of variance explained by each PCoA is indicated in the axis. Donor numbers corresponding to each faecal fermentation experiment are indicated in the labels. Two media plus slurry controls (without persimmon matrix) are included for comparative purposes. RBR: Red untreated soluble fraction, RBF: Red fermented soluble fraction, RBRI: Red untreated insoluble fraction, RBRIF: Red fermented insoluble fraction.

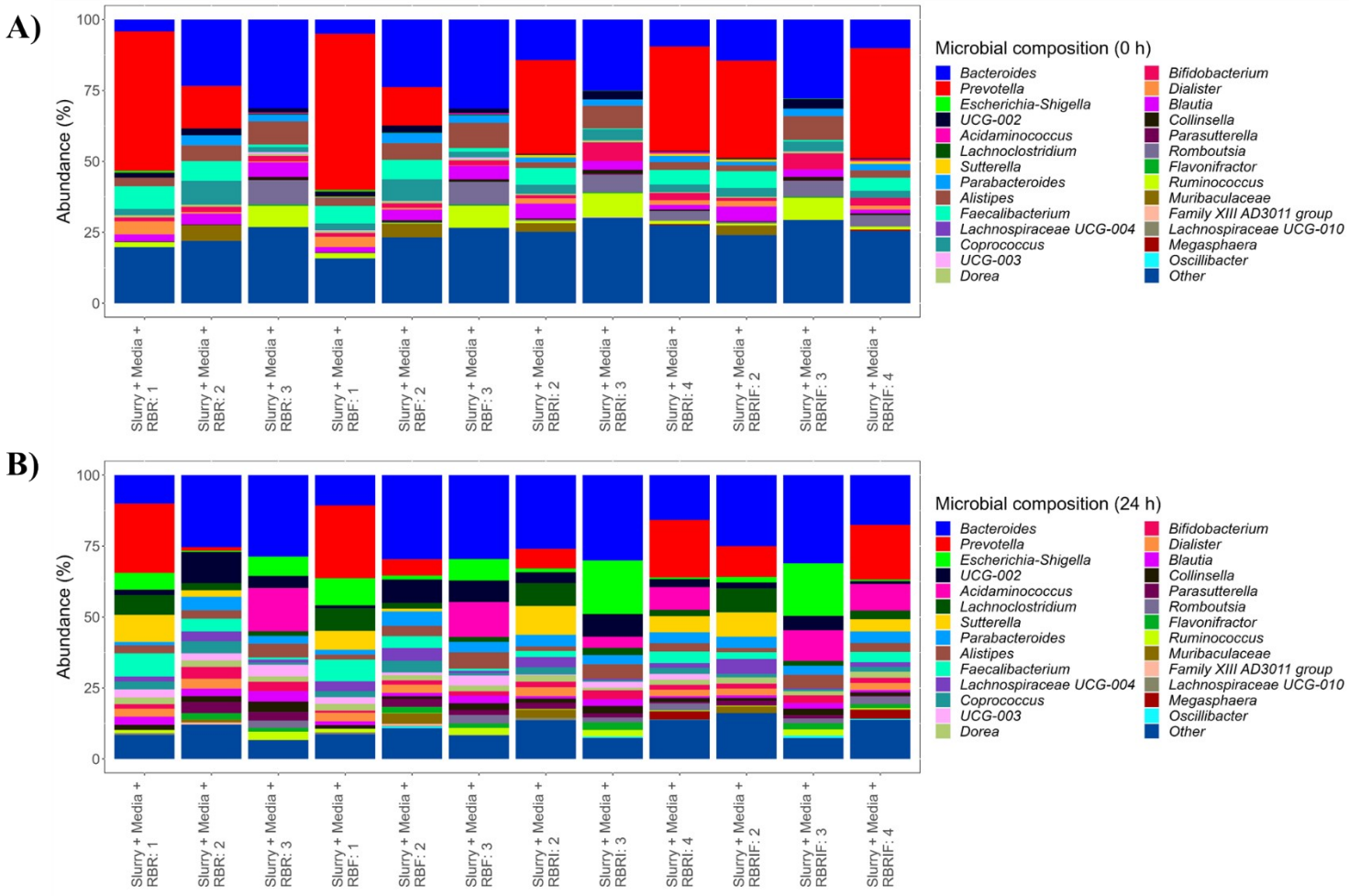

Fig. S5. Most abundant genera found in faecal fermentations of persimmon by-products at initial (0h, **A**) and final (24h, **B**) fermentation times. Data are expressed as sequence abundance