

Supplemental Table1 Amount of Volatile Compounds of Each Coffee Bean

#	RI	Compounds	SPP.	Brazil-1	Brazil-2	Brazil-3	Brazil-4	India-1	India-2	India-3	India-4	Indonesia -1	Indonesia -2	Indonesia -3	Indonesia -4	Uganda -1	Uganda -2	Uganda -3	Uganda -4	Vietnam -1	Vietnam -2	Vietnam -3	Vietnam -4
1	415	Acetaldehyd e	A	29721	29891	38355	27250	31816	39797	40573	35177	41997	47358	38287	32955	26635	36117	37939	27156	34320	38938	31612	29168
			R	22181	30375	25057	18719	19644	30390	25666	28175	22531	24015	24211	25672	18624	19724	28720	27311	15809	20549	21243	19601
2	431	Methanol	A	4198	5365	7879	6727	4315	6724	6756	5986	4719	7468	7956	7565	2607	6871	8621	6653	5908	9574	8244	6204
			R	3691	6600	4990	3681	2316	4218	3737	4000	3492	3171	4523	5139	2661	2970	5291	5221	1455	2488	2793	2758
3	443	Ethanol	A	2334	2736	3676	4764	7362	8563	8339	7569	6201	6291	6387	6313	3728	4732	5535	6287	8213	7268	6973	13413
			R	1245	1825	2803	4291	4728	6309	5619	5632	3717	3906	3646	4627	2998	3081	4072	5827	1608	2077	2635	7157
4	469	Propionaldeh yde	A	115065	145707	233224	253782	122698	191618	219627	220392	124280	179861	221765	267818	88229	163150	220266	220568	115103	205799	240006	272646
			R	104163	190166	209679	177602	91094	154533	144433	171159	89124	113823	175417	206778	70983	85102	174775	198944	72956	108481	119747	155253
5	503	Ethyl formate	A	10052	13882	27126	40481	11708	19271	23744	27588	11443	16638	26518	46476	7531	18914	28593	41328	11346	24827	39102	56843
			R	10601	25574	34926	33716	9396	16909	18060	22775	11612	12143	30417	35543	8320	11171	27572	42086	7086	12483	14558	22762
6	540	2-methyl propanal	A	40144	44150	59147	53644	48331	64105	55542	46702	72101	83851	75983	74308	29555	58267	62815	53191	49732	65365	63036	60628
			R	42135	49873	27836	28417	26717	41176	38603	37002	35781	33923	46363	44607	29954	28752	57878	50394	26175	32402	31156	33018
7	582	N-butyraldeh yde	A	50831	54602	65947	59378	60620	71682	68409	60597	69697	80559	73736	71477	50294	76876	81418	73979	67562	80719	78380	80805
			R	35756	47566	42699	41870	31461	42821	40422	40507	36475	45441	47688	49286	30220	32810	49925	49272	26845	33994	33948	36476
8	601	2-butanone	A	36036	41848	54909	59917	38361	51961	53372	50559	35750	45964	54295	62748	28099	46565	55954	57740	34362	49200	57877	62883
			R	35987	51058	51948	50848	32955	43953	43190	44842	31690	35683	47452	49428	30383	32998	49705	53640	30934	37524	38692	48361
9	606	2-methylfura n	A	71597	87356	127925	155515	74124	98202	102150	101171	80661	114393	147321	187083	60801	112563	147248	169978	77364	124583	166475	184079
			R	55564	76481	97687	86313	63472	88583	93597	96739	74660	104340	147207	103510	65778	66336	111662	115746	44577	45544	58700	48295
10	614	2-methyl-3-b uten-2-ol	A	122373	91439	71376	33892	N.D.	184990	157621	65864	N.D.	N.D.	159379	51886	N.D.	165739	130841	48085	124774	82461	48197	N.D.
