

## Supplementary

**Table S1:** Chemical composition of ACW

<b>Monosaccharide analysis</b>	<b>Mol%</b>
Fucose	1.4 ± 0.1 <sup>(*)</sup>
Arabinose	16.5 ± 0.4
Xylose	8.2 ± 2.4
Mannose	1.0 ± 0.4
Galactose	37.1 ± 1.1
Glucose	34.4 ± 2.3
Rhamnose	1.6 ± 0
<b><i>Total</i></b>	<b>100</b>
Uronic acid (%)	31.5
Yield (g/100 g fresh apple flesh)	1.0 ~ 1.5
Starch (g/100 g ACW)	4.6

*(\*) presents means and standard deviations (n = 2)*

Table S2. Monosaccharide linkage composition of ACW

Derivative Linkage	% mol	Derivative Linkage	% mol
t-Ara (f)	5.6*	1,3,6-Glc (p)	0.5
1,2-Ara (f)	0.2	1,4,6-Glc (p)	5.7
1,3-Ara (f)	1.0	1,3,4,6-Glc (p)	0.5
1,5-Ara (f)	5.5	1,2,4,6-Glc (p)	0.2
1,3,5-Ara (f)	3.6	t-Man (p)	0.1
1,2,5-Ara (f)	0.7	1,2,4-Man (p)	0.3
t-Xyl (p)	3.3	1,4,6-Man (p)	0.1
1,2-Xyl (p)	2.7	1,2,3,4-Man (p)	0.4
1,4-Xyl (p)	0.9	t-Gal (p)	2.6
1,3,4-Xyl (p)	0.4	1,4-Gal (p)	1.6
1,2,4-Xyl (p)	0.8	1,6-Gal (p)	0.2
t-Rha (p)	0.1	1,3,4-Gal (p)	1.3
1,2,4-Rha (p)	1.4	1,2,4-Gal (p)	0.4
t-Fuc (p)	1.3	1,3,6-Gal (p)	0.1
1,4-Fuc (p)	0.1	1,3,4,6-Gal (p)	0.3
t-Glc (p)	0.7	1,2,4,6-Gal (p)	0.2
1,4-Glc (p)	25.9	t-GlcA	0.1
1,6-Glc (p)	0.2	t-GalA	0.9
1,3,4-Glc (p)	0.6	1,4-GalA	29.7

\* Data are means of two replications.

**Table S3:** Possible microbial metabolites identified in fermentation fluids during 72 h fermentation employing UHPLC-ESI-MS

Possible metabolites	Detected $\lambda$ (nm)	Retention time (min)	[M-H] <sup>-</sup>	Absorbance $\lambda_{\max}$ (200–500nm)	Occurrence
<i>Parent compound: Ferulic acid</i>					
Dihydroferulic acid	280	1.819	195.0649	280	2 → 12 h
3-(3',4'-dihydroxyphenyl)-propionic acid	280	1.082	181.493	280	6 → 72 h
Hydroxyphenylacetic acid	280	1.758	151.0473	272	9 → 72 h
<i>Parent compound: (+/-)-Catechin</i>					
Cat-Met 1 (Not identification)	280	1.318	-	280	4 → 24 h
5-(3',4'-dihydroxyphenyl) valeric acid	280	1.908	209.0808	273	4 → 72 h
5-(3',4'-dihydroxyphenyl)- $\gamma$ -valerolactone	280	2.232	207.2120	272	9 → 72 h
<i>Parent compound: Cyanidin-3-glucoside</i>					
Protocatechuic acid	280	0.693	153.179	260/293	4 → 72 h
Hydroxybenzoic acid	280	1.035	137.0229	279/309	4 → 72 h
Caffeic acid	280	1.335	179.0335	287	4 → 72 h
<b>[M-H]<sup>+</sup></b>					
Cyanidin	499	1.669	287.0563	295/490	6 → 48 h
Pelargonidin	499	2.008	271.0614	279/313/485	4 → 72 h

(-) not determined