

Supplement Table S1. Categories and relative contents of volatile components in *Dendrobium officinale* from different regions

No.	Compound Name	Molecular Formula	Relative Content%					
			Zhejiang		Fujian		Yunnan	Jiangxi
			ZB1	ZB2	FB1	FB2	YA1	JA2
Aldehyde								
1	Hexadecanal	C ₁₆ H ₃₂ O	-	-	-	0.2	-	-
2	Octadecanal	C ₁₈ H ₃₆ O	0.41	0.83	0.46	0.71	0.82	0.38
Alcohols								
3	á-Linalool	C ₁₀ H ₁₈ O	-	-	-	-	0.24	-
4	E-2-Tetradecen-1-ol	C ₁₄ H ₂₈ O	-	-	0.17	-	-	-
5	1-Pentadecanal	C ₁₅ H ₃₀ O	-	-	-	-	-	0.22
6	Hexadecen-1-ol, trans-9-	C ₁₆ H ₃₂ O	0.26	0.18	-	-	-	-
7	1-Hexadecanol	C ₁₆ H ₃₄ O	0.63	0.39	-	0.57	0.13	0.48
8	7-Methyl-Z-tetradecen-1-ol	C ₁₇ H ₃₂ O ₂	-	-	-	0.43	-	0.32
9	18-Nonadecen-1-ol	C ₁₉ H ₃₈ O	-	0.21	-	-	-	-
10	n-Heptadecanol-1	C ₁₉ H ₄₀ O	-	-	0.46	-	-	-
11	Phytol	C ₂₀ H ₄₀ O	2.26	1.17	3.05	3.05	0.95	3.23
12	E,E,Z-1,3,12-Nonadecatriene-5,14-diol	C ₁₉ H ₃₄ O ₂	-	-	0.55	-	-	-
13	2-cis-9-Octadecenyl-oxyethanol	C ₂₀ H ₄₀ O ₂	0.28	-	-	-	0.14	-
14	2-Octadecyl-oxyethanol	C ₂₀ H ₄₂ O ₂	0.26	0.31	0.22	-	-	-
15	n-Tetracosanol-1	C ₂₄ H ₅₀ O	-	-	-	0.25	-	-
16	4,6-Cholestadien-3á-ol	C ₂₇ H ₄₄ O	0.38	-	0.47	0.38	0.37	0.63
17	1-Heptacosanol	C ₂₇ H ₅₆ O	-	-	-	-	0.49	-
18	5-Cholestene-3-ol, 24-methyl-	C ₂₈ H ₄₈ O	-	0.38	-	-	-	-
19	5à-Cholestan-3á-ol, 2-methylene	C ₂₈ H ₄₈ O	-	-	0.35	-	-	-
20	ç-Ergosterol	C ₂₈ H ₄₈ O	-	-	-	-	-	0.37
21	Ergost-5-en-3á-ol	C ₂₈ H ₄₈ O	0.36	0.72	0.7	-	-	0.53
22	Stigmasterol	C ₂₉ H ₄₈ O	0.89	1.4	1.28	-	-	1.36
23	Stigmast-7-en-3-ol, (3á,5à,24S)-	C ₂₉ H ₅₀ O	0.55	0.4	0.53	-	-	0.54

