

Supplementary Table S7. Detected	
Analyte	
	NIST® SRM® 1575a pine needle
Creatinine	*ND
Glycine	0.409 ± 0.00150
Alanine	0.569 ± 0.0165
Serine	0.885 ± 0.00900
Histamine	ND
Proline	0.591 ± 0.00301
Valine	0.224 ± 0.00345
Threonine	0.426 ± 0.00300
Phenylethylamine	0.00288 ± 0.000675
Taurine	ND
Putrescine	0.191 ± 0.00330
trans-Hydroxyproline	0.0132 ± 0.000449
Leucine	0.258 ± 0.00645
Isoleucine	0.0353 ± 0.000751
Asparagine	0.259 ± 0.0123
Aspartic acid	2.34 ± 0.0375
Glutamine	8.71 ± 0.0300
Glutamic acid	4.08 ± 0.0601
Methionine	0.0347 ± 0.000149
Dopamine	0.0624 ± 0.00181
Histidine	0.365 ± 0.00749
Phenylalanine	0.148 ± 0.000298
Arginine	52.1 ± 0.751
Citrulline	ND
Serotonin	ND
Tyrosine	0.0426 ± 0.000897
DOPA	ND
Asymmetric dimethylarginine	0.0128 ± 0.000135
Total dimethylarginine	0.0204 ± 0.000165
Tryptophan	0.0866 ± 0.000748
Kynurenine	ND
Carnosine	ND
Nitro-Tyrosine	ND
Ornithine	5.36 ± 0.225
Lysine	4.28 ± 0.105
Spermidine	0.0375 ± 0.000896
Spermine	0.0159 ± 0.000751

Sarcosine	ND
Diacetylspermine	ND
Tyramine	0.00462 ± 0.000314
Creatine	ND
Betaine	0.0407 ± 0.000449
Choline	3.36 ± 0.0304
Trimethylamine N-oxide	ND
Methylhistidine	ND
Proline-Betaine	0.0684 ± 0.00912
Zeatin	ND
Homoserine	ND
Shikimic acid	2.14 ± 0.0149
Glyceric acid	2.01 ± 0.0592
beta-Hydroxybutyric acid	0.0362 ± 0.00105
Lactic acid	ND
HPHPA	ND
Propionic acid	0.429 ± 0.0187
5-Hydroxyindoleacetic acid	ND
para-Hydroxyphenylacetic acid	0.00123 ± 0.000225
Malic acid	5.93 ± 0.0151
Butyric acid	0.134 ± 0.00421
Hippuric acid	ND
Succinic acid	0.416 ± 0.00152
Glutaric acid	0.241 ± 0.00405
Methylmalonic acid	ND
Fumaric acid	0.122 ± 0.000146
Valeric acid	0.0392 ± 0.000746
Benzoic acid	ND
Oxalic acid	18.5 ± 0.135
Indole acetic acid	ND
Oxaloacetic acid	ND
Salicylic acid	ND
Citric acid	12.5 ± 0.0147
Absciscic acid	ND
Aconitic acid	0.0231 ± 0.000585
Jasmonic acid	ND
Pyruvic acid	ND
alpha-Ketoglutaric acid	0.0572 ± 0.000303
Hexose	319 ± 10.1
C0	0.0434 ± 0.000538
C2	ND
C3:1	ND
C3	ND

C4:1	ND
C4	ND
C3OH	ND
C5:1	ND
C5	ND
C4OH	ND
C6:1	ND
C6	ND
C5OH	ND
C5:1DC	ND
C5DC	ND
C8	ND
C5MDC	ND
C9	ND
C7DC	ND
C10:2	ND
C10:1	ND
C10	ND
C12:1	ND
C12	ND
C14:2	ND
C14:1	ND
C14	ND
C12DC	ND
C14:2OH	ND
C14:1OH	ND
C16:2	ND
C16:1	ND
C16	ND
C16:2OH	ND
C16:1OH	ND
C16OH	ND
C18:2	ND
C18:1	ND
C18	ND
C18:1OH	ND
LysoPC a C14:0	0.00674 ± 0.000109
LysoPC a C16:1	ND
LysoPC a C16:0	0.0313 ± 0.000137
LysoPC a C17:0	ND
LysoPC a C18:2	0.0354 ± 0.000121
LysoPC a C18:1	0.0235 ± 0.000337
LysoPC a C18:0	0.00319 ± 0.000144

