

Figure S1. Extractable ion chromatograms (EIC) of soluble and non-extractable phenolic compounds from control muffin sample (CM). A.U.: Arbitrary area units.

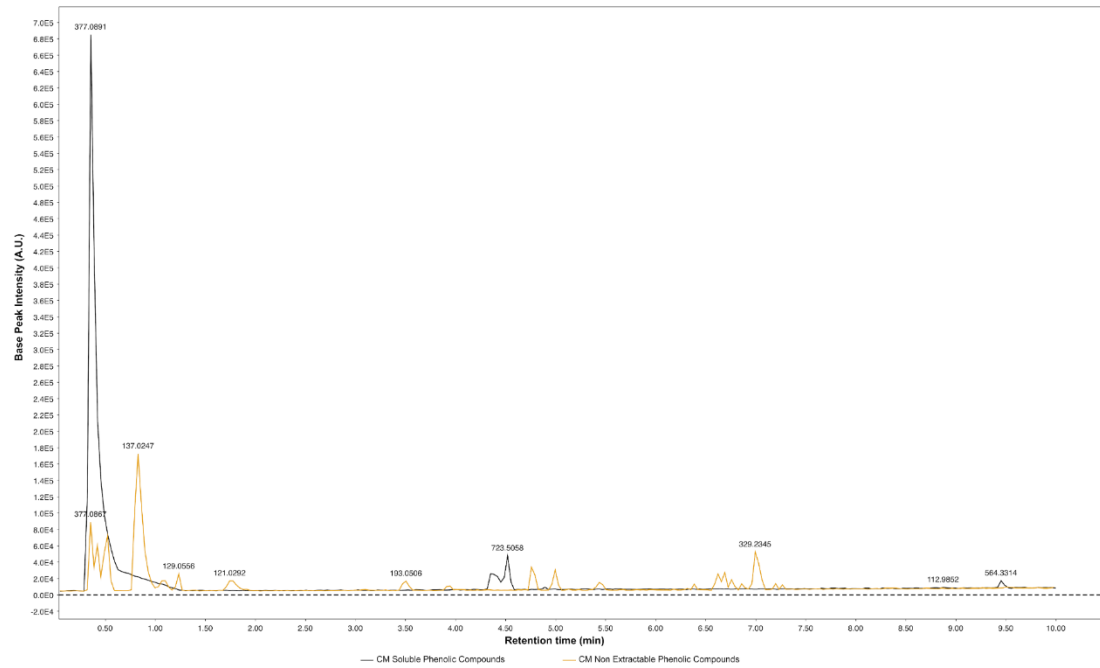


Figure S2. Extractable ion chromatograms (EIC) of soluble and non-extractable phenolic compounds from the enriched muffin sample (M15%). A.U.: Arbitrary area units.

