

**Table S3.** The main organic compound in analyzed soils.

δ-Tocopherol	151	0.25	-	0.18	-	-	-	-	-	0.65	0.57	0.48	0.85
γ-Tocopherol	165	1.22	-	0.60	0.38	-	-	-	0.72	3.88	4.99	3.24	3.31
Cholestanol	215	-	-	-	-	-	-	-	-	0.53	1.47	0.96	0.91
5β-Cholestan-3β-ol (coprostanol)	215	-	-	-	-	-	-	-	-	1.34	8.70	6.78	4.41
Cholest-5-en-3β-ol (cholesterol)	231	-	-	-	-	-	-	-	-	0.83	3.66	2.90	2.21
Cholestan-3-one	231	-	-	-	-	-	-	-	-	0.90	1.40	1.03	1.15
Cholest-4-en-3-one	124	-	-	-	-	-	-	-	-	-	0.47	-	-
Stigmastanol	218	-	-	-	-	-	-	-	-	0.31	0.59	0.25	0.37
Stigmastan-3β-ol	215	-	-	-	-	-	-	-	-	0.60	2.09	1.22	1.27
Stigmast-5-en-3β-ol (β-sitosterol)	231	0.18	0.15	-	-	-	-	-	0.24	0.79	1.56	0.92	1.16
5α-stigmastan-3-one	231	0.34	0.13	-	-	-	-	-	-	0.73	0.83	0.54	0.72
Stigmasta-3,5-dien-7-one	174	0.34	-	-	-	-	-	-	0.08	0.32	0.27	0.17	0.47
Stigmast-4-en-3-one (Sitostenone)	124	0.65	-	0.36	0.34	-	-	-	0.29	0.58	0.65	0.39	0.72
5α-Ergostan-3β-ol (ergostanol)	215	-	-	-	-	-	-	-	-	0.16	0.81	0.45	0.46
Styrene (styrol)	104	1.06	0.04	0.26	-	-	-	-	0.02	2.10	0.76	1.08	0.94
2-Methoxyphenol	124	0.04	-	-	-	-	-	-	-	-	-	-	-
Methyl olean-12-en-3-oxo-28-oate (Methyl oleanonate)	189	0.75	-	-	-	-	-	-	-	-	-	-	-
D-Friedoolean-14-en-3-one	300	0.37	-	0.12	-	-	-	-	-	0.26	0.08	-	-
3-Ethyl-4-methyl-1H-pyrrole-2,5-dione (Methylethylmaleimide)	139	0.31	0.46	0.41	0.13	0.09	0.12	0.22	0.15	0.20	0.24	0.15	0.20
β-amvrone	218	0.17	-	0.15	0.33	-	-	-	-	0.42	0.78	0.53	-
β-amvrine	218	0.24	-	0.13	0.40	-	-	-	-	0.63	0.99	0.57	-
α-amyrine	218	0.37	-	0.16	0.37	-	-	-	-	0.55	0.96	0.60	-
Urs-12-en-3β-ol, acetate (α-Amvrin acetate)	218	0.12	-	-	0.20	-	-	-	-	0.07	0.27	0.19	-
3β-cholestane-3-thiol	249	-	-	-	-	-	-	-	-	8.35	5.93	3.44	5.34
1,2,4-Trithiolane	124	0.08	0.09	0.11	0.06	-	0.05	0.04	-	0.13	0.08	0.11	0.12
Benzenemethanethiol	124	-	-	-	-	-	-	-	-	-	0.04	-	-
3-Methyl-2-(3,7,11-trimethyldodecyl)thiophene	111	-	-	-	-	-	-	-	-	1.78	1.98	2.40	0.64
3-n-Hexadecylthiophene	98	-	-	-	-	-	-	-	-	0.85	0.99	1.11	0.27
4-Methylbenzenemethanethiol	105	0.26	-	0.07	-	-	-	-	-	0.81	-	0.49	-
benzoic acid	77	0.37	-	-	-	-	-	-	-	-	0.09	-	-
2-hydroxybenzaldehyde (salicylaldehyde)	122	0.40	0.09	0.20	0.02	-	0.13	0.08	-	-	-	-	-
Methyl benzoate	105	0.24	0.37	0.18	0.27	-	0.10	0.18	-	-	-	-	1.87
4-Hydroxy-3-methoxybenzaldehyde (vanillin)	136	0.43	0.14	0.24	0.06	-	0.16	0.18	0.19	0.09	0.02	0.01	0.06
3-Hydroxy-4-methylbenzaldehyde	136	0.50	0.17	0.33	0.11	-	0.17	0.27	0.24	0.25	0.05	0.03	0.08
2-Hydroxy-5-methylbenzaldehyde	136	0.33	0.10	0.22	0.07	-	0.08	0.10	0.11	0.13	0.03	0.06	-
2-Hydroxy-3-methylbenzaldehyde	136	0.15	0.05	0.09	0.05	-	0.05	0.11	0.18	0.16	0.03	0.02	-
7,11,15-Trimethyl-3-methylenehexadec-1-ene (Neophytadiene)	123	-	-	-	-	-	-	-	-	0.83	1.78	2.17	0.00
3,7,11,15-Tetramethylhexadec-2-ene (Phytene-2)	123	-	-	-	-	-	-	-	-	0.11	0.14	0.12	0.00
Trans-3,7,11,15-Tetramethyl-1,3-Hexadecadiene (Phytadiene 1)	55	-	-	-	-	-	-	-	-	1.09	2.54	3.06	1.08
phytadiene	123	-	-	-	-	-	-	-	-	0.15	0.24	0.22	0.61
phytol	71	-	-	-	-	-	-	-	-	0.33	0.88	1.18	0.66
Tetradecan-1-ol	55	-	-	-	-	-	-	-	-	0.53	0.54	0.64	0.54
10-Dodecen-1-ol	55	-	-	-	-	-	-	-	-	0.27	0.34	0.30	1.14
8-Heptadecene	55	-	-	-	-	-	-	-	-	1.69	2.06	1.20	2.58
1-octadecene	55	-	-	-	-	-	-	-	-	0.60	0.34	1.63	-
1-Tricosene	55	-	-	-	-	-	-	-	-	-	0.37	-	-
1-Tetracosene	55	-	-	-	-	-	-	-	-	0.82	1.23	1.13	0.75
Indole	117	-	-	-	-	-	-	-	-	0.32	0.44	0.75	0.13
Indene	115	0.88	0.04	0.25	0.21	-	-	-	-	0.04	-	1.16	1.53
Benzaldehyde	77	0.22	0.07	0.11	0.04	-	0.08	0.02	0.21	0.07	0.09	-	-
Acetophenone	77	0.18	0.08	0.12	0.07	-	0.14	0.17	0.25	0.18	-	-	-
CPI( <i>n</i> -C <sub>24</sub> -C <sub>34</sub> )		1.65	1.21	1.42	1.37	1.11	1.16	1.13	1.13	0.79	2.72	4.13	3.31
CPI( <i>n</i> -C <sub>25</sub> -C <sub>31</sub> ) alkanes		1.63	1.21	1.37	1.34	1.08	1.10	1.07	1.10	0.75	2.84	3.92	4.15