24	Stigmast-5-en-3-ol	C ₂₉ H ₅₀ O	8.2	11.26	9.96	0.75	-	8.97
25	1-Heptatriacotanol	C ₃₇ H ₇₆ O	-	-	0.18	0.18	0.12	0.63
Eters								
26	Phosphoric acid, dibutyl 1,1-dimethyl-2,2,3,3- tetrafluoro propyl ester	C ₁₃ H ₂₅ F ₄ O ₄ P	2.87	3.4	4.94	4.97	5.02	3.85
27	4-Methoxybenzyl phenyl carbonate	C ₁₅ H ₁₄ O ₄	0.57	-	0.32	0.58	0.28	0.75
28	Z-(13,14- Epoxy)tetradec-11-en-1- ol acetate	C ₁₆ H ₂₈ O ₃	-	-	0.39	-	-	-
29	Ethyl 13-methyl- tetradecanoate	C ₁₇ H ₃₄ O ₂	-	-	-	0.14	-	-
30	Hexadecanoic acid, ethyl ester	C ₁₈ H ₃₆ O ₂	-	-	0.23	0.29	-	-
31	Palmitic acid glycerol ester	C ₁₉ H ₃₈ O ₄	0.46	0.33	0.31	0.29	0.44	0.28
32	Linolein, 2-mono	C ₂₁ H ₃₈ O ₄	-	0.89	-	-	-	-
33	9,12-Octadecadienoic acid(Z,Z)-, trimethylsilyl ester	C ₂₁ H ₄₀ O ₂ Si	0.35	-	-	-	-	-
34	n-Propyl 9,12- octadecadienoate	C ₂₁ H ₃₈ O ₂	1.38	-	0.89	0.8	1.11	1.16
35	9,12,15- Octadecatrienoic acid,2,3- dihydroxypropyl ester,(Z,Z,Z)-	C ₂₁ H ₃₆ O ₄	-	-	-	0.15	-	-
36	Phytol, acetate	C ₂₂ H ₄₂ O ₂	3.68	2.67	0.99	1.08	0.58	2.79
37	1-Heneicosyl formate	C ₂₂ H ₄₄ O ₂	-	-	0.21	0.25	-	0.23
38	Methyl 19-methyl- eicosanoate	C ₂₂ H ₄₄ O ₂	-	0.18	0.23	0.31	-	-
39	Sulfurous acid,cyclohexylmethyl hexadecylester	C ₂₃ H ₄₆ O ₃ S	-	0.29	0.22	-	0.18	-
40	1,3- Benzenedicarboxylic acid,bis(2-ethylhexyl) ester	C ₂₄ H ₃₈ O ₄	-	-	-	0.15	0.12	-
41	Diisooctyl phthalate	C ₂₄ H ₃₈ O ₄	0.24	-	0.25	0.57	0.2	-
42	(Z)-14-Tricosenyl formate	C ₂₄ H ₄₆ O ₂	0.45	0.77	0.27	0.26	-	1.02

43	Docosanoic acid, ethyl ester	C ₂₄ H ₄₈ O ₂	-	-	-	0.13	-	-
44	Phthalic acid, butyl tetradecyl ester	C ₂₆ H ₄₂ O ₄	-	-	0.17	-	0.17	-
45	Oleic acid,3-(octadecyloxy)propyl ester	C ₃₉ H ₇₆ O ₃	-	-	0.17	-	-	-
Terpenes								
46	Squalene	C ₃₀ H ₅₀	0.62	0.55	0.43	0.46	0.66	-
Ketones								
47	Camphor	C ₁₀ H ₁₆ O	0.17	-	0.22	-	0.2	0.19
48	2-Hydroxy-4-isopropyl-7-methoxytropone	C ₁₁ H ₁₄ O ₃	0.62	0.21	0.3	0.47	-	0.55
49	Ethanone,2-(4-methoxyphenyl)-1-(4-methylsulfonylphenyl)-2-	C ₁₆ H ₁₆ O ₄ S	0.16	0.28	0.28	0.57	0.22	0.22
50	Pentadecanone,6,10,14-trimethyl	C ₁₈ H ₃₆ O	-	-	-	-	0.12	-
Organic acids								
51	Myristic acid	C ₁₄ H ₂₈ O ₂	0.22	0.18	0.32	0.43	0.19	0.26
52	Pentadecanoic acid	C ₁₅ H ₃₀ O ₂	0.55	0.37	1.18	1.15	0.79	0.68
53	Palmitic acid	C ₁₆ H ₃₂ O ₂	3.62	3.21	5.12	6.09	4.05	3.78
54	Heptadecanoic acid	C ₁₇ H ₃₄ O ₂	0.32	0.2	0.48	0.51	0.25	0.42
55	(Z,Z,Z)-9,12,15-Octadecatrienoic acid	C ₁₈ H ₃₀ O ₂	0.21	0.17	0.24	0.15	0.47	-
56	9-Octadecynoic acid	C ₁₈ H ₃₂ O ₂	7.32	4.68	5.98	7.22	4.06	6.67
57	Linoleic acid	C ₁₈ H ₃₂ O ₂	3.53	2.18	2.95	3.62	1.92	3.18
58	Stearic acid	C ₁₈ H ₃₆ O ₂	1.51	1.33	1.99	2.32	1.44	1.74
59	Retinoic acid,5,6-epoxy-5,6-dihydro	C ₂₀ H ₂₈ O ₃	-	-	-	-	-	0.37
Olefins								
60	9-Eicosene, (E)-	C ₂₀ H ₄₀	-	-	-	0.18	-	-
61	10-Heneicosene (c,t)	C ₂₁ H ₄₂	0.26	-	-	-	-	0.19
62	1,21-Docosadiene	C ₂₂ H ₄₂	-	-	-	0.16	-	-
63	9-Hexacosene	C ₂₆ H ₅₂	0.26	-	-	-	-	-
64	17-Pentatriacontene	C ₃₅ H ₇₀	0.16	0.3	0.28	0.21	0.51	0.69