percentage (%). RBR: Red untreated soluble fraction, RBF: Red fermented soluble fraction, RBRI: Red untreated insoluble fraction, RBRIF: Red fermented insoluble fraction.

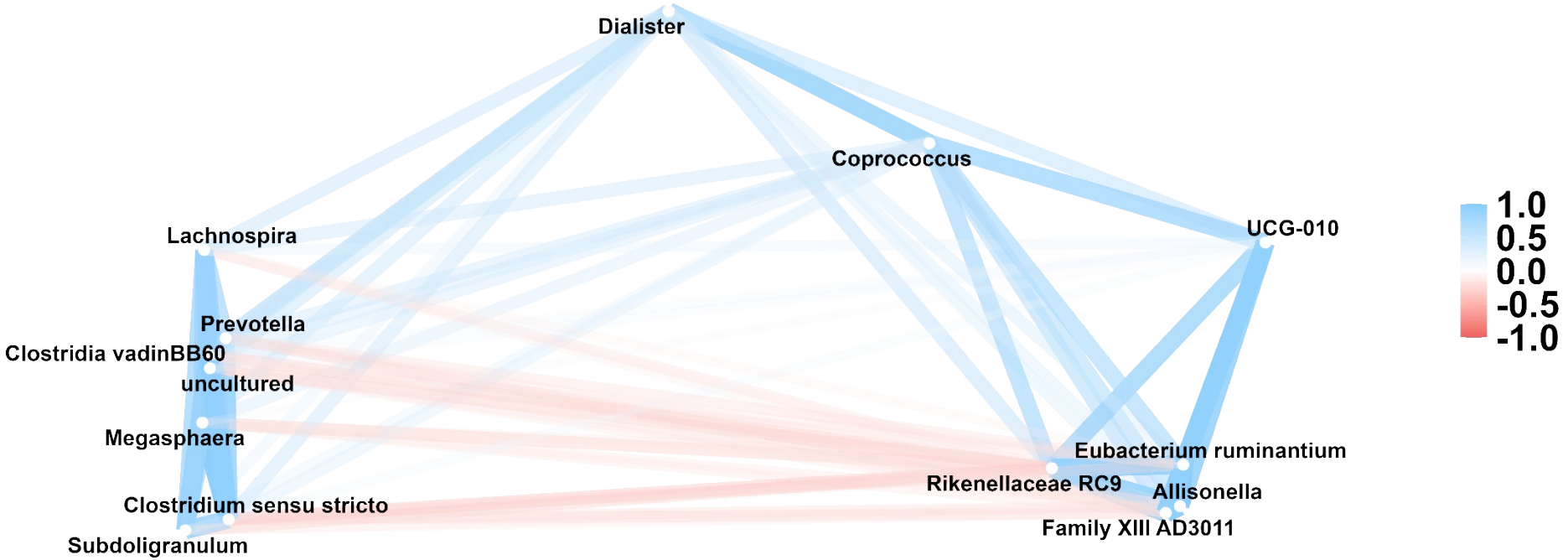

Fig. S6. Correlation network illustrating positive and negative associations between microbial genera exhibiting statistically significant increments during faecal fermentation of persimmon by-products and other members of the gut microbiota. Blue lines indicate positive associations while red lines suggest negative associations. Line thickness is in proportion to magnitude. Data represented correspond to final fermentation time (24h).

