

Supplementary Table 1. Seed metabolites detected in groundnut cultivar CO 7 stored under modified atmospheric condition

Storage period (Days)		0 (Fresh seeds)		180 (Aged seeds)							
Modified atmospheric storage				M ₁		M ₂		M ₃		M ₄	
S.No	Compound name	R Time	Area %	R Time	Area %	R Time	Area %	R Time	Area %	R Time	Area %
1	(E)-4-Hydroxynon-2-enoic acid	ND	0	ND	0	24.19	0.34	ND	0	ND	0
2	(Z)-Docos-13-enamide, N-TMS	44.581	5.64	ND	0	ND	0	ND	0	ND	0
3	alpha. -D-glucopyranose	ND	0	53.683	0.7	ND	0	ND	0	ND	0
4	beta. -Arabinopyranose	ND	0	25.554	0.5	ND	0	ND	0	ND	0
5	1-(2-Hydroxyethyl)-2,2,6,6-tetramethyl-4-piperidinol, bis(trimethylsilyl) ether	ND	0	22.757	0.55	22.748	0.14	22.755	0.7	22.755	0.9
6	1-(Trimethylsilyl)-3-[(trimethylsilyl)oxy]urea	8.819	0.88	ND	0	8.674	0.33	ND	0	8.677	0.31
7	1,1-Dimethyl-2-propenyl	51.557	0.17	ND	0	52.97	0.28	51.395	0.36	51.4	0.37
8	1,2,5,6-Hexanetetrol, tetrakis-O-(trimethylsilyl)	ND	0	21.992	0.77	ND	0	ND	0	ND	0
9	1,3-Dihydroxypropan-2-yl octadec-9-enoate	ND	0	43.57	0.44	ND	0	ND	0	ND	0
10	1,5-Anhydro-glucitol	ND	0	38.84	0.8	38.852	0.13	ND	0	ND	0
11	1,5-Pentanediol	11.829	0.18	ND	0	ND	0	ND	0	ND	0
12	1,6-Anhydroglucose	ND	0	42.61	0.33	27.895	0.11	ND	0	ND	0
13	1,8-Diazacyclotetradecane-2,7-dione	ND	0	ND	0	ND	0	ND	0	33	0.2
14	1-[1,7-Dicarba-closo-dodecaboran-(12)-1-yl]	ND	0	ND	0	41.881	0.29	ND	0	ND	0
15	13-Docosenamide, (Z)-	43.962	1.67	ND	0	ND	0	ND	0	ND	0
16	13-Eicosenoic acid, (Z)	ND	0	37.23	0.7	37.27	0.12	37.33	0.1	37.34	0.1
17	1-Monomyristin	ND	0	36.626	0.9	36.628	0.18	36.635	0.18	36.63	0.22
18	1-Monooleoylglycerol	43.67	0.1	ND	0	ND	0	ND	0	ND	0
19	1-Monopalmitin	4.747	1.1	4.545	6.5	4.563	4.11	4.562	7.95	4.566	7.73
20	1-Palmitoyl-3-oleoyl-glycerol	ND	0	ND	0	ND	0	ND	0	47.314	0.5
21	2,3,4-Trihydroxybutyric acid	ND	0	19.341	0.14	19.333	0.11	ND	0	ND	0

	tetrakis(trimethylsilyl)										
22	2,3-Dihydroxy-2-methylbutanoic acid	ND	0	19.818	0.22	19.88	0.13	ND	0	ND	0
23	2,4-Di-tert-butylphenoxytrimethylsilane	18.963	0.6	ND	0	18.763	0.19	18.772	0.17	18.77	0.13
24	2-Butenedioic acid, (E)-	ND	0	23.254	0.53	ND	0	ND	0	ND	0
25	2-Deoxy-D-ribose, tris(trimethylsilyl) ether	ND	0	ND	0	ND	0	19.796	0.8	ND	0