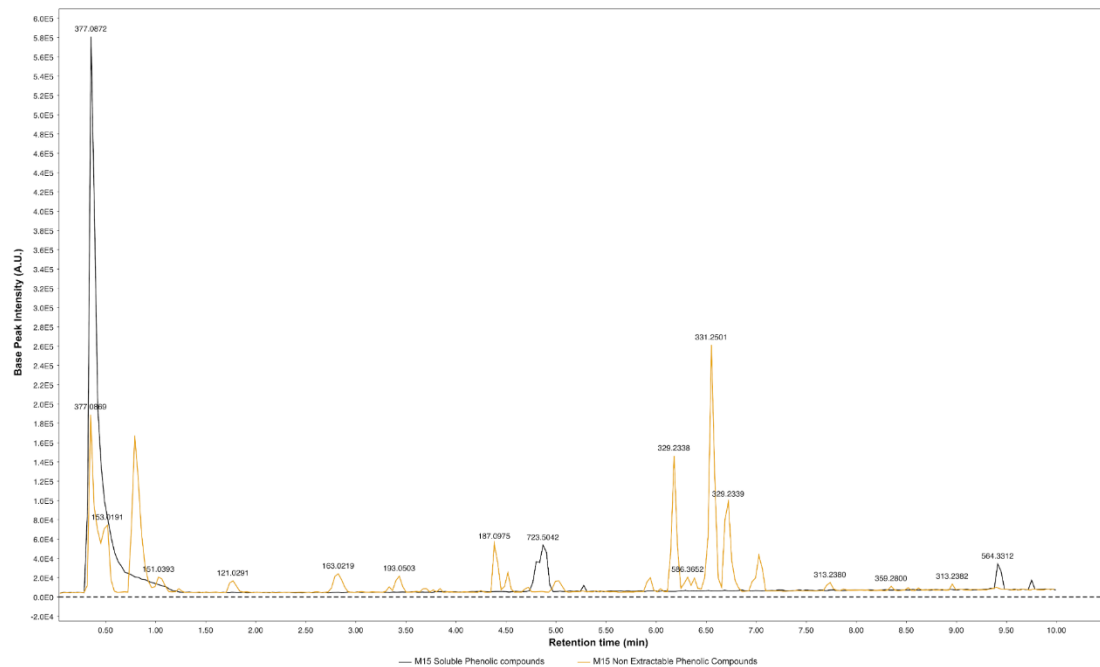


Table S1. Muffin control formulation and partially substituted with grape pomace flour at 15% and 20%.

Ingredients (g)	Muffin Control	Muffin grape pomace flour	
		15%	20%
Wheat flour	100	85	80
Grape pomace flour	0	15	20
Water	115	115	115
Sugar	62.5	62.5	62.5
Egg	37.5	37.5	37.5
Butter	37.5	37.5	37.5
Milk powder	12.5	12.5	12.5
Baking powder	1.5	1.5	1.5
Sodium carbonate	1	1	1
Salt	1	1	1
Cocoa	15	15	15

Table S2. Digestion solution preparation. Each solution was prepared to a final volume of 500 mL.

Component	Saliva	Gastric	Pancreatic	Bile
KCl (mg)	467.20	1310.00	252.29	252.29
KSCN (mg)	40.00	0.00	0.00	0.00
KH ₂ PO ₄ (mg)	1360.00	61.20	54.40	1210.00
NaHCO ₃ (mg)	336.00	1092.00	1810.00	798.00
NaCl (mg)	120.00	1200.00	960.00	960.00
Urea (mg)	225.00	6.75	54.00	117.00
MgCl ₂ (H ₂ O) ₆ (mg)	30.00	60.00	33.00	33.00
NH ₄ Cl (mg)	0.00	27.28	0.00	0.00
NaH ₂ PO ₄ (mg)	0.00	0.00	0.00	1877.00
Glucuronic acid (mg)	0.00	9.70	0.00	0.00
Glucosamine (mg)	0.00	167.50	0.00	0.00
Galactose (mg)	0.00	160.35	0.00	0.00
pH	6.8 ± 0.2	1.3 ± 0.2	8.1 ± 0.2	8.2 ± 0.2

Table S3. Enzyme mixture for each step for *in vitro* digestion.

Component	Saliva (μL)	Gastric (μL)	Pancreatic (μL)	Bile (μL)
CaCl ₂ (H ₂ O) ₂ (588/g/L)	1.50	0.90	0.90	2.78
Mucin II (50 g/L)	60.00	0.00	0.00	0.00
Mucin II (70 g/L)	0.00	120.00	0.00	0.00
Mucin III (35 g/L)	0.00	0.00	240.00	0.00
BSA 250 (g/L)	0.00	24.00	24.00	21.60
Bile (300 g/L)	0.00	0.00	0.00	600.00
α -amylase (1000 MU/L)	0.60	0.00	0.00	0.00
Lysozyme (93.5 g/L)	0.60	0.00	0.00	0.00
Pepsin (625 g/L)	0.00	24.00	0.00	0.00
Pancreatin (360 g/L)	0.00	0.00	300.00	0.00

Volume used per 3 mL of saliva juice, 6 mL of gastric juice, 6 mL of pancreatic juice and 3 mL of bile juice.

Table 4. Spectral information of compounds identified in the samples control muffin (CM) and enriched muffin at 15% with grape pomace (M15).

