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Supplementary Material

Cooking African Pumpkin Leaves (*Momordica balsamina* L.) by Stir-Frying Improved Bioactivity and Bioaccessibility of Metabolites—Metabolomic and Chemometric Approaches

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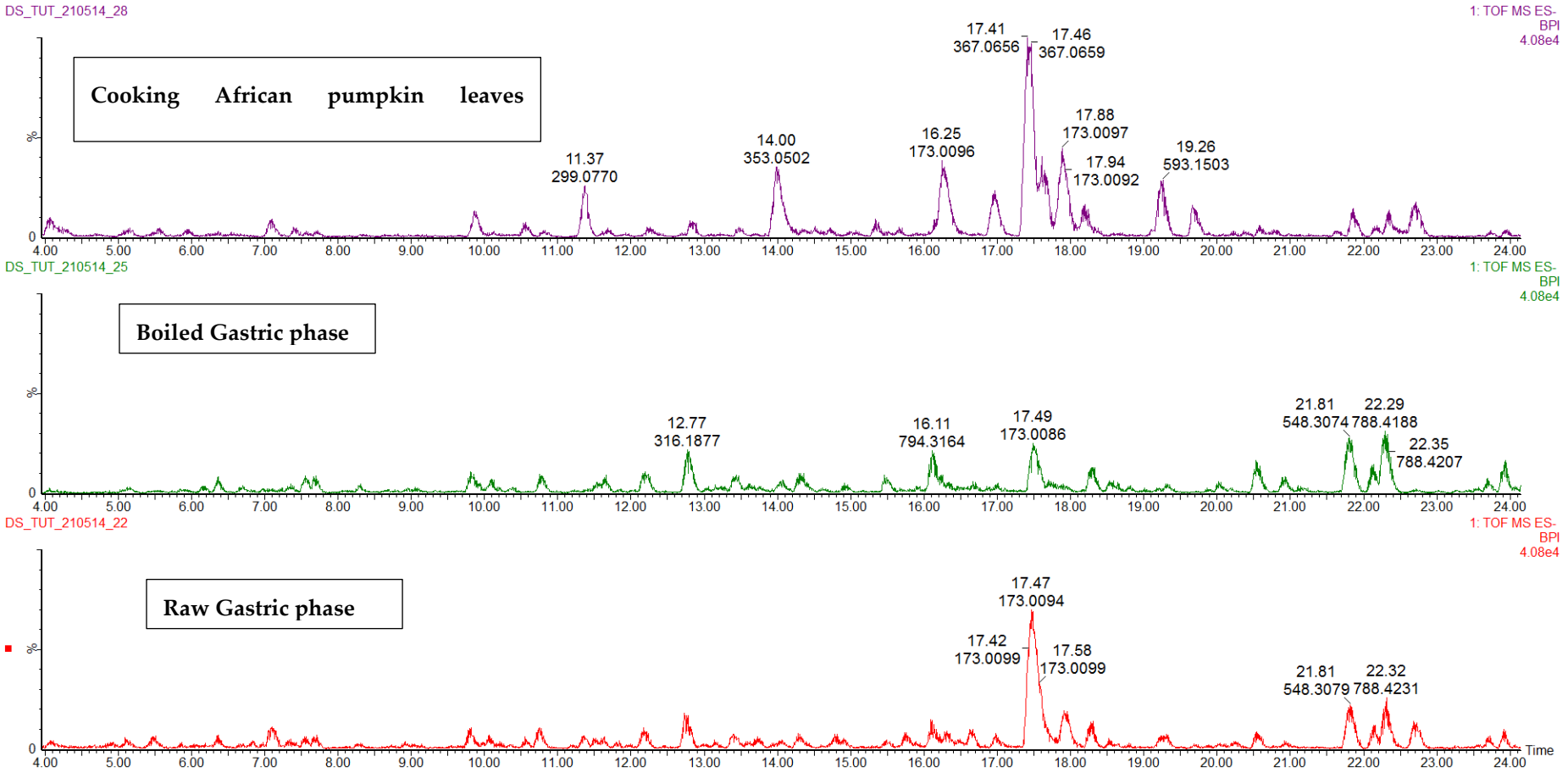
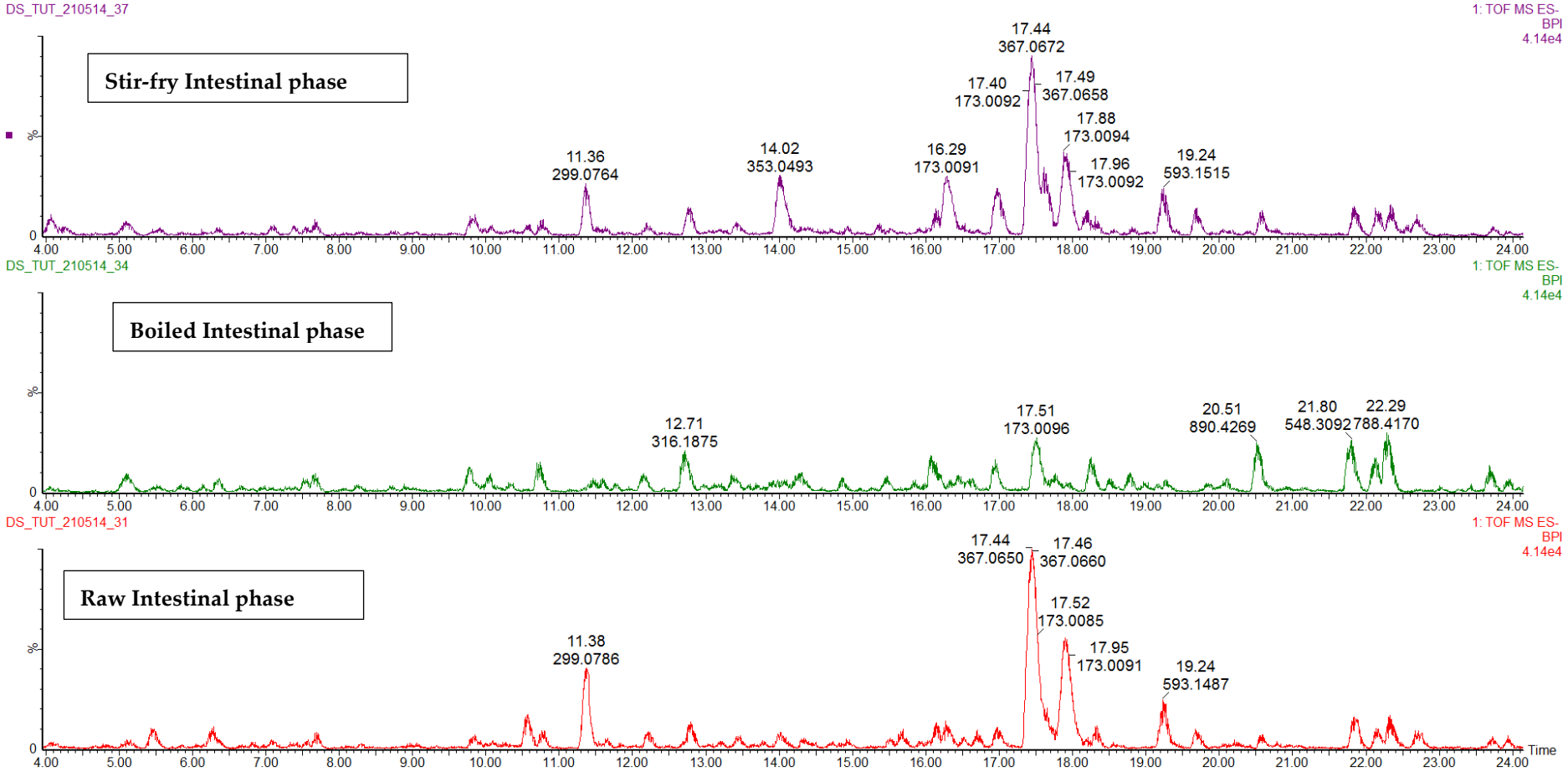
Table S1. UPLC-QTOF/MS analyses of major metabolites detected in raw and cooked African leaves .

