

SUPPLEMENTARY INFO

Identification of Volatile Compounds and Observation of Glandular Trichomes in *Opisthopappus taihangensis* and Four Species of *Chrysanthemum*

Yanhong Guo¹, Tengxun Zhang¹, Jian Zhong¹, Tingting Ba¹, Ting Xu¹, Qixiang Zhang^{1,2} and Ming Sun^{1*}

¹ Beijing Key Laboratory of Ornamental Plants Germplasm Innovation & Molecular Breeding; National Engineering Research Center for Floriculture; Beijing Laboratory of Urban and Rural Ecological Environment; Key Laboratory of Genetics and Breeding in Forest Trees and Ornamental Plants of Ministry of Education; School of Landscape Architecture, Beijing Forestry University, Beijing, China

² Beijing Advanced Innovation Center for Tree Breeding by Molecular Design, Beijing Forestry University, Beijing, 100083, China.

Table 1. Main volatile compounds of five wild species.

Compounds	CAS	Relative content (%)				
		OT	CV	CL	CN	CI
Leaf alcohol	928-96-1	1.01±0.0 3	15.40±1. 25	13.77±1. 17	12.66±0. 93	11.35±0. 94
(+)-Cuparene	16982-00-6	0.26±0.0 3	-	-	-	-
α-Phellandrene	99-83-2	0.2±0.02	-	-	-	-
(-)-α-Pinene	80-56-8	3.1±0.25	0.19±0.0 8	-	-	-
Camphene	79-92-5	0.36±0.0 3	1.17±0.1 5	-	-	-
β-Phellandrene	555-10-2	4.23±0.3	0.66±0.0 6	-	-	-
β-Pinene	18172-67-3	1.22±0.0 7	0.16±0.0 7	-	-	-
Methylheptenone	110-93-0	0.27±0.0 2	-	-	-	-
Myrcene	123-35-3	8.83±0.1 2	5.4±0.9	-	0.43±0.0 7	0.18±0.0 4
Leaf acetate	3681-71-8	1.3±0.17	8.6±0.64	4.51±0.7 4	5.67±0.8 4	-
4-Carene	29050-33-7	1.67±0.2 2	-	-	-	-
o-CyMene	527-84-4	1.56±0.1 5	-	-	-	-
1,8-Cineole	470-82-6	20.15±0. 15	2.00±1.0 0	-	-	-
Phenylacetaldehyde	122-78-1	0.24±0.0 7	-	-	-	-
γ-Terpinene	99-85-4	0.45±0.0 79	-	-	-	0.32±0.5 1
Trans-sabinene hydrate	17699-16-0	1.3±0.27	-	-	-	0.45±0.0 2
Terpinolene	586-62-9	0.38±0.1 5	-	-	-	0.33±0.2 3
D-Camphor	464-49-3	9.02±0.7 8	9.8±0.95	-	-	-
Terpinen-4-ol	562-74-3	0.32±0.1	-	-	-	-

Methyl salicylate	119-36-8	0.51±0.1 8	-	0.68±0.1 1	0.06±0.0 2	0.07±0.0 3
α-Terpineol	98-55-5	0.87±0.1 1	-	-	-	-
Cis-3-Hexen-1-yl Valerate	35852-46 -1	0.20±0.0 8	-	-	-	-
3-methyl-6-(1-methylethyl)-2-Cyclohexen-1-one	89-81-6	1.74±0.1 7	-	-	-	-
Terpinyl acetate	80-26-2	7.30±0.5 3	-	-	-	-
β-Caryophyllene	87-44-5	9.06±0.1 9	15.15±0. 54	6.86±0.3 3	19.27±0. 66	9.34±0.3 3
Himachalene	1461-03- 6	1.62±0.1 7	-	-	-	-
α-Curcumene	644-30-4	1.34±0.1 2	-	-	-	-
Cubebene	13744-15 -5	0.83±0.0 9	21.02±1. 42	0.18±0.0 8	-	-
7-Heptadecene	56554-78 -0	0.46±0.1 1	-	-	-	-
Germacrene B	15423-57 -1	0.68±0.1 8	-	-	2.90±0.4 6	-
1-Chlorooctadecane	3386-33- 2	0.28±0.1 6	-	-	-	-
1-Octen-3-ol	3391-86- 4	-	0.36±0.1 1	-	-	-
3-Octanone	106-68-3	-	0.35±0.0 9	-	-	-
(E)-β-Ocimene	3779-61- 1	-	0.34±0.0 9	0.36±0.0 9	1.76±0.1 2	9.47±0.2
Campholenic aldehyde	4501-58- 0	-	0.17±0.0 7	-	-	-
Myrtenol	515-00-4	-	0.14±0.0 6	-	-	-
Cis-3-Hexen-1-yl Valerate	35852-46 -1	-	0.25±0.0 8	-	-	-
a-Gurjunene	489-40-7	-	0.18±0.0 7	-	-	-
α-Humulene	6753-98- 6	-	1.55±0.2 3	-	-	0.79±0.1 1
Alloaro Madendrene	25246-27 -9	-	0.59±0.1 6	-	-	-
Gamma muurolene	30021-74 -0	-	1.21±0.1 4	-	0.26±0.0 8	0.07±0.1
(+)-Ledene	21747-46 -6	-	2.67±0.2 1	-	-	-
Cyclohexane	3242-08- 8	-	5.26±0.1 5	-	-	-
(+)-Cadinene	483-76-1	-	1.64±0.1 1	-	-	-
b-Bisabolene	495-61-4	-	0.19±0.0 6	0.43±0.1 2	-	-
Hexyl acetate	142-92-7	-	0.45±0.1 1	0.34±0.0 8	0.26±0.0 8	-
(Z)-3-Hexenal	6789-80- 6	-	-	2.95±0.2 3	-	-
Sabinen	3387-41- 5	-	-	0.17±0.0 6	-	-
Phenethyl alcohol	60-12-8	-	-	0.14±0.0 7	0.07±0.0 1	-
Ethyl phenylacetate	101-97-3	-	-	0.66±0.1 1	-	-

Acetic acid linalool ester	115-95-7	-	-	0.86±0.0 9	-	-
(E)-β-Farnesene	28973-97 -9	-	-	47.61±0. 20	16.89±0. 21	-
α-Cedrene	469-61-4	-	-	0.11±0.0 4	-	-
Nerolidol	7212-44- 4	-	-	0.10±0.0 5	-	0.23±0.1 1
α-Bergamotene	17699-05 -7	-	-	0.86±0.1 0	-	-
α-Zingiberene	495-60-- 3	-	-	0.24±0.0 9	-	-
α-Farnesene	502-61-4	-	-	0.25±0.0 8	16.89±0. 1	-
a-Thujone	546-80-5	-	-	-	0.07±0.0 3	-
Cis-3-hexenyl valerate	35852-46 -1	-	-	-	0.82±0.0 8	-
B-Bourbonene	5208-59- 3	-	-	-	0.05±0.0 1	-
β-Elemene	515-13-9	-	-	-	2.73±0.2 5	-
γ-Cadinene	39029-41 -9	-	24.71±0. 24	-	13.97±0. 25	18.61±0. 28
α-Humulene	6753-98- 6	-	-	-	1.28±0.0 5	-
α-Patchoulene	560-32-7	-	-	-	0.10±0.0 3	-
Chrysanthenone	473-06-3	-	-	-	-	0.27±0.0 7
Iso-Geraniol	5944-20- 7	-	-	-	-	0.09±0.0 2
(-)-Isocaryophyllenel	118-65-0	-	-	-	-	0.35±0.0 4
β-selinene	17066-67 -0	-	-	-	-	0.83±0.1 2
Calamenene	483-77-2	-	-	-	-	0.12±0.0 4

Note: '-' is not detected

OT—*Opisthopappus taihangensis*, CL—*Chrysanthemum lavandulifolium*, CN—*Chrysanthemum nankingense*, CV—*Chrysanthemum vestitum*, CI—*Chrysanthemum indicum*.

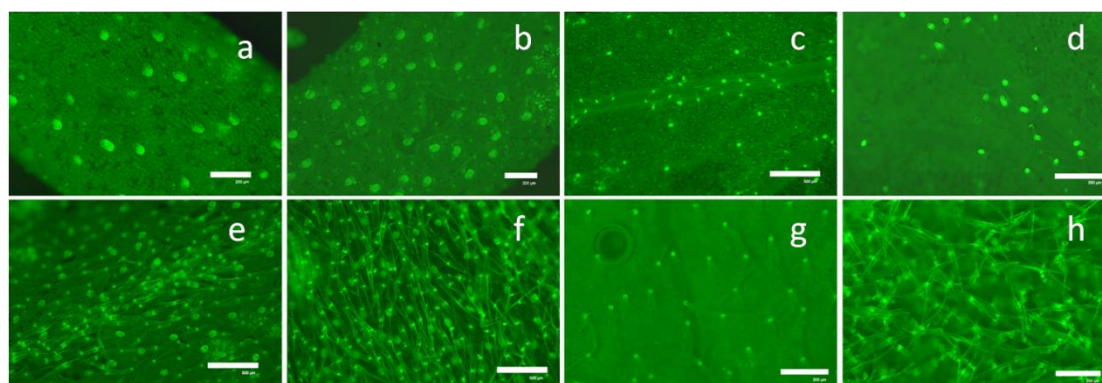


Figure 1. Fluorescence distribution of leaf trichomes of five wild species. a,b The distribution of trichomes of *O. taihangensis* on upper and lower surface. c,d The distribution of trichomes of *C. lavandulifolium* and *C. nankingense* on upper surface on upper and lower surface. e,f The distribution of trichomes of *C. vestitum* on upper and lower surface. g,h The distribution of trichomes of *C. indicum* on upper and lower surface.