26	2-Deoxypentofuranose	ND	0	2.443	0.83	24.785	0.2	ND	0	ND	0
27	2-Deoxyuridine	ND	0	17.951	0.63	ND	0	ND	0	ND	0
28	2-Hexenedioic acid	ND	0	21.688	0.27	ND	0	ND	0	ND	0
29	2-Hydroxyisocaproic acid	44.155	0.7	ND	0	ND	0	ND	0	ND	0
30	2-Ketoadipic acid-oxime	ND	0	28.9	0.7	ND	0	ND	0	ND	0
31	2-Methylhexacosane	ND	0	ND	0	ND	0	ND	0	35.111	0.8
32	2-Methylhippuric acid	ND	0	5.677	0.12	ND	0	ND	0	ND	0
33	2-Octenoic acid	ND	0	22.1	0.31	ND	0	ND	0	ND	0
34	2-Oxovaleric acid	ND	0	23.48	0.96	ND	0	ND	0	ND	0
35	2-Palmitoylglycerol	4.146	0.4	39.929	0.31	39.932	0.38	39.937	0.38	39.935	0.37
36	2-Propenoic acid, 2-[(trimethylsilyl)oxy]propyl ester	ND	0	19.54	0.18	ND	0	ND	0	ND	0
37	3,4-Dihydroxymandelic acid	ND	0	ND	0	35.425	0.6	48.695	0.8	ND	0
38	3- .alpha.-Mannobiose, octakis (trimethylsilyl)ether	ND	0	43.337	0.99	42.55	0.14	41.889	0.11	39.782	0.6
39	3-Aminoglutaric acid	31.214	0.19	ND	0	ND	0	31.34	0.8	31.32	0.1
40	3-Hydroxy-2,3-dihydromaltol	ND	0	19.96	0.17	ND	0	ND	0	ND	0
41	3-Hydroxybenzoic acid	ND	0	ND	0	ND	0	ND	0	39.12	0.11
42	3-Hydroxyvaleric	ND	0	ND	0	ND	0	ND	0	51.21	0.2
43	3-Methylcrotonoylglycine	ND	0	ND	0	ND	0	4.984	0.49	ND	0
44	4-Coumaric acid	27.633	0.3	27.446	0.61	27.445	0.63	27.449	0.41	27.445	0.55
45	4-Hydroxybenzoic acid	ND	0	ND	0	39.271	0.13	39.278	0.16	ND	0
46	4-Hydroxybutyric acid	ND	0	51.22	0.6	ND	0	ND	0	ND	0

47	5,5-Diethylpentadecane	ND	0	ND	0	35.75	0.1	ND	0	ND	0
48	5-Bromo-1H-pyrrole-2-carboxylic acid	ND	0	ND	0	22.985	0.86	22.992	0.53	23.5	0.25
49	5-Oxoproline	ND	0	ND	0	18.321	0.31	ND	0	18.342	0.34
50	6,9-Octadecadienoic acid, methyl ester	ND	0	ND	0	37.152	0.6	ND	0	37.155	0.6
51	7,9-Di-tert-butyl-1-oxaspiro(4,5)deca-6,9-diene-2,8-dione	27.13	0.12	26.813	0.25	26.815	0.12	26.821	0.12	26.818	0.12
52	7-Hydroxooctanoic acid	ND	0	ND	0	4.993	0.15	ND	0	41.7	0.9
53	9(E),11(E)-Conjugated linoleic acid, trimethyl	ND	0	34.474	0.6	34.474	0.18	34.479	0.23	34.478	0.32
54	9,12,15-Octadecatrienoic acid, 2,3-dihydroxypropyl ester	38.45	0.14	ND	0	ND	0	ND	0	ND	0
55	9,12-Octadecadienoic acid (Z,Z)-	32.685	2.8	32.486	1.69	32.488	2.73	32.495	3.18	32.492	2.31
56	9,12-Octadecadienoic acid, propyl ester	ND	0	ND	0	ND	0	37.158	0.8	ND	0