LysoPC a C20:4	0.00351 ± 0.000152
LysoPC a C20:3	0.0302 ± 0.000228
LysoPC a C24:0	ND
LysoPC a C26:1	ND
LysoPC a C26:0	0.00325 ± 0.000301
LysoPC a C28:1	0.00608 ± 0.000109
LysoPC a C28:0	0.00648 ± 0.000208
PC aa C24:0	0.000686 ± 0.0000191
PC aa C26:0	0.00789 ± 0.00134
PC aa C28:1	0.000827 ± 0.000124
PC ae C30:2	ND
PC ae C30:1	ND
PC ae C30:0	0.00276 ± 0.000876
PC aa C30:2	0.000617 ± 0.000105
PC aa C30:0	0.00171 ± 0.000648
PC ae C32:2	0.000281 ± 0.000111
PC ae C32:1	ND
PC aa C32:3	0.000701 ± 0.000263
PC aa C32:2	ND
PC aa C32:1	ND
PC aa C32:0	ND
PC ae C34:3	ND
PC ae C34:2	ND
PC ae C34:1	ND
PC ae C34:0	ND
PC aa C34:4	0.00538 ± 0.000978
PC aa C34:3	0.0464 ± 0.00394
PC aa C34:2	0.101 ± 0.0652
PC aa C34:1	0.0669 ± 0.00189
PC ae C36:5	ND
PC ae C36:4	ND
PC ae C36:3	0.00376 ± 0.00153
PC ae C36:2	0.00874 ± 0.00416
PC ae C36:1	0.00839 ± 0.00119
PC ae C36:0	0.00499 ± 0.0000128
PC aa C36:6	0.0137 ± 0.0003397
PC aa C36:5	0.0246 ± 0.00861
PC aa C36:4	0.0643 ± 0.00977
PC aa C36:3	0.0949 ± 0.0134
PC aa C36:2	0.0585 ± 0.00989
PC aa C36:1	0.0113 ± 0.00888
PC aa C36:0	0.00348 ± 0.000157
PC ae C38:6	0.00154 ± 0.00104

PC ae C38:5	0.00104 ± 0.000593
PC ae C38:4	0.00238 ± 0.000999
PC ae C38:3	0.00509 ± 0.00167
PC ae C38:2	0.00434 ± 0.00118
PC ae C38:1	0.00216 ± 0.000784
PC ae C38:0	ND
PC aa C38:6	0.0160 ± 0.000146
PC aa C38:5	0.0173 ± 0.00698
PC aa C38:4	0.0187 ± 0.00886
PC aa C38:3	0.00811 ± 0.00159
PC aa C38:1	0.00173 ± 0.000666
PC aa C38:0	ND
PC ae C40:6	ND
PC ae C40:5	ND
PC ae C40:4	ND
PC ae C40:3	ND
PC ae C40:2	ND
PC ae C40:1	ND
PC aa C40:6	ND
PC aa C40:5	ND
PC aa C40:4	ND
PC aa C40:3	ND
PC aa C40:2	ND
PC aa C40:1	ND
PC ae C42:5	ND
PC ae C42:4	ND
PC ae C42:3	ND
PC ae C42:2	ND
PC ae C42:1	ND
PC ae C42:0	ND
PC aa C42:6	ND
PC aa C42:5	ND
PC aa C42:4	ND
PC aa C42:2	ND
PC aa C42:1	ND
PC aa C42:0	ND
PC ae C44:6	ND
PC ae C44:5	ND
PC ae C44:4	ND
PC ae C44:3	ND

