

Supporting Information for:

Supercritical Carbon Dioxide Extraction of Value-Added Products and Thermochemical Synthesis of Platform Chemicals from Food Waste

Iris K.M. Yu ^{a,b}, Thomas M. Attard ^b, Season S. Chen ^a, Daniel C.W. Tsang ^{a, #}, Andrew J. Hunt ^{c, *}, François Jérôme ^d, Yong Sik Ok ^e, Chi Sun Poon ^a

^a Department of Civil and Environmental Engineering, Hong Kong Polytechnic University, Hung Hom, Kowloon, Hong Kong, China

^b Department of Chemistry, The University of York, Heslington, York, YO10 5DD, United Kingdom

^c Materials Chemistry Research Center, Department of Chemistry, Faculty of Science, Khon Kaen University, Khon Kaen, 40002, Thailand

^d Institut de Chimie des Milieux et Matériaux de Poitiers, CNRS/Université de Poitiers, 1 rue Marcel Doré, ENSIP, TSA 41105 86073 Poitiers cedex 9, France

^e Korea Biochar Research Center, O-Jeong Eco-Resilience Institute (OJERI) & Division of Environmental Science and Ecological Engineering, Korea University, Seoul 02841, Republic of Korea

[#]Corresponding author: dan.tsang@polyu.edu.hk

^{*}Corresponding author: andrew@kku.ac.th

Number of Pages: 3

Number of Tables: 1

Table S1. Quantification of scCO₂ extracts from the studied food waste.

Compound (µg/g food waste)	Food waste			
	Corn	Taro	Bean sprout	Lettuce
Tetradecanoic acid	0.9		2.3	
Pentadecanoic acid			4.8 ±0.1	
Hexanoic acid		79.2 ±2.0		
Heptanoic acid		14.8 ±0.4		
Octanoic acid		101.7 ±2.5		
Decanoic acid		218.0 ±5.4		
Dodecanoic acid		341.4 ±8.5		
Hexadecanoic acid	201.4 ±16	798.3 ±8.0	471.9 ±17.9	248.6 ±13.0
Heptadecanoic acid			6.1 ±0.4	
Octadecanoic acid	30.6 ±0.3	700.4 ±17.5	80.4 ±0.8	31.9 ±1.5
Nonadecanoic acid			2.7 ±0.2	
Eicosanoic acid	1.0 ±0.2	181.4 ±4.5	14.7 ±0.3	11.1
Heneicosanoic acid			2.1	
Docosanoic acid			27.0 ±0.2	22.5 ±0.3
Tricosanoic acid			2.9 ±0.1	
Tetracosanoic acid			26.1 ±0.2	24.7 ±0.2
Hexacosanoic acid				13.4 ±0.5
Octacosanoic acid				12.4 ±0.5
Triacosanoic acid				38.8 ±2.4
Dotriacontanoic acid				9.3 ±0.5
Total saturated fatty acids	233.8 ±2.1	2313.10 ±45.8	640.9 ±20.2	412.8 ±18.8
Hexadecenoic acid, 2-11-				35.5 ±3.0
Oleic + Linoleic acid	404.6 ±4.4	1423.5 ±14.2	505.4 ±13.1	547.1 ±63.2
C20 unsaturated acids		181.4 ±4.5		
Total unsaturated fatty acids	404.6 ±4.4	1604.9 ±18.7	505.4 ±13.1	582.6 ±66.2
Docosanol				41.3 ±0.1
Tetracosanol				122.5 ±1.4
Hexacosanol			TR	241.0 ±18.0
Octacosanol	8 ±0.3		TR	62.9 ±7.9
Total fatty alcohols	8 ±0.3		TR	467.7 ±27.4
2-butenedioic acid		29.4 ±0.7		
Azelaic acid		169.3 ±4.2		
Total difatty acids		198.7 ±8.1		
Nonacosane	23.2 ±1.6		9.0 ±1.6	1.0 ±0.4
Hentriacontane	4.5 ±0.3		TR	10.2 ±0.1
Squalene				14.8 ±0.2
Total hydrocarbons	27.7 ±1.9		9.0 ±1.6	26.0 ±0.7
Hexacosanal			3.5 ±0.4	
2-heptenal	32.2 ±0.2			
Octacosanal			5.4 ±0.1	
Nonanal	6.2 ±0.2			
Decenal	34.9 ±0.2	106.8 ±2.7		1.9 ±0.3
2,4-decadienal	12.6	53.6 ±1.3		9.4 ±2.2

2-undecenal		93.6 ±2.3		
cis-4,5-epoxy-(E)-2-decenal		57.5 ±1.4		
Total aldehydes	85.9 ±0.6	311.5 ±7.7	8.9 ±0.5	11.3 ±2.5
Campesterol	25.4 ±0.3		39.8 ±1.8	61.5 ±0.9
Stigmasterol	22.8 ±0.3		197.0 ±11.7	288.8 ±13.6
SitoSterol	104.3 ± 0.5		188.5 ± 9.0	254.1 ± 3.1
Stigmasta-3,5-diene			4.7	3.0 ±0.1
Stigma-5,22-dien-3-ol, acetate (3β)				6.6 ±0.1
Stigmasta-4,7-22-trien-β-3-ol			9.1 ±2.4	
Stigmasta-3,5-dien-7-one			9.9 ±1.3	
Lupeol				51.8 ±1.7
Lup-20(29)-en-3-ol, acetate (3β)				64.4 ±3.3
olean-12-en-3-ol, acetate				30.5 ±0.3
A-Neogammer-22(29)-en-3-ol, acetate				3.1 ±0.3
Total sterols + triterpenoids	152.5 ±1.2		448.9 ±26.3	763.9 ±23.4
C16 methyl ester			TR	
C18 methyl ester			TR	
C22 methyl ester				6.3 ±0.3
C24 methyl ester				22.6 ±1.4
C26 methyl ester				24.0 ±1.1
C28 methyl ester				9.7 ±0.4
Total methyl esters			TR	62.7 ±3.2
C38 Wax ester				51.4 ±14.4
C40 wax ester		28.3 ±0.7		356.4 ±45.2
C42 wax ester		18.6 ±0.5		261.1 ±0.9
C44 wax ester		16.7 ±0.4		75.7 ±2.2
C46 wax ester		12.0 ±0.3		22.5 ±0.6
C48 wax ester				7.3 ±1.1
Total wax esters	597.7 ±81.2	75.6 ±1.9	597.3 ±32.2	774.3 ±64.4
o-cresol		80.7 ±2.0		
p-cresol		61.3 ±1.5		
Ethylbenzene	47.3 ±2.0			30.1 ±0.6
xylene	11.9 ±0.7	452.1 ±11.3		8.1 ±0.1
Maltol	11.7 ±0.2			11.9 ±0.2
Benzaldehyde	13.7 ±0.5			
b-tocopherol			3.5 ±0.3	
Total other compounds	84.6 ±3.4	541.7 ±14.9	3.5 ±0.3	50.1 ±0.9

TR = Trace amounts