57	9,19-Cyclolanostan-3-ol, 24-methylene-, (3.beta)	ND	0	ND	0	53.521	0.5	ND	0	ND	0
58	9-Octadecenitrile, (Z)	38.891	0.19	38.652	0.13	38.657	0.19	38.664	0.16	38.658	0.21
59	9-Octadecenoic acid (Z)-, 2,3-dihydroxypropyl ester	ND	0	ND	0	37.289	0.9	37.292	0.12	37.29	0.11
60	9-Octadecenoic acid (Z)-, oxiranylmethyl ester	38.526	0.17	38.286	0.25	38.287	0.48	38.294	0.73	38.294	0.73
61	Alanine	7.867	0.14	ND	0	ND	0	ND	0	ND	0
62	Allose-meto	ND	0	26.94	0.77	26.941	0.22	ND	0	26.946	0.15
63	Arabino-hexaric acid, 3-deoxy-2,4,5-tris	3.795	0.7	ND	0	ND	0	ND	0	3.62	0.1
64	Arachidic acid	ND	0	37.64	0.1	37.619	0.18	37.612	0.33	37.625	0.26
65	Asparagine	ND	0	ND	0	ND	0	ND	0	21.832	0.4
66	Asterbatanoside	ND	0	ND	0	ND	0	ND	0	51.17	0.11
67	Beta.-D-Lactose, (isomer 1)	45.468	1.21	45.291	0.39	43.35	1.4	45.297	0.95	45.297	1.1
68	Beta.-Lactose	43.486	0.8	44.42	0.23	ND	0	ND	0	ND	0
69	Beta.-Sitosterol	51.699	0.55	ND	0	ND	0	ND	0	ND	0
70	Bicyclo [10.1.0] tridec-1-ene	ND	0	38.165	0.14	ND	0	ND	0	ND	0
71	Butylated Hydroxytoluene	18.226	0.24	ND	0	ND	0	ND	0	ND	0

72	Campesterol	5.473	0.9	5.283	0.15	5.292	0.1	5.292	0.6	5.298	0.17
73	Chiro-Inositol	ND	0	ND	0	28.55	0.23	ND	0	28.53	0.26
74	Citric acid	25.22	0.8	ND	0	25.19	0.63	25.22	0.34	25.22	0.25
75	D-(-)-Ribofuranose, tetrakis (trimethylsilyl) ether	ND	0	41.943	0.52	ND	0	ND	0	ND	0
76	D-(-)-Tagatofuranose, pentakis(trimethylsilyl)	ND	0	23.826	0.56	ND	0	ND	0	ND	0
77	D-(+)-Galactopyranose	ND	0	ND	0	25.82	0.7	ND	0	ND	0
78	D-Allofuranose, pentakis (trimethylsilyl) ether	ND	0	27.867	0.38	ND	0	ND	0	ND	0
79	Decanedioic acid, bis(2,2,6,6-tetramethyl-4-piperidinyl) ester	48.597	0.97	ND	0	ND	0	ND	0	ND	0
80	D-Fructose, 6-O-[2,3,4,6-tetrakis-O-(trimethylsilyl)-.alpha.-D-glucopyranosyl]	ND	0	53.68	0.15	ND	0	ND	0	ND	0
81	D-Galactonic acid	28.67	0.12	28.486	0.17	ND	0	ND	0	ND	0
82	D-Glucose, 4-O-[.beta.-D-glucopyranosyl]	ND	0	ND	0	ND	0	ND	0	47.69	0.16
83	D-Glucurono-.gamma.-lactone	ND	0	ND	0	ND	0	22.413	0.18	ND	0
84	Diethylene glycol	11.527	0.93	ND	0	ND	0	ND	0	ND	0
85	Dimethyl hexopyranosiduronate, .alpha.-D	ND	0	41.787	0.68	ND	0	ND	0	ND	0
86	D-Lactitol, nonakis(trimethylsilyl) ether	45.311	0.7	ND	0	45.155	0.5	45.152	0.8	ND	0
87	D-Lactose, (isomer 1)	ND	0	ND	0	ND	0	43.38	0.77	43.37	0.62