			R	N.D.	N.D.	N.D.	N.D.	26288	42137	27574	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
11	627	Isobutanol	A	N.D.	5058	5885	6662	246359	N.D.	N.D.	5413	288854	223586	N.D.	7558	233694	N.D.	6556	6842	N.D.	6644	6632	7987
			R	2733	4151	4376	4696	3815	5254	4705	2945	3842	3073	6018	4923	2175	2367	4032	4676	2659	4072	4267	4678
12	643	Isopropyl acetate	A	1360	1408	1780	2135	N.D.	1620	1574	1400	N.D.	N.D.	1735	1850	774	1574	1893	1999	1279	1929	1751	2567
			R	683	1259	1488	1419	905	1337	1065	442	835	982	1406	1126	827	881	1395	1587	539	866	974	1194
13	651	3-Methylbuta nal	A	31604	35370	49939	48281	42039	64776	57380	48766	57358	68040	69069	72424	23075	54459	59836	63527	42191	56729	65603	67814
			R	34265	43635	26495	34176	21745	41548	43238	41101	23866	27886	38595	40380	22936	22553	48717	46161	19370	32510	33314	32405
14	661	2-ethylfuran	A	143922	133059	133537	111639	227606	193910	160028	122046	274807	228950	182918	157689	165187	192166	171807	139664	187035	178441	157467	142871
			R	90163	96337	70736	69902	77983	103793	94342	85499	86571	83359	92492	92991	78500	73815	116132	103808	66669	79463	84194	79345
15	670	Thiophene	A	N.D.	N.D.	N.D.	6046	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	7078	N.D.	N.D.	5847	8619
			R	N.D.	4515	4375	5417	N.D.	N.D.	4378	3402	3625	4441	5578	5431	3474	N.D.	5546	6589	N.D.	N.D.	N.D.	5171
16	687	2-pentanone	A	N.D.	N.D.	N.D.	5944	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	5832	N.D.	N.D.	N.D.	6024	N.D.	N.D.	4554	6166
			R	3247	4765	4680	5823	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	5086	4674	N.D.	N.D.	5003	5151	2870	4390	N.D.	4296
17	695	2,3-Pentaned ione	A	64932	67075	67178	46210	74718	89703	72315	50286	85847	103207	90683	61365	60527	104094	92755	64465	89131	101311	79061	62039
			R	33480	32314	22987	20153	26358	36029	32300	15406	29690	32944	25387	21596	27648	26228	33910	29559	14452	18496	23894	16950

18	710	3-pentanol	A	23517	27371	33360	32361	27473	38816	36328	28695	25270	33425	39329	37495	20896	40836	45559	43388	25582	40590	43424	44784
			R	13431	22093	20568	20002	14753	22840	20551	17117	16410	22831	22402	21057	14566	16225	26616	25205	9994	16859	18221	15890
19	726	Valeraldehyde	A	3583	3826	4619	4731	3273	3856	2927	2110	4152	5639	6226	5437	2967	5899	6185	5571	4267	6279	5466	6932
			R	2088	3619	2716	2998	1700	2652	1744	1023	2030	2392	3042	1813	2118	2247	3902	3935	602	1922	1932	1928
20	736	Pyrazine	A	20348	23262	30580	34642	20237	28711	29423	26430	20216	22834	28484	32118	13190	24472	26555	30192	15114	23998	27477	33897
			R	11210	21593	26063	23401	17771	28046	25994	26028	15770	17891	24849	30579	14556	16400	29635	32267	16883	27577	30198	35524
21	743	Isoamyl alcohol	A	6797	8545	12580	13373	6046	9633	9122	7671	4867	7168	10850	14168	4143	10780	13442	15664	6352	12451	15761	19798
			R	4874	7806	7189	8656	4471	6966	6999	6303	5107	6443	10797	10468	5233	6174	11485	N.D.	4437	7591	8028	N.D.