*ND: Not Detected

and Quantified Plant Metabolite Concentrations in Different Samples

Concentrations (μmol per gram)	
Canola Root Samples	Commercial Cannabis Strains
ND	ND
0.942 ± 0.787	1.44 ± 0.579
4.56 ± 2.82	4.27 ± 0.867
4.79 ± 5.34	4.59 ± 1.07
0.00636 ± 0.0229	0.00413 ± 0.00246
22.9 ± 33.4	8.91 ± 7.81
1.67 ± 1.29	2.99 ± 1.23
2.97 ± 2.75	1.77 ± 0.457
0.0216 ± 0.0191	0.00177 ± 0.00202
0.00906 ± 0.00469	0.0201 ± 0.0126
0.101 ± 0.0897	0.0126 ± 0.00368
0.0312 ± 0.0327	0.0256 ± 0.00583
1.14 ± 0.897	1.37 ± 0.606
0.745 ± 0.678	1.97 ± 1.19
3.04 ± 4.02	156 ± 69.8
2.79 ± 4.58	7.79 ± 3.60
14.6 ± 12.9	22.3 ± 12.7
8.31 ± 6.05	2.60 ± 1.10
0.143 ± 0.201	0.0703 ± 0.0171
ND	ND
0.371 ± 0.343	4.05 ± 1.81
0.478 ± 0.484	1.21 ± 0.651
0.491 ± 0.411	30.1 ± 8.90
0.122 ± 0.158	0.291 ± 0.114
0.0374 ± 0.0846	0.0958 ± 0.0291
0.276 ± 0.187	0.384 ± 0.113
ND	ND
0.0256 ± 0.0274	0.0159 ± 0.0109
0.0377 ± 0.0370	0.0351 ± 0.00907
0.188 ± 0.225	1.85 ± 1.22
0.00167 ± 0.000986	0.00407 ± 0.00290
ND	ND
ND	ND
0.0743 ± 0.0792	0.250 ± 0.245
0.569 ± 0.562	1.62 ± 0.761
0.0331 ± 0.0402	0.0216 ± 0.0189
0.00332 ± 0.00478	0.00390 ± 0.00237

ND	ND
ND	ND
0.721 ± 1.14	0.0996 ± 0.0980
ND	0.0210 ± 0.00764
0.651 ± 0.458	0.0992 ± 0.0342
3.60 ± 2.44	10.33 ± 1.89
ND	0.0407 ± 0.00452
0.0172 ± 0.0125	0.0263 ± 0.0105
0.417 ± 0.0830	0.133 ± 0.108
0.198 ± 0.0712	0.0958 ± 0.0294
0.0116 ± 0.00525	ND
0.609 ± 1.03	0.009001 ± 0.00217
0.627 ± 0.741	1.92 ± 0.817
0.115 ± 0.381	0.0690 ± 0.0187
4.45 ± 7.09	0.273 ± 0.159
ND	0.000733 ± 0.0000194
0.0979 ± 0.0272	0.207 ± 0.106
ND	ND
0.00516 ± 0.00232	0.0126 ± 0.00397
18.2 ± 19.4	3.98 ± 1.97
0.0568 ± 0.0290	0.222 ± 0.123
0.00633 ± 0.00429	0.00741 ± 0.00526
0.685 ± 0.732	0.324 ± 0.103
0.0440 ± 0.0262	0.324 ± 0.178
0.00341 ± 0.00463	0.00230 ± 0.000524
0.340 ± 0.330	0.217 ± 0.214
0.0157 ± 0.00606	ND
0.0194 ± 0.0189	0.497 ± 0.228
1.86 ± 1.66	3.18 ± 6.28
0.0168 ± 0.00785	ND
ND	0.120 ± 0.0399
ND	0.117 ± 0.0517
12.5 ± 12.0	30.3 ± 16.8
ND	0.00583 ± 0.00378
0.195 ± 0.190	3.10 ± 2.34
ND	0.0683 ± 0.0349
0.674 ± 1.40	0.0290 ± 0.00598
1.71 ± 2.54	0.0127 ± 0.00750
62.7 ± 52.9	45.9 ± 47.8
0.0104 ± 0.00495	0.0276 ± 0.00934
ND	ND
ND	ND
ND	ND

ND	ND
ND	ND
ND	ND
ND	ND
ND	ND
ND	ND
ND	ND
ND	ND
ND	ND
ND	ND
ND	ND
ND	ND
ND	ND
ND	ND
ND	ND
ND	ND
ND	ND
0.00671 ± 0.00184	ND
0.00804 ± 0.00292	ND
0.00911 ± 0.00369	ND
ND	ND
0.00863 ± 0.00111	ND
ND	ND
ND	ND
0.00547 ± 0.00102	ND
ND	ND
ND	ND
ND	ND
ND	ND
ND	ND
ND	ND
ND	ND
ND	ND
ND	ND
ND	ND
ND	ND
ND	ND
0.00264 ± 0.000374	ND
ND	ND
0.00361 ± 0.00351	0.0123 ± 0.00371
ND	ND
0.00444 ± 0.00408	0.0146 ± 0.00735
0.000978 ± 0.000768	0.00334 ± 0.000997
ND	0.0152 ± 0.00453