88	DL-Pyroglutamic acid	18.55	0.67	18.33	0.45	ND	0	18.331	0.55	ND	0
89	Dodecanedioic acid	ND	0	ND	0	ND	0	38.858	0.8	ND	0
90	Dodecanoic acid	21.654	0.16	21.46	0.46	ND	0	ND	0	ND	0
91	D-Pinitol, pentakis(trimethylsilyl) ether	25.385	1.26	25.2	0.57	25.199	0.6	25.23	0.66	25.24	1.76
92	D-Psicofuranose, pentakis(trimethylsilyl) ether	ND	0	ND	0	42.225	0.5	ND	0	ND	0
93	Eicosane	ND	0	ND	0	ND	0	22.545	0.7	ND	0
94	Elaidic acid	ND	0	32.613	5.99	32.618	3.85	32.623	7.11	32.622	6.2
95	Ethylhydracrylic acid	ND	0	ND	0	29.385	0.18	29.387	0.17	29.381	0.16
96	Fructose	ND	0	24.917	1.46	ND	0	ND	0	ND	0

97	Galactinol	46.2	1.85	46.753	0.75	46.29	0.23	46.31	1.52	46.32	1.37
98	Galactose	ND	0	25.814	0.39	48.838	0.23	48.838	0.29	ND	0
99	Galacturonic acid	ND	0	ND	0	36.193	0.3	ND	0	ND	0
100	Gamma.-Tocopherol	47.119	0.7	46.948	0.16	46.948	0.16	46.949	0.25	46.958	0.18
101	Gluconic acid	ND	0	ND	0	28.535	0.49	ND	0	ND	0
102	Glucose	ND	0	26.578	3.56	ND	0	ND	0	ND	0
103	Glucuronic acid	ND	0	ND	0	ND	0	36.24	0.5	36.191	0.1
104	Glucuronic acid lactone	ND	0	ND	0	ND	0	ND	0	22.418	0.5
105	Glutamic acid	ND	0	2.736	0.31	2.723	0.26	2.73	0.74	2.733	0.48
106	Glycerol	12.334	0.72	12.191	12.48	12.185	13.46	12.185	6.26	12.26	11.8
107	Glycerol 3-phosphate	ND	0	ND	0	23.837	0.17	23.845	0.14	ND	0
108	Glycidol stearate	ND	0	ND	0	ND	0	ND	0	38.854	0.11
109	Glycidyl palmitate	ND	0	ND	0	34.29	0.6	34.295	0.6	34.293	0.14
110	Glycine	13.11	0.6	ND	0	12.927	0.6	12.938	0.14	12.937	0.8
111	Hexaethylene glycol	29.198	0.4	ND	0	ND	0	ND	0	ND	0
112	Hexonic acid	ND	0	22.383	3.8	22.49	0.69	24.455	0.2	24.467	0.7
113	Homoserine, 4-imino-N,O-bis(trimethylsilyl)	22.9	0.8	ND	0	ND	0	ND	0	ND	0
114	Hydroxylamine, 3TMS derivative	8.148	0.9	ND	0	ND	0	ND	0	ND	0
115	Inositol	3.428	0.32	3.241	0.14	3.241	0.36	3.247	0.49	3.243	0.76
116	Inositol phosphate	ND	0	ND	0	36.861	0.16	36.872	0.15	36.861	0.2
117	Isofucosterol	51.928	0.32	51.725	0.16	51.726	0.32	51.727	0.27	51.73	0.12
118	Isomaltose-meto	ND	0	43.57	0.38	ND	0	54.515	0.5	ND	0
119	Lactic Acid	6.823	0.28	6.691	0.24	6.72	0.58	6.7	0.55	6.697	0.68
120	Lactose	ND	0	ND	0	ND	0	ND	0	48.837	0.25
121	L-Alanine	ND	0	ND	0	7.727	0.12	7.721	0.8	7.726	0.8
