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ESSENTIAL OIL COMPOSITION OF *Pueraria thomsonii* FLOWER

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Pueraria is a genus of the plant family Leguminosae, with approximately 35 species worldwide, of which 8 species and 2 varieties are distributed in China [1], and it is a rich source of isoflavonoids derivatives [2]. *Pueraria thomsonii* Benth. is one of the most popular Chinese medicinal materials and is employed to relieve fever and headache, lessen stiffness and pain of the nape, eliminate thirst, and promote the production of body fluids [3]. This is the first report on the compositions of essential oil from this species.

In Table 1, data on constituents of *P. thomsonii* are given. A total of 17 compounds was detected, amounting to 100% of total volatiles. Organic acid as the dominant class of compounds, constituting 45.27% of the total oil, including *n*-hexadecanoic acid (34.76%), tetradecanoic acid (7.29%), acetic acid (3.22%), and 9,12-octadecadienoic acid (*Z,Z*)- (1.22%). Alcohols are the next major components (20.49%), including phenylethyl alcohol (12.15%), 1-butanol (4.81%), and 9,12,15-octadecatrien-1-ol,(*Z*, *Z*, *Z*)- (3.54%). Aldehydes and ketones constitute 18.51% of the total oil. Phenols and alkenes constitute only 10.45% and 1.76% of the total oil respectively.

The compositions of essential oils from *Pueraria* genus are different according to the literature, such as *P. thunbergiana* [4], *P. omeiensis* [5], *P. lobata* Ohwi [6, 7], and *P. peduncularis* [8].

P. thomsonii flower was collected in June 2009 at the full flowering stage from Jiangxi Province of China. The plant was identified by Associate Prof. Yue-jin Zhang (College of Life Sciences, Northwest A&F University, Yangling Shaanxi, China). A voucher specimen has been deposited in the College of Life Sciences, Northwest A&F University (Collector Number: NWL1006). Hydrodistillation was carried out under atmosphere pressure and used for 6 h to extract the essential oils. The distillate was extracted with ether and then frozen at –18°C to remove water. The yield of oil was approximate 0.2%, (w/w), and the color of the oil was pale yellow.

TABLE 1. Composition of Essential Oils from *P. thomsonii* Benth. Flower

Compound	t_R, min	%	Compound	t_R, min	%
1-Butanol	2.87	4.81	Tetradecanoic acid	25.14	7.29
Acetic acid	6.14	3.22	2-Pentadecanone, 6,10,14-trimethyl-	26.36	5.48
Benzeneacetaldehyde	11.14	9.61	*n*-Hexadecanoic acid	28.04	34.76
Nonanal	12.70	2.33	(*E*,*E*)-7,11,15-Trimethyl-3-methylene -hexadeca-1,6,10,14-tetraene	28.98	1.16
Phenylethyl alcohol	13.36	12.15			
2-Methoxy-4-vinylphenol	17.29	10.45	9,12-Octadecadienoic acid(*Z,Z*)-	30.31	1.22
2-Buten-1-one, 1-(2,6,6-trimethyl-1, 3-cyclohexadien-1-yl)-, (*E*)-	18.62	0.80	9,12,15-Octadecatrien-1-ol,(*Z,Z,Z*)-	30.39	3.54
			Heneicosane	30.71	1.02
Cyclohexene,6-ethenyl-6-methyl-1-(1-methylethyl)- 3-(1-methylethylidene)-,(s)-	23.14	0.60	Oxacycloheptadec-8-en-2-one	37.54	0.29
			Nonacosane	41.30	1.27

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The analysis was carried out using an Agilent 6890-GC with Hewlett Packard-1 CC (30 m × 0.32 mm × 0.33 μm), coupled to a mass selective detector (HP-5973). Helium was the carrier gas, flow rate 1 mL/min. Oven temperature was initially kept at 60°C for 3 min, then gradually increased to 265°C at a rate of 7°C/min and held for 7 min. Samples of 0.5 μL were injected at 280°C, split ratio 100:1. The components were identified by comparison of their mass spectra with those of the NIST98L mass spectra library.

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