

J. Essent. Oil Res., 9, 221-222 (Mar/Apr 1997)

RESEARCH NOTE

Essential Oil of Sage (*Salvia officinalis* L.) Grown in Cuba

Jorge A. Pino*

*Instituto de Investigaciones para la Industria Alimenticia (IIIA)
Carr. del Guatao Km 3-1/2, C. Habana 19200, Cuba*

Mirna Estarrón

*Centro de Investigación y Asistencia en Tecnología y Diseño del Estado de Jalisco (CIATEJ)
Guadalajara, Jalisco, Mexico*

Victor Fuentes

*Instituto de Investigaciones Fundamentales para la
Agricultura Tropical "Alejandro de Humboldt" (INIFAT), C. Habana, Cuba*

Abstract

The water-distilled essential oil of sage (*Salvia officinalis* L.) grown in Cuba was analyzed by GC/MS. Among the 29 compounds identified, manool (14.74%), viridiflorol (13.46%), α -thujone (12.95%), β -thujone (10.89%) and camphor (10.36%) were the major constituents.

Key Word Index

Salvia officinalis L., Labiatae, sage, essential oil composition, manool, viridiflorol, α -thujone, β -thujone, camphor.

Plant Name

Salvia officinalis L. (Labiatae). Local name: "Salvia."

Source

Plant material was collected in February 1995 from INIFAT Experimental Station in Güira de Melena, near Havana. A voucher specimen was deposited at the INIFAT herbarium.

Plant Part

Fresh parts of the plants were air-dried at room temperature. A sample (100 g) was submitted to hydrodistillation for 4 h in a Clevenger-type apparatus. The yield of oil was 1.2%. The oil was dried over anhydrous sodium sulfate and stored under nitrogen until required.

Present Work

GC/MS was carried out on a Model 5890 Hewlett Packard GC/MS system fitted with a HP-20M fused

*Address for correspondence

Received: December 1995

Table I. Percentage composition of the oil of *Salvia officinalis* from Cuba

Compounds	Percentage	Compounds	Percentage
α -pinene	0.81	linalool	0.26
camphene	2.48	α -fenchyl acetate	2.24
β -pinene	0.96	β -caryophyllene	5.51
α -phellandrene	1.16	pulegone	0.86
α -terpinene	0.12	α -humulene	9.72
limonene	1.69	borneol	3.81
1,8-cineole	1.81	carvone	0.21
(Z)- β -ocimene	0.19	caryophyllene oxide	0.96
γ -terpinene	0.29	humulene oxide I	2.21
p-cymene	0.35	viridiflorol	13.46
terpinolene	0.22	methyl hexadecanoate	0.26
α -thujone	12.95	methyl (Z)-9-hexadecenoate	0.06
β -thujone	10.89	manool	14.74
menthone	0.11	methyl (Z)-9-octadecenoate	0.11
camphor	10.36		

silica column (50 m x 0.20 mm). The oven temperature program was 70°C to 210°C at 2°C/min and the carrier gas (helium) flow was 0.8 mL/min. Split injection mode (1:25) was used.

Components of the oil were identified by matching their 70 eV mass spectra with those recorded on Wiley Data Library. Identities were confirmed by our mass spectra library and retention indices using the IDENT Data System developed in IIIA.

The chemical composition of the oil of *S. officinalis* can be seen in Table I. Constituents are listed in order of their elution from a HP-20M column. Among the 29 compounds identified, manool (14.74%), viridiflorol (13.46%), α -thujone (12.95%), β -thujone (10.89%) and camphor (10.36%) were the major constituents. This oil which possessed an α - and β -thujone content higher than 25%, and a camphor content lower than 20%, could be thought as having potentially high commercial value.

References

1. G. Vernin, J. Metzger, D. Fraisse, K. N. Suon and C. Scharff, *Analysis of sage oils by GC/MS data bank. Salvia officinalis L. and Salvia lavandulaefolia Vahl*. *Perfum. Flavor.*, **11**(5), 79-84 (1986).
2. B. M. Lawrence, *Sage oil*. In: *Progress in essential oils*. *Perfum. Flavor.*, **11**(5), 111-118 (1986); **13**(6), 53-56 (1988); **14**(6), 87-98 (1989); **16**(4), 49-55 (1991); **19**(2), 65-75 (1994); **19**(6), 57-62 (1994).
3. Z. Schmidt, B. Pekic and L. Karuza-Stojakovic, *Examination of essential oil extracted from sage leaves*. *Farmaceutski Vestnik*, **41**, 223-231 (1990).
4. L. Pace and R. Piccaglia, *Characterization of the essential oil of a wild Italian endemic sage: Salvia officinalis L. var. angustifolia Ten. (Labiatae)*. *J. Essent. Oil Res.*, **7**, 443-446 (1995).

N° 23/04

Agronomie