122	L-Aspartic acid	ND	0	ND	0	ND	0	16.6	0.5	ND	0
123	Lauric acid	ND	0	ND	0	21.462	0.1	21.469	0.24	21.467	0.9

124	L-Glutamic acid	2.93	1.21	ND	0	ND	0	ND	0	ND	0
125	L-Glutamic acid, bis(trimethylsilyl) ester	18.838	0.11	ND	0	18.67	0.1	18.669	0.13	18.64	0.5
126	Lignoceric acid	44.899	0.1	ND	0	ND	0	44.726	0.1	44.72	0.16
127	Linoleic acid	ND	0	33.55	0.19	ND	0	ND	0	33.71	0.24
128	Linoleyl acetate	ND	0	ND	0	38.166	0.29	38.174	0.33	38.171	0.26
129	l-Norvaline, n-butoxycarbonyl-, butyl ester	16.561	1.84	ND	0	ND	0	ND	0	16.39	2.66
130	L-Serine	ND	0	ND	0	ND	0	11.71	0.5	ND	0
131	Malic acid	17.795	0.29	17.617	0.48	17.68	0.3	17.621	0.13	17.62	0.16
132	Malonic acid	ND	0	ND	0	ND	0	ND	0	1.314	0.3
133	Maltitol	45.723	0.6	44.8	0.11	ND	0	ND	0	ND	0
134	Maltose	ND	0	ND	0	43.6	0.5	43.5	0.4	45.5	0.5
135	Mandelic acid	ND	0	ND	0	34.941	0.6	34.949	0.6	34.947	0.14
136	Mannitol	27.384	0.11	ND	0	27.318	0.45	ND	0	ND	0
137	Mannose-meto	26.755	0.29	ND	0	26.571	0.83	26.576	0.32	26.572	0.27
138	meso-Erythritol	ND	0	18.1	0.27	51.195	0.13	51.196	0.15	ND	0
139	Methyl 10-trans,12-cis-octadecadienoate	ND	0	ND	0	3.394	0.4	ND	0	ND	0
140	Methyl cis-10-pentadecenoate	ND	0	ND	0	33.315	0.6	33.325	0.7	33.32	0.29
141	Methyl linoleate	3.595	0.17	ND	0	ND	0	ND	0	ND	0
142	Methyl oleate	3.724	0.26	ND	0	3.533	0.8	3.537	0.4	3.531	0.5
143	Monostearin	ND	0	43.828	3.2	43.843	7.57	43.841	6.5	43.844	6.1
144	Myristic acid	25.858	0.23	25.662	0.36	25.666	0.19	25.673	0.21	25.669	0.18
145	N-Acetyl-D-mannosamine, 5TMS	ND	0	ND	0	ND	0	24.28	0.13	ND	0
146	Neposide	ND	0	4.694	0.2	ND	0	ND	0	ND	0
147	Niacin	ND	0	ND	0	ND	0	12.674	0.6	ND	0
148	Oleic acid	32.96	0.26	ND	0	ND	0	ND	0	ND	0
149	Ornithine	ND	0	ND	0	31.27	0.1	ND	0	ND	0
150	Oxalic acid	ND	0	8.675	0.22	ND	0	8.673	0.37	ND	0

151	Palmitic acid	29.79	5.11	29.527	3.3	29.531	3.28	29.535	5.9	29.536	4.76
152	Pentanedioic acid, 2,4-bis [(trimethylsilyl)oxy]	ND	0	24.39	1.71	23.255	0.9	ND	0	ND	0
153	Pentasiloxane, dodecamethyl-	9.528	0.15	ND	0	ND	0	ND	0	ND	0
154	Petroselinic acid	32.818	4.11	ND	0	ND	0	ND	0	ND	0
155	Phenol	52.72	0.34	52.494	0.93	52.499	1.3	52.52	0.47	52.57	0.85
156	Phosphoric acid	24.16	0.8	ND	0	ND	0	ND	0	23.841	0.13