22	750	Pyridine	A	57983	87488	170495	252166	42468	115011	137459	154009	27144	52427	133758	243236	19611	93851	148342	256455	36192	112887	196961	329197
			R	22317	58158	97226	142232	39811	83819	102717	125372	35065	52671	136179	177313	44780	67512	165567	272156	40007	100672	133094	190164
23	758	2-methyl-1-butanol	A	12159	14331	20534	25580	9445	15245	16487	19189	6959	8566	13672	21061	6574	13140	16515	22982	9110	17149	20771	30528
			R	10609	17285	21301	22609	11560	16273	17062	17278	12255	14047	18664	24330	12024	14224	22581	28140	15976	23278	24804	31218
24	768	N-pentanol	A	12036	12662	12777	11802	17108	16634	13482	9500	18116	18850	17194	12609	13583	19636	18916	14581	14790	17040	13458	14313
			R	5115	7256	7430	7417	6843	9097	7494	3791	7193	9699	8437	7473	6993	7220	10239	9901	4845	6988	7478	7262
25	777	1-hexen-3-ol	A	N.D.	2426	3202	4443	3492	4013	3496	3599	3955	4332	4490	6135	2254	4215	4535	6485	2652	4334	4124	8857
			R	1115	2324	2523	4618	1822	2995	2403	902	1858	2376	3915	3288	1731	1877	3852	5789	1372	2840	3228	4090
26	784	2-hexanone	A	12235	10106	12493	13005	6743	9814	8518	6727	7288	9988	13642	12216	4955	10856	12649	12762	8277	12446	12349	14890
			R	5134	9687	8729	8157	3794	6591	5681	3355	4299	5265	6434	5928	5636	6491	10300	10408	2869	5898	6333	6141
27	793	N-hexanal	A	7481	6381	8184	9459	2617	3800	3602	4035	3378	4335	6939	7604	1548	4127	5678	7828	4718	7330	7086	12165
			R	2575	5572	6206	6522	1753	3789	3117	2350	2415	2648	4257	3891	3738	4417	7011	7859	1668	4411	4367	5427
28	802	2-hexanol	A	9516	10796	12029	12866	9627	13472	11308	8541	10981	14398	16440	13911	8526	17191	17348	15746	9691	14420	12648	15393
			R	5919	8443	6607	6314	5938	8319	6842	3134	7153	10103	7937	6366	7145	7138	10912	10193	5002	7585	7151	6793
29	808	Propyl Propionate	A	48365	52161	52621	43437	55446	72438	58651	41746	53746	72130	72903	56090	39005	74501	67103	55690	60699	77670	65570	51603
			R	27706	30912	19590	16199	21923	28518	25567	18108	22115	24917	17012	15929	25860	24249	31693	26687	15914	19603	20179	13972
30	815	Bread Ketone	A	1421	1754	2599	3809	1377	1808	1447	1396	1285	1757	2640	3210	N.D.	2290	2976	3783	1405	2927	2329	6041
			R	873	2373	2636	3907	959	1913	1304	668	1187	1525	2714	2278	1339	1581	3399	4634	616	1923	2122	2664
31	819	2-hydroxy-3-pentanone	A	1261	1399	1859	2924	1029	1158	824	838	712	922	1375	1627	660	1424	1720	2005	893	1736	1021	3013
			R	310	1527	1898	1877	1083	1851	1247	365	1034	988	1620	1555	1066	1262	2496	3019	837	2102	2400	2921
32	824	Ethyl Isovalerate	A	81132	92618	108314	111054	72758	95207	86703	65624	55042	57954	69928	74648	49463	79740	77262	73028	60114	85446	85540	84893
			R	55535	80648	75723	54520	78130	101275	98478	86816	63086	62596	73294	86317	63531	67545	100131	90590	78254	102382	109364	92027
33	834	Furan formaldehyde	A	89702	83513	63117	44114	119201	95330	69838	45153	151157	143914	90183	51854	134436	139121	99750	60645	138748	105894	66936	52597
			R	36721	36366	29696	26695	44217	43567	37451	29075	48519	60743	36191	31365	46328	42285	42574	41534	34007	37627	32155	27512
34	840	Furfural	A	N.D.	N.D.	7190	8667	N.D.	7203	5708	3959	8397	9218	11106	8511	5629	10625	11398	9958	7528	10209	7985	9695
			R	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
35	845	Butyraldehyde isopropyl ester	A	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
			R	N.D.	N.D.	N.D.	N.D.	N.D.	5665	4795	3175	N.D.	N.D.	N.D.	N.D.	2228	1903	2356	1958	N.D.	N.D.	5712	N.D.

36	849	Ethyl 2-methylbutyrate	A	2566	2298	2169	3111	2392	1872	913	719	4046	4273	4057	2366	3788	4757	N.D.	3848	3475	3828	1657	4165
			R	168	1520	1569	2015	355	1668	314	154	537	N.D.	870	183	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
37	857	Furfuryl Alcohol	A	175571	214996	294529	310546	174080	265365	280059	276224	152774	176702	241594	260089	161165	246434	322768	338586	149705	222202	272826	248681
			R	75441	125848	164513	115489	148614	217203	248896	224368	148285	229086	221239	216474	127617	166141	245593	214715	92350	200810	221472	180165
38	867	N-hexanol	A	37809	48669	63314	59046	34351	61999	60101	51539	29682	46231	63354	53925	33093	62556	74234	67045	38554	69551	67411	66992
			R	19520	36590	38913	28043	31574	48857	40779	39437	31156	47942	37048	35420	32093	39070	46051	37461	21009	42379	43324	34026
39	889	2,4-Dimethyl thiazole	A	5011	5186	5935	8867	4928	4253	2457	2316	5766	6423	6935	2615	5544	8266	9407	8406	5725	7248	2135	10186
			R	941	4465	5401	5567	2994	5452	2011	1867	3811	2922	5727	2462	4288	4615	7187	7663	2414	5203	5131	5500
40	901	2-Methoxypprazine	A	2193	2359	2595	4482	1665	977	285	353	1865	2457	2850	597	1836	3645	4175	3574	628	938	N.D.	N.D.