$\Sigma$ short chain/ $\Sigma$ long chain	1.15	1.67	1.43	1.98	2.36	2.63	2.33	2.81	1.10	1.35	1.05	0.87	1.00
$\Sigma$ alkanes/ $\Sigma$ alkanoic acids	19.95	52.29	32.62	36.05	83.31	42.33	54.95	45.87	24.62	10.04	6.24	4.03	4.34

CPI(*n*-C<sub>24</sub> - *n*-C<sub>34</sub>) alkanes = (((C<sub>25</sub> + C<sub>27</sub> + C<sub>29</sub> + C<sub>31</sub> + C<sub>33</sub>)/(C<sub>24</sub> + C<sub>26</sub> + C<sub>28</sub> + C<sub>30</sub> + C<sub>32</sub>)) + ((C<sub>25</sub> + C<sub>27</sub> + C<sub>29</sub> + C<sub>31</sub> + C<sub>33</sub>) + (C<sub>26</sub> + C<sub>28</sub> + C<sub>30</sub> + C<sub>32</sub> + C<sub>34</sub>))) \* 0.5 [1],

CPI(*n*-C<sub>25</sub> - *n*-C<sub>31</sub>) alkanes = ((C<sub>25</sub>+C<sub>27</sub>+C<sub>29</sub>)+(C<sub>27</sub>+C<sub>29</sub>+C<sub>31</sub>))/(2 \* (C<sub>26</sub>+C<sub>28</sub>+C<sub>30</sub>)) [2]

$\Sigma$ short chain(*n*-C<sub>11</sub>-*n*-C<sub>22</sub>) /  $\Sigma$ long chain(*n*-C<sub>23</sub>- *n*-C<sub>34</sub>) alkanes; *m/z* = 71 [3]

## References

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