157	Proline	12.883	0.4	ND	0	ND	0	ND	0	12.79	0.9
158	Psicose-meto	26.266	0.14	26.88	2.47	26.83	0.41	ND	0	26.83	0.15
159	Pyridoxine	ND	0	ND	0	ND	0	ND	0	4.288	0.4
160	Pyrogallol	ND	0	18.737	1.13	2.21	0.15	ND	0	ND	0
161	Ribonic acid	ND	0	28.676	0.38	28.677	0.67	28.683	0.71	28.678	0.73
162	Ribose	ND	0	2.9	0.34	42.413	0.7	27.195	0.18	27.192	0.16
163	Ribulose	37.865	0.22	ND	0	ND	0	ND	0	ND	0
164	Rosiridin	ND	0	41.99	0.6	ND	0	41.115	0.6	ND	0
165	Sedoheptulose anhydride, tetrakis (trimethylsilyl) ether	ND	0	4.17	0.24	ND	0	ND	0	ND	0
166	Serine	ND	0	ND	0	ND	0	14.398	0.4	ND	0
167	Sorbitol	27.59	0.19	27.26	0.38	ND	0	27.333	0.79	27.324	0.39
168	Squalene	ND	0	44.31	0.16	44.318	0.14	44.319	0.4	44.317	0.13
169	Stearic acid	33.367	1.44	33.147	1.57	33.15	2.5	33.156	2.2	33.159	2.62
170	Stigmast-5-ene, 3.beta.-(trimethylsiloxy)	ND	0	51.491	0.41	51.496	1.7	51.496	0.6	51.51	0.5
171	Stigmasterol	5.815	0.12	ND	0	5.636	0.13	5.634	0.16	5.638	0.14
172	Suberic acid	ND	0	ND	0	ND	0	ND	0	4.15	0.2
173	Succinic acid	13.375	0.13	ND	0	13.199	0.7	13.29	0.6	13.26	0.3
174	Sucrose	41.578	52.52	41.376	24.8	41.391	15.24	41.396	28.9	41.429	26.95
175	Tagatose-meto	26.467	0.1	26.292	2.12	26.287	0.36	26.294	0.17	26.292	0.13
176	Tartaric acid	21.293	0.9	21.13	0.27	ND	0	ND	0	ND	0

177	Taurine	ND	0	ND	0	ND	0	ND	0	34.4	0.2
178	Tetracosamethyl-cyclododecasiloxane	ND	0	44.95	0.16	48.685	0.11	ND	0	48.66	0.8
179	Tetrapentacontane	ND	0	ND	0	3.95	0.6	ND	0	ND	0
180	Threonic acid	ND	0	ND	0	ND	0	19.341	0.5	ND	0
181	Trehalose	ND	0	4.83	0.14	53.693	0.9	ND	0	53.687	0.1
182	Triethylene glycol	18.129	0.11	ND	0	ND	0	ND	0	ND	0
183	Trisaminol	15.828	0.1	ND	0	ND	0	ND	0	ND	0
184	Trisiloxane, octamethyl-	13.567	0.1	13.394	0.1	13.384	0.3	13.394	0.27	13.392	0.22
185	Urea	ND	0	ND	0	11.43	0.8	11.419	0.12	11.424	0.1
186	Ureidosuccinic acid	ND	0	ND	0	29.194	0.5	29.196	0.4	25.554	0.4
187	Uridine	ND	0	38.498	0.24	38.455	0.18	ND	0	ND	0
188	Urocanic acid	ND	0	ND	0	39.113	0.1	39.444	0.12	39.274	0.12
189	Valine	ND	0	ND	0	ND	0	ND	0	1.6	0.4

M₁- Pods stored in gunny bag; M₂- kernels stored in gunny bag; M₃- kernels stored under nitrogen; M₄- kernels stored under vacuum; R Time- Retention time; ND- Not detected.