

Essential Oil Composition of *Baccharis Tenella* Hook. Et Arn.

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Abstract

The essential oil of *Baccharis tenella* Hook. et Arn. leaves collected from the Llanos Region (La Rioja) was analyzed by GC and GC/MS. Spathulenol was the major component (29.4%) of the oil.

Key Word Index

Baccharis tenella, Asteraceae, essential oil composition, spathulenol.

Plant Name

Baccharis tenella Hook. et Arn.

Source

Flowering plants were collected in the province of La Rioja, department Chemical, National Road 38, between Chemical and Chañar, 15 km far from the first, Argentina. Voucher specimen is kept in the Herbarium of Instituto de Investigación para el Desarrollo Socioeconómico de Los Llanos de La Rioja, Universidad Nacional de La Rