THE ESSENTIAL OIL COMPOSITION OF *Asyneuma pulchellum*

Katayoun Morteza-Semnani,[1*] Majid Saeedi,[2] and Mohammad Akbarzadeh[3]

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The genus *Asyneuma* (Campanulaceae) comprises 9 species, are distributed in Iran, Iraq, Armenia and Turkey [1]. *Asyneuma pulchellum* (Fisch.&C.A.Mey.) Bornm. (Syn: *Podanthum pulchellum* Boiss.) has been found in Mazandaran province of Iran [1]. A literature survey has shown that there is no report on the essential oil of *A. pulchellum*; thus we decided to investigate the chemical constituents of the oil of *A. pulchellum*.

Plant Material. The flowering aerial parts of *A. pulchellum* were collected in June 2006 from the suburb of Gadook, Mazandaran province, North of Iran, and identified by the Department of Botany, Research Center of Natural Resources of Mazandaran. A voucher specimen (herbarium No. 210) was deposited at the Herbarium of the Department of Botany, Research Center of Natural Resources of Mazandaran.

The components of the oil were identified by their retention time, retention indices relative to C_9–C_{28} *n*-alkanes, computer matching with the Wiley 275.L library, as well as by comparison of their mass spectra with those of authentic samples or with data already available in the literature [2, 3].

TABLE 1. The Chemical Constituents of the Essential Oil of *Asyneuma pulchellum*

Components	KI[a]	GC area, %	Components	KI[a]	GC area, %
Piperitenone	1345	3.5	14-Hydroxy-α-humulene	1716	1.6
(*E*)-β-Damascenone	1388	3.5	Longifolol	1717	0.8
β-Longipinene	1403	0.3	Methyl tetradecanoate	1726	4.1
β-Caryophyllene	1421	15.3	*n*-Octadecane	1801	0.5
Humulene epoxide II	1439	19.1	*n*-Hexadecanol	1878	1.7
α-Humulene	1457	4.3	*n*-Nonacosane	1901	1.8
allo-Aromadendrene	1462	3.7	*n*-Eicosane	2001	1.1
(*E*)-β-Ionone	1492	4.1	*n*-Octadecanol	2079	1.1
γ-Amorphene	1498	3.6	*n*-Heneicosane	2101	0.6
β-Himachalene	1507	2.8	*n*-Docosane	2201	0.6
γ-Cadinene	1516	3.9	*n*-Pentacosane	2501	0.8
Spathulenol	1580	4.9	*n*-Hexacosane	2601	0.5
Globulol	1587	2.3	*n*-Heptacosane	2701	1.2
Viridiflorol	1595	3.7	*n*-Octacosane	2801	0.7
n-Hexadecane	1601	1.1	1-Hexacosanol	2874	1.7
n-Heptadecane	1701	0.3	Total		95.2

[a]KI: Kovat's index on DB-5.

1) Department of Medicinal Chemistry, Faculty of Pharmacy, Mazandaran University of Medical Sciences, Sari, Iran, P.O. Box: 48175-861, tel/fax: +98 151 3543082, e-mail: semnani_k@yahoo.co.uk; 2) Department of Pharmaceutics, Faculty of Pharmacy, Mazandaran University of Medical Sciences, Sari, Iran; 3) Research Center of Natural Resources of Mazandaran, Sari, Iran. Published in Khimiya Prirodnykh Soedinenii, No. 6, p. 635, November-December, 2008. Original article submitted April 19, 2007.

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The hydrodistillation of the dried flowering aerial parts of *A. pulchellum* gave a light yellowish oil with yield of 0.1% (v/w). As shown in Table 1, thirty-one components were identified in this oil, which represented about 95.2% of the total composition of the oil. The major constituents of the essential oil were humulene epoxide II (19.1%) and β-caryophyllene (15.3%). The oil of *A. pulchellum* comprised 3 monoterpenoids (11.1%), 13 sesquiterpenoids (66.3%), and 15 non-terpenoids (17.8%). The essential oil of the flowering aerial parts of *A. pulchellum* was rich in sesquiterpenoids.

REFERENCES

1. V. Mozaffarian, *A Dictionary of Iranian Plant Names*, Farhang Mo'aser Publishers, Tehran, Iran, 1996, pp. 64-65.
2. N.W. Davies, *J. Chromatogr*., **503**, 1 (1990).
3. R. P. Adams, *Identification of Essential Oil Components by Gas Chromatography/Quadrupole Mass Spectroscopy*. Allured Publishing Corporation, IL, USA, 2001.