			R	1742	5345	4750	4600	1527	2908	798	779	2223	2431	2148	1353	3057	3350	3662	4113	1520	3522	3367	3653
41	910	2-acetylfuran	A	6469	8659	12047	13428	7117	11081	10865	9742	5676	8707	11756	10280	4922	12352	15692	15054	6288	11233	10582	13834
			R	2286	5252	4510	6841	4314	7550	7443	5914	4342	7146	8155	7105	4565	5880	10149	6351	2058	5121	6216	3961
42	920	Valeric acid	A	91824	101044	129256	146141	87223	113804	112953	111159	73730	85061	112603	127335	65935	105321	119770	135343	76569	103104	116019	122606
			R	62579	85235	98125	81818	83603	109541	126238	116661	71733	87309	108364	124905	80535	86115	128485	131016	80175	109941	124263	115342
43	929	2-acetyl-1-pyrroline	A	N.D.	7579	8931	10458	N.D.	6791	5774	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	7766	6254	8861
			R	N.D.	8404	8836	7152	7281	8829	9133	7022	N.D.	N.D.	N.D.	8227	N.D.	7267	9607	9404	N.D.	11229	11637	10639
44	937	4,5-Dimethyl thiazole	A	3670	4246	5367	6880	6300	4725	3687	4156	4878	6260	5867	5156	3392	5883	7152	9176	5779	6333	4254	10669
			R	1412	3224	4225	5916	2403	4079	3783	2270	2710	4084	5777	5460	2825	3409	5742	8436	1581	3675	4143	6056
45	942	Isovaleraldehyde	A	2799	1994	2412	3018	N.D.	1591	833	N.D.	N.D.	N.D.	1811	1428	2063	2145	2227	N.D.	1164	4470	1610	3356
			R	666	1602	1624	N.D.	2314	2135	1679	387	1322	1677	N.D.	N.D.	2614	3086	4727	2495	1905	3612	3592	3388
46	951	Propyl Isovalerate	A	1619	1638	1685	2523	1457	987	251	227	1441	1828	1700	836	1800	2386	2595	1982	1884	2412	205	3089
			R	N.D.	N.D.	N.D.	N.D.	896	1592	808	140	N.D.	1932	1237	732	1254	1376	2066	2172	783	1605	1328	N.D.
47	959	2-ethoxythiazole	A	2844	3143	3260	4168	2845	2810	1776	1326	2600	3456	3787	2479	2290	4205	4348	3480	2929	4214	1871	4395
			R	1043	2643	2817	2649	1682	2535	1856	1091	1931	2275	1976	1605	2382	2526	3734	3587	1398	2560	2507	2606
48	964	Tetrahydrothiophen-3-one	A	1986	2517	3207	3974	2009	2951	2097	1773	1889	3051	4029	3302	1588	3540	4350	3991	2028	3389	1988	3953
			R	741	1961	2313	2090	1372	2321	2106	1171	1495	2173	2006	1675	1601	1955	3136	2958	902	2078	2156	1995
49	974	Hazelnutone	A	34932	38793	37482	23457	43602	47248	34915	18685	37227	54378	50337	25305	40178	54203	49384	25727	42433	51284	28808	23803
			R	18739	23161	18399	14121	27838	26792	21466	12372	24123	32241	13869	11454	28563	29558	32948	23344	18594	23279	22819	14923
50	984	Methylheptanone	A	N.D.	834	829	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	885	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
			R	1022	2513	3719	5774	1429	2622	2430	1999	2822	2875	4567	4582	3169	3814	6401	7327	2232	4611	4830	6282
51	997	2-acetylthiazole	A	16135	23391	37226	46341	15201	30054	32941	31948	12797	22882	36874	43768	12391	28637	41314	48992	15419	29698	35870	40889
			R	8536	17732	22807	19254	12743	20309	26551	N.D.	11328	23290	24929	25446	13548	18525	31296	30785	7816	18693	21588	18625