Compound	RT(min)	[M-H]$^-$	Formula	Error (ppm)	MSE fragments	UV	Tentative Identification
1	7.09	205.03609	$C_7H_{10}O_7$	-3.47	173.011	230	Methylquinic acid
2	11,38	299.0764	$C_{13}H_{16}O_8$	2.82	137.024 93.034	283	Pseudolaroside A
3	12,44	325,0923	$C_{15}H_{18}O_8$	1.82	163.040	269	β- D- glucosyl- 2-coumarate (Melilotoside)
4	14.00	353,05099	$C_{15}H_{14}O_{10}$	1.23	191.020 173.009 135.099	326	4 caffeoylquinic acid (Cryptochlorogenic acid)
5	16.27	337.05606	$C_{15}H_{14}O_9$	1.33	191.9496 173.9740 163.0427	312	Cis 4-coumaroylquinic acid
6	16.98	337.04831	$C_{15}H_{14}O_8$	-31.09	191.019 173.010 163.145	309	Trans-4-coumaroylquinic acid
7	17.45	367.06699	$C_{16}H_{16}O_{10}$	0.22	173.009	326	4 Feruloylquinic acid
8	17.61	609.14404	$C_{27}H_{30}O_{16}$	3.40	300.028 271.023 178.982 151.003	351	Quercetin-3-rutinoside (Rutin)
9	17.90	367.06723	$C_{16}H_{16}O_{10}$	-0.42	173.009	326	Feruloylisocitric acid isomer
10	18.19	463.08975	$C_{21}H_{20}O_{12}$	-3.34	300.029 271.026 179.009 151.005	265 346	Quercetin 3-galactoside
11	19.23	593.15198	$C_{27}H_{30}O_{15}$	-1.32	285.040 163.004	253 352	Kaempferol-O-rutinoside (Nicotiflorin)
12	19.67	623.16125	$C_{28}H_{32}O_{16}$	0.82	315.050 300.026	230	Isorhamnetin 3-O-robinoside (Keioside)
13	20,39	477.09436	$C_{22}H_{22}O_{12}$	19.89	314.041 300.039 285.053	230	Rhamnetin-3-O-glucoside
14	20,68	429.17532	$C_{20}H_{30}O_{10}$	3.04	325.1318 161.1176	276	Phenethyl rutinoside