Alkanes and Their Derivatives

65	1-Bromo-4-bromomethyldecane	$C_{11}H_{22}Br_2$	0.17	-	-	-	-	-
66	Dodecane	$C_{12}H_{26}$	-	-	-	0.14	-	-
67	2-Bromooctadecanal	$C_{18}H_{35}BrO$	0.17	-	-	-	0.16	-
68	Nonadecane	$C_{19}H_{40}$	0.15	0.23	0.22	0.15	-	0.2
69	2-Methylnonadecane	$C_{20}H_{42}$	-	-	-	-	0.14	0.4
70	Tricosane	$C_{23}H_{48}$	0.25	0.4	0.33	0.86	0.35	0.39
71	Tetracosane, 1-bromo-	$C_{24}H_{49}Br$	-	-	-	-	-	0.18
72	Tetracosane	$C_{24}H_{50}$	0.75	0.86	-	-	0.63	0.97
73	Heptadecane, 9-octyl-	$C_{25}H_{52}$	-	-	0.65	-	-	-
74	1-Hexacosene	$C_{26}H_{52}$	0.2	0.18	-	-	-	0.18
75	Hexacosane	$C_{26}H_{54}$	25.36	26.13	24.9	32.07	34.41	23.41
76	11-Butyldocosane	$C_{26}H_{54}$	1.32	-	-	-	-	-
77	Octadecane,3-ethyl-5-(2-ethylbutyl)-	$C_{26}H_{54}$	-	0.59	-	-	-	-
78	Triacontane	$C_{30}H_{62}$	18.01	20.26	17.29	22.02	27.42	19.15
79	Docosane, 11-decyl-	$C_{32}H_{66}$	-	0.57	-	-	-	-
80	Tetracosane, 11-decyl-	$C_{34}H_{70}$	-	0.42	0.44	-	0.58	-
81	Tetratriacontane	$C_{34}H_{70}$	6.3	5.75	5.25	2.55	8.42	4.38
82	1,54-Dibromotetrapentacontane	$C_{54}H_{108}Br_2$	0.16	1.53	0.78	0.38	0.29	1.24

Phenols

83	Phenol, 2,6-dimethyl-4-nitro-	$C_8H_9NO_3$	-	-	-	0.17	-	-
84	3-n-Butylthiophene-1,1-dioxide	$C_8H_{12}O_2S$	-	-	-	-	0.36	-
85	á-Tocopherol	$C_{28}H_{48}O_2$	0.39	-	0.37	0.33	0.25	-
86	Vitamin E	$C_{29}H_{50}O_2$	0.15	2.83	1.52	-	-	1.64

Other

87	2(4H)-Benzofuranone,5,6,7,7a-tetrahydro-4,4,7a-trimethyl-, (R)-	$C_{11}H_{16}O_2$	-	-	-	-	0.13	-
88	Benzene,(3-iodo-1-methoxybutyl)-	$C_{11}H_{15}IO$	-	0.29	-	-	-	-
89	Piperazine, 1-ethyl-4-phenyl-	$C_{12}H_{18}N_2$	-	-	-	-	0.21	-

90	Decanamide,N-(2-hydroxyethyl)-	C ₁₂ H ₂₅ NO ₂	-	0.14	-	0.18	-	-
91	2H-Pyran-2-one,tetrahydro-6-nonyl	C ₁₄ H ₂₆ O ₂	-	-	-	0.17	0.16	-
92	Bis-tert.-butylquinone	C ₁₄ H ₂₀ O ₂	-	-	-	0.13	-	-
93	2,4-Bis(tert-butyl)-phenol	C ₁₄ H ₂₂ O	-	-	-	0.13	0.14	-
94	Desethylchloroquine	C ₁₆ H ₂₂ ClN ₃	-	-	-	-	0.32	-
95	Metconazole	C ₁₇ H ₂₂ ClN ₃ O	0.18	0.15	-	-	-	-
96	Oxirane, hexadecyl-	C ₁₈ H ₃₆ O	-	0.22	-	-	-	-
97	Oxirane, heptadecyl-	C ₁₉ H ₃₈ O	2.15	-	-	-	-	-
98	Pyrrolidine,1-(1-oxo-7,10-octadecadienyl)-	C ₂₂ H ₃₉ NO	0.18	-	-	-	-	-
99	13-Docosenamide,(Z)-	C ₂₂ H ₄₃ NO	0.19	-	-	0.47	0.27	-
100	Icosanoic anhydride	C ₄₀ H ₇₈ O ₃	-	-	0.16	0.25	0.14	0.2
101	Docosanoic anhydride	C ₄₄ H ₈₆ O ₃	0.15	-	-	-	-	-

Note: “-” indicated not checked out.