52	1008	Caproic acid	A	24062	21852	26861	30701	20735	20667	18503	14959	11779	13491	18690	21211	10680	17067	18983	19510	13392	20237	16733	22993
			R	19362	30996	31968	24668	29764	34966	40608	31481	23289	19149	27023	30302	25584	22730	31267	34864	27043	37801	39190	32083
53	1031	Phellandrene	A	5659	6334	7619	10290	4945	5771	4699	2250	4090	4982	6389	7318	3956	6567	7597	8360	6193	8229	2985	11190

			R	3552	6559	7367	7352	5867	7748	7910	5774	5703	6339	6319	8011	6119	6820	9944	10529	5037	7423	7605	7369
54	1042	2-acetylpyridine	A	3023	2745	3303	4239	2347	2638	2001	483	3070	3302	4225	3662	2112	3557	4441	4116	4124	4879	1474	6110
			R	N.D.	N.D.	N.D.	N.D.	2245	2502	2545	1360	3259	2784	2271	2959	2919	3202	2784	4663	2558	3450	3592	3582
55	1058	Furanone methyl ether	A	6871	8207	10233	12139	6401	8308	7270	3646	6776	9658	12577	10641	6260	10966	12226	11404	4006	3219	1601	N.D.
			R	3331	8136	11363	11313	5379	9021	9730	5579	8152	8155	7422	6546	8231	9786	15839	9286	2044	4409	4564	4397
56	1067	2-methyl-5-vinylpyrazine	A	1526	1921	2622	5654	1490	1642	1552	1253	1321	1818	2439	4326	1382	2395	4696	5083	5997	7433	3228	10295
			R	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	2569	N.D.	N.D.	3742	3824	N.D.	N.D.	N.D.	5754	2985	5090	5595	6428
57	1089	3-Methylcyclopentane-1,2-dione	A	9286	10913	6697	8550	3334	3964	N.D.	N.D.	4642	3919	N.D.	N.D.	2421	N.D.	N.D.	N.D.	2034	5561	N.D.	N.D.
			R	4431	9728	10566	9292	8829	11916	6683	4917	8243	N.D.	N.D.	4175	8239	9940	7814	7293	N.D.	N.D.	N.D.	N.D.
58	1093	2-acetylpyrazine	A	N.D.	N.D.	5615	8074	2287	4268	8503	7277	N.D.	2947	10996	12732	2055	9009	12028	12905	4085	5153	7686	11605
			R	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	6457	5366	N.D.	N.D.	10214	6593	N.D.	N.D.	6893	7524	6861	12028	7217	6074
59	1100	Ethyl caprylate	A	N.D.	N.D.	2102	3204	4758	1972	2512	3038	2404	2308	2808	3522	1475	1974	2515	N.D.	N.D.	1677	N.D.	N.D.
			R	2338	5883	9553	10783	4954	7607	10048	8473	4138	N.D.	9696	10592	4955	6411	11303	13196	N.D.	N.D.	5520	5586
60	1108	2-nonanol	A	1868	2252	3138	5271	N.D.	2311	2614	2395	2044	2401	3511	4376	1413	2774	4077	7839	1580	3001	3854	8143
			R	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	5316	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	5781	7787	9099
61	1116	Phenylethanol	A	1677	2097	3134	4678	1556	2273	2727	2590	1505	2343	3668	4377	1413	2782	3950	4544	1610	3053	2469	4797
			R	784	2008	3063	3193	1410	2516	3117	2383	1478	2295	2953	2888	1634	2134	3539	3838	N.D.	2151	2361	2902
62	1134	Methyl maltol	A	6997	7767	9280	14307	6080	5378	6492	3264	3789	4734	5858	6569	3458	5975	7565	6736	N.D.	N.D.	N.D.	N.D.
			R	2154	6304	7936	6354	5454	7828	8550	5642	5669	5918	6693	6745	5589	6423	9038	9523	4807	7591	7639	8751
63	1162	Gamma enanthrolactone	A	968	962	1067	2320	918	205	609	258	700	997	1110	1337	707	1247	1727	1391	797	1414	194	2210
			R	183	1120	1711	1758	788	1452	1694	926	924	1125	1391	1335	977	1139	1937	2142	741	1421	1440	1985