ESSENTIAL OIL OF *Ferula ferulaoides* FROM WESTERN MONGOLIA

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The genus *Ferula* (Apiaceae) is represented by seven species in the flora of Mongolia. Of these, two are endemic [1, 2].

Ferula ferulaoides Korov. was collected on September 14, 2001, in the western part of the Mongolian Altai. A sample of the plant was placed in the herbarium of the Biology Department of Mongolia State University in Ulan-Bator.

Ground and air-dried roots of *F. ferulaoides* were steam distilled for 3 h in a Clevenger apparatus [3]. The yield of essential oil was 2.4-3.2% (calculated for dry roots).

Essential oil was analyzed by mass spectrometry in a Finnigan Ion Trap (ITD) model 800 attached directly to a Varian 6500 gas chromatograph (WDB-5, capillary column, inlet temperature 222°C, detector temperature 240°C, temperature gradient 60-240°C/3°C per min). Compounds were identified using a database library [4]. Table 1 lists the results.

The essential oil contained 42 identified components representing 98.5% of the total oil. Guaiol (58.76%), (*E*)-nerolidol (10.16%), and α-eudesmol (3.05%) were the main components.

TABLE 1. Composition of Essential Oil of *Ferula ferulaoides* Korov. from Western Mongolia

KI*	Component	%	KI	Compound	%
939	α-Pinene	0.28	1372	α-Ylangene	0.15
952	Camphene	0.42	1378	α-Copaene	0.10
980	β-Pinene	0.64	1393	β-Elemene	0.22
991	Myrcene	0.32	1418	β-Caryophyllene	0.23
1005	α-Phellandrene	1.04	1439	α-Guaiene	0.20
1026	*p*-Cymene	0.60	1455	α-Humulene	0.10
1031	Limonene	2.85	1458	β-Farnesene	3.02
1031	β-Phellandrene	0.05	1477	γ-Muurolene	0.45
1033	1,8-Cineol	0.12	1480	γ-Curcumene	0.55
1062	γ-Terpinene	1.40	1494	α-Selinene	0.76
1088	Terpinolene	0.12	1509	β-Bisabolene	1.37
	Monoterpene hydrocarbons	**7.84**	1520	Myristicin	1.74
1102	α-Thujone	0.09	1524	δ-Cadinene	0.24
1114	β-Thujone	0.41		**Sesquiterpene hydrocarbons**	**7.39**
1141	Camphor	0.87	1534	(*E*)-Nerolidol	10.16
1165	Borneol	0.98	1542	α-Calacorene	0.20
1177	Terpin-4-ol	0.10	1595	Guaiol	58.76
1184	*p*-Cymen-8-ol	0.25	1649	β-Eudesmol	0.85
1189	α-Terpineol	0.20	1652	α-Eudesmol	3.05
1220	Fenchylacetate (endo)	1.17	1658	7-Epi-α-eudesmol	0.61
1284	Bornylacetate	1.51	1635	α-Cadinol	2.07
1350	α-Terpenylacetate	0.12	1671	β-Bisabolol	0.13
	O-Containing monoterpenes	**5.70**		**O-Containing sesquiterpenoids**	**77.57**

*KI = Kovach Index.

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