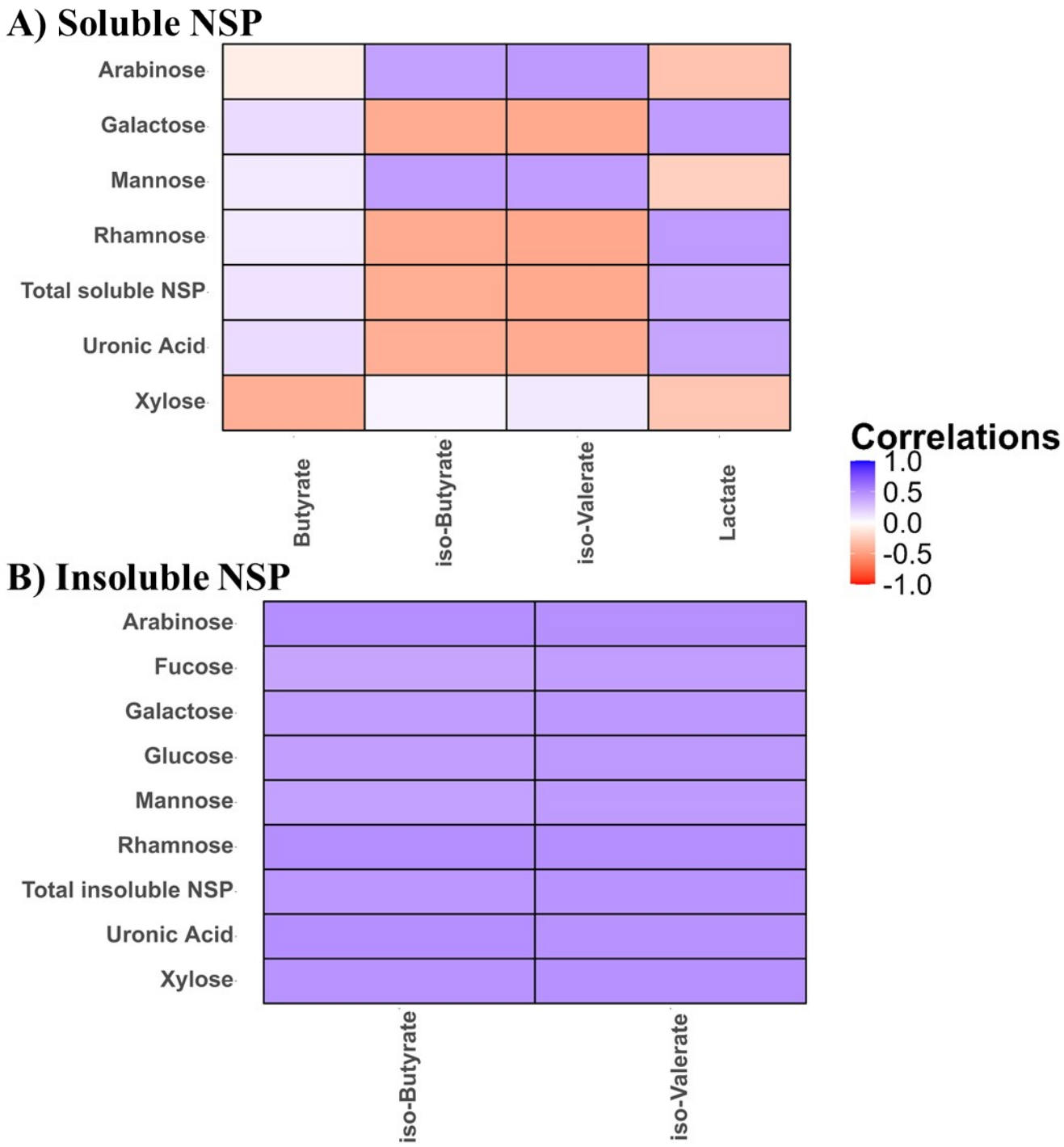

Fig. S7. Correlation heatmaps showing the associations between anhydrous sugars (%) as part of soluble (**A**) and insoluble (**B**) non-starch polysaccharides (NSPs), and short-chain fatty acids (SFCAs) concentrations (mM) after faecal fermentation of soluble and insoluble persimmon by-products at 24h. Blue and red dots indicate positive and negative correlations expressed as Pearson correlation coefficients. Colour intensity is in proportion to magnitude.