ND	ND
ND	ND
ND	ND
ND	ND
ND	ND
ND	ND
ND	ND
ND	ND
ND	ND
ND	ND
ND	ND
ND	ND
ND	ND
ND	ND
ND	ND
ND	ND
0.00115 ± 0.00154	ND
ND	ND
0.00202 ± 0.00200	ND
ND	ND
0.00250 ± 0.00197	ND
ND	ND
0.00392 ± 0.00341	ND
0.00496 ± 0.00431	ND
0.00176 ± 0.00122	ND
ND	ND
0.00289 ± 0.00223	ND
0.178 ± 0.191	ND
0.305 ± 0.302	ND
0.0524 ± 0.0494	ND
ND	ND
0.00221 ± 0.00166	ND
0.00454 ± 0.00367	ND
0.00517 ± 0.00370	ND
0.00185 ± 0.00109	ND
ND	0.00173 ± 0.000912
0.0655 ± 0.0792	0.00191 ± 0.000340
0.188 ± 0.203	ND
0.251 ± 0.266	0.0211 ± 0.00982
0.0677 ± 0.0618	0.0388 ± 0.0121
0.0290 ± 0.0205	0.0268 ± 0.00854
0.00463 ± 0.00336	ND
0.00106 ± 0.000738	ND
0.00139 ± 0.00108	ND

[illegible]

Spruce & Pine Needles	
ND	
1.20 ± 0.949	
0.817 ± 0.304	
1.98 ± 0.753	
0.00314 ± 0.000846	
28.1 ± 19.4	
0.420 ± 0.0883	
0.800 ± 0.191	
0.00401 ± 0.00149	
ND	
1.48 ± 0.428	
0.0322 ± 0.0449	
0.560 ± 0.199	
0.351 ± 0.241	
1.58 ± 1.50	
6.64 ± 3.78	
13.4 ± 7.48	
12.8 ± 4.58	
0.115 ± 0.0725	
0.0219 ± 0.00167	
1.02 ± 0.798	
0.590 ± 0.202	
65.0 ± 45.1	
0.0122 ± 0.00121	
0.0256 ± 0.00987	
0.225 ± 0.124	
ND	
0.0134 ± 0.00656	
0.0229 ± 0.00135	
0.992 ± 0.873	
ND	
ND	
ND	
11.3 ± 10.7	
18.6 ± 18.1	
0.0277 ± 0.00789	
0.00629 ± 0.0000964	

0.0389 ± 0.00452
ND
0.00576 ± 0.000684
0.00591 ± 0.00294
0.0633 ± 0.0446
4.55 ± 2.88
ND
0.0206 ± 0.00961
0.0346 ± 0.0123
0.0108 ± 0.00294
0.0382 ± 0.00516
57.1 ± 21.1
0.713 ± 0.284
0.0801 ± 0.0308
0.277 ± 0.189
ND
0.0962 ± 0.0351
ND
ND
10.2 ± 4.43
0.0599 ± 0.0271
0.0108 ± 0.00785
0.348 ± 0.262
0.00597 ± 0.00478
ND
0.0371 ± 0.0226
0.0298 ± 0.0109
0.0659 ± 0.0370
24.0 ± 15.4
ND
ND
0.0763 ± 0.0521
3.79 ± 2.93
ND
0.0150 ± 0.0131
ND
ND
0.255 ± 0.232
379 ± 101
0.0228 ± 0.0322
ND
ND
ND

ND
ND
ND
ND
ND
ND
ND
ND
ND
ND
ND
ND
ND
ND
ND
ND
ND
ND
ND
ND
ND
ND
ND
ND
ND
ND
ND
ND
ND
ND
ND
ND
ND
ND
ND
ND
0.00448 ± 0.00160
ND
0.0471 ± 0.0273
0.00257 ± 0.00209
0.0308 ± 0.0240
0.0175 ± 0.0163
0.00541 ± 0.00305

ND
ND
ND
ND
ND
ND
ND
ND
ND
ND
ND
ND
ND
ND
ND
ND
ND
ND
ND
ND
ND
ND
ND
ND
ND
ND
0.00319 ± 0.00174
0.00373 ± 0.00201
0.00203 ± 0.00172
0.0112 ± 0.00979
0.173 ± 0.0963
0.296 ± 0.139
0.145 ± 0.0681
ND
0.00238 ± 0.00175
0.0136 ± 0.00866
0.0280 ± 0.0207
0.0198 ± 0.0164
ND
0.0255 ± 0.0160
0.0849 ± 0.0457
0.170 ± 0.0826
0.269 ± 0.132
0.102 ± 0.0466
0.0274 ± 0.0120
0.00837 ± 0.00516
0.00276 ± 0.00245

[illegible]