Compound	RT (min)	Formula	[M-H]	Experimental mass	Theoretical mass	Score	Difference (ppm)	Fragments
<i>Hydroxybenzoic acids and derivatives</i>								
Benzoic acid	1.707	C ₇ H ₆ O ₂	121.0295	122.0367	122.0368	87.31	-0.66	121.0290; 103.0389
Gallic acid	0.419	C ₇ H ₆ O ₅	169.0145	170.0217	170.0215	83.30	1.31	169.0141; 125.0204
3-methyl-gallic acid	0.728	C ₈ H ₈ O ₅	183.0294	184.0367	184.0372	82.19	-2.41	183.0229; 165.0184, 139.0389
4-methyl-gallic acid	0.722	C ₈ H ₈ O ₅	183.0292	184.0364	184.0372	82.55	-3.94	183.0292; 165.0184; 139.0389
Pyrogallol	0.417	C ₆ H ₆ O ₃	125.0239	126.0313	126.0317	82.03	-3.26	125.0242;
Protocatechuic acid	0.519	C ₇ H ₆ O ₄	153.019	154.0263	154.0266	97.12	-2.23	153.0167; 109.0270
Protocatechuic aldehyde	0.79	C ₇ H ₆ O ₃	137.0242	138.0314	138.0317	96.94	-1.92	137.0242; 130.0864
Pyrocatechuic acid	1.571	C ₇ H ₆ O ₄	153.0183	154.0255	154.0266	74.97	-5.01	153.0180;

Syringic acid	1.129	C ₉ H ₁₀ O ₅	197.0446	198.0520	198.0528	92.92	-4.01	197.0511; 120.0581
Vanillin	1.027	C ₈ H ₈ O ₃	151.0393	152.0465	152.0473	83.66	-5.2	167.0356;
<i>Hydroxycinnamic acids and derivatives</i>								
Caffeic Acid	0.994	C ₉ H ₈ O ₄	179.0343	180.0416	180.0423	83.50	-3.82	179.0348; 135.0448; 119.0363
Ferulic acid	3.434	C ₁₀ H ₁₀ O ₄	193.0501	194.0574	194.0579	84.07	-2.79	193.0504; 163.0400
Isoferulic acid	3.774	C ₁₀ H ₁₀ O ₄	193.051	194.0581	194.0579	97.37	1.19	193.0501; 163.0308
<i>m</i> -Coumaric acid	2.757	C ₉ H ₈ O ₃	163.0399	164.0471	164.0473	85.20	-1.33	163.0450; 119.0492
<i>p</i> -Coumaric acid	3.334	C ₉ H ₈ O ₃	163.04	164.0472	164.0473	79.97	-0.83	163.0451; 119.0542
<i>Flavonoids</i>								
Catechin	0.592	C ₁₅ H ₁₄ O ₆	289.0712	290.0786	290.079	74.93	-1.61	289.0720; 175.0612;
Eriodictyol	3.468	C ₁₅ H ₁₂ O ₆	287.0563	288.0632	288.0634	76.88	-0.55	287.0533;

Esculetin	0.689	C ₉ H ₆ O ₄	177.0188	178.0261	178.0266	84.11	-3.01	177.0191;
Hesperetin	6.837	C ₁₆ H ₁₄ O ₆	301.071	302.0783	302.079	93.58	-2.5	301.0713;
Myricetin	0.485	C ₁₅ H ₁₀ O ₈	317.0308	318.0381	318.0376	84.25	1.52	317.0307; 137.0609
Naringenin	6.566	C ₁₅ H ₁₂ O ₅	271.0612	272.0683	272.0685	84.59	-0.56	271.0615; 215.1286
Norathyriol	5.094	C ₁₃ H ₈ O ₆	259.0242	260.0313	260.0321	76.56	-3.01	259.0235;
Taxifolin	4.315	C ₁₅ H ₁₂ O ₇	303.0509	304.0583	304.0583	97.74	-0.02	303.0506; 300.9987
<i>Organic acids</i>								
Citric acid	0.423	C ₆ H ₈ O ₇	191.0199	192.0272	192.027	97.17	0.82	191.0190;
Succinic acid	0.417	C ₄ H ₆ O ₄	117.0203	118.0275	118.0266	82.14	7.67	117.0188;

*Values in bold express the most abundant ion identified.