DS_TUT_210514_28
1: TOF MS ES-
BPI
4.08e4
Cooking African pumpkin leaves
17.41
367.0656
17.46
367.0659
17.88
173.0097
17.94
173.0092
16.25
173.0096
14.00
353.0502
11.37
299.0770
19.26
593.1503
DS_TUT_210514_25
1: TOF MS ES-
BPI
4.08e4
Boiled Gastric phase
12.77
316.1877
16.11
794.3164
17.49
173.0086
21.81
548.3074
22.29
788.4188
22.35
788.4207
DS_TUT_210514_22
1: TOF MS ES-
BPI
4.08e4
Raw Gastric phase
17.47
173.0094
17.42
173.0099
17.58
173.0099
21.81
548.3079
22.32
788.4231
%
0
4.00 5.00 6.00 7.00 8.00 9.00 10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00
Time


DS_TUT_210514_37
1: TOF MS ES-
BPI
4.14e4
Stir-fry Intestinal phase
17.44
367.0672
17.40
173.0092
17.49
367.0658
17.88
173.0094
11.36
299.0764
14.02
353.0493
16.29
173.0091
17.96
173.0092
19.24
593.1515
DS_TUT_210514_34
1: TOF MS ES-
BPI
4.14e4
Boiled Intestinal phase
12.71
316.1875
17.51
173.0096
20.51
890.4269
21.80
548.3092
22.29
788.4170
DS_TUT_210514_31
1: TOF MS ES-
BPI
4.14e4
Raw Intestinal phase
17.44
367.0650
17.46
367.0660
17.52
173.0085
11.38
299.0786
17.95
173.0091
19.24
593.1487
%
0
4.00
5.00
6.00
7.00
8.00
9.00
10.00
11.00
12.00
13.00
14.00
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24.00
Time

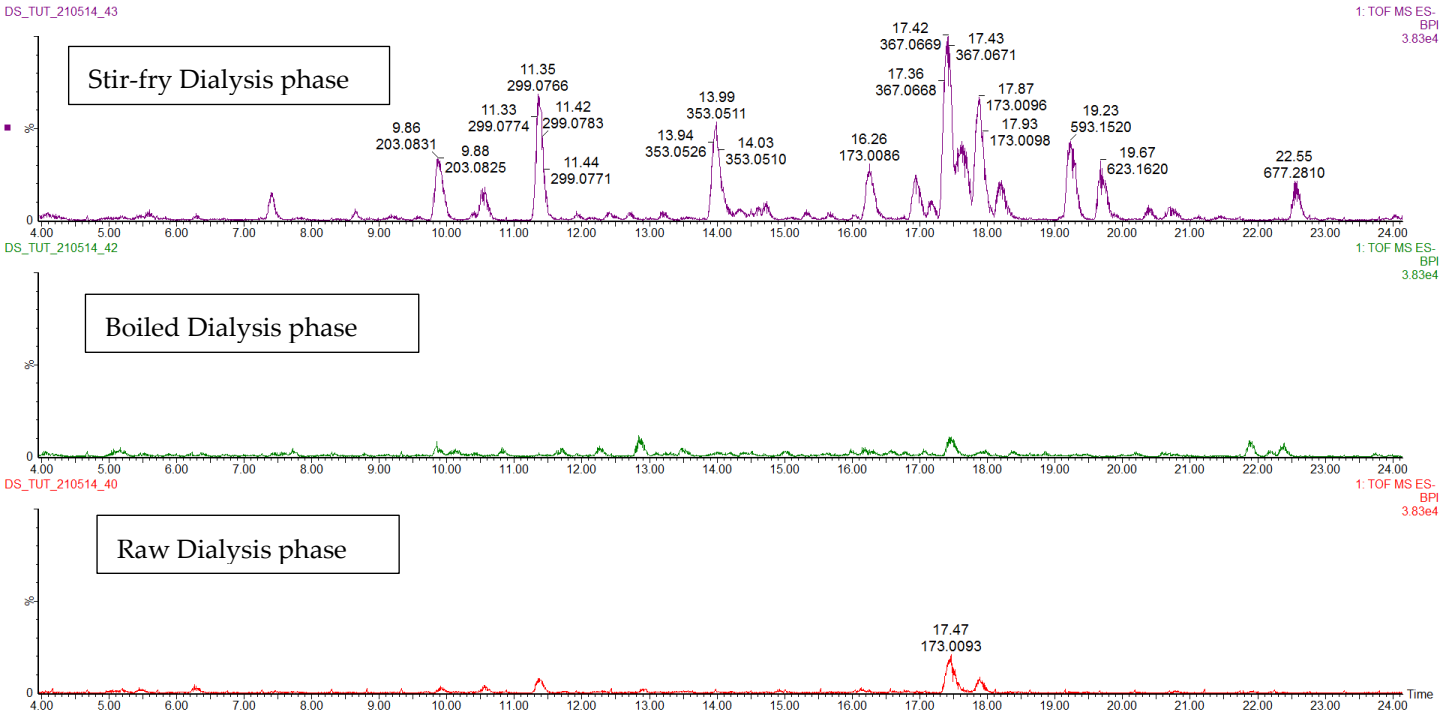

Figure S1. illustrating the increase of bioactive metabolites in the gastric, intestinal and dialysable digesta of stir-fried African pumpkin leaves compared to the boiled and raw leaves. .

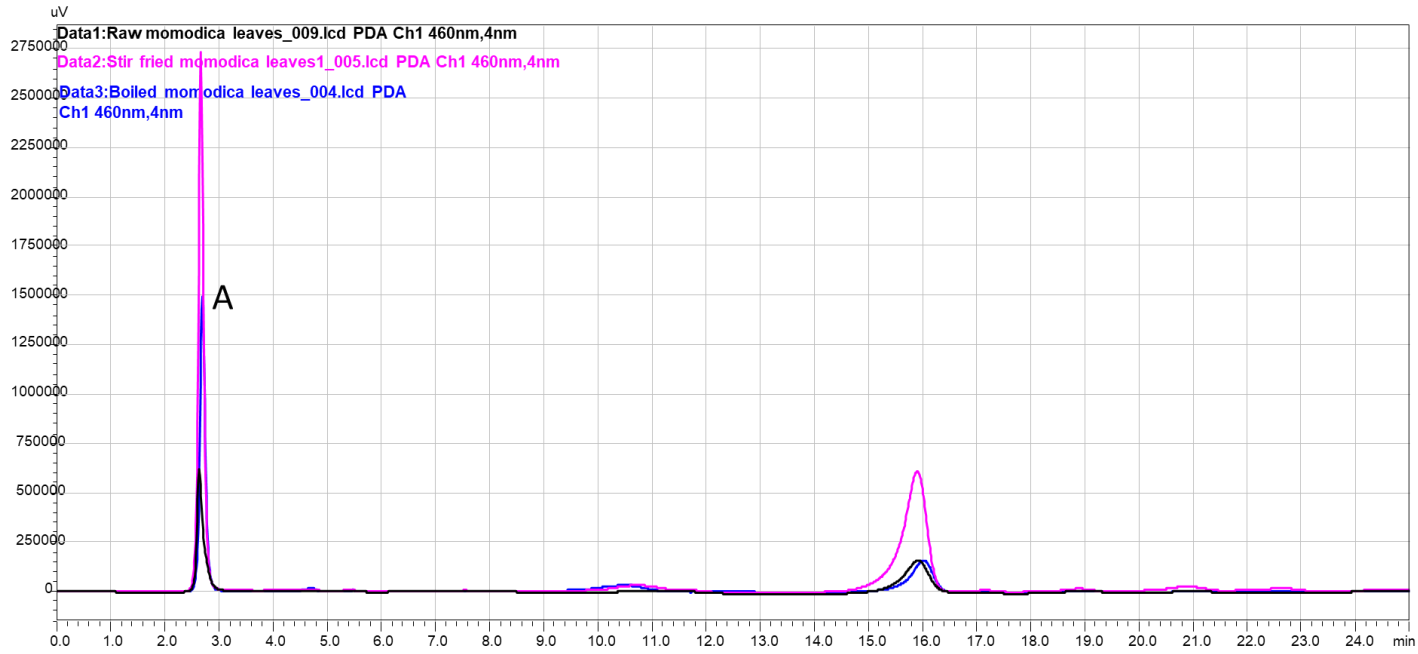

Figure S2. Showing stir fried African pumpkin (Momordica balsamina L.) leaves (pink) with the highest level of β-carotene (peak A), boiled African pumpkin leaves (blue) with a lower level of β-carotene, and raw leaves (black) with the lowest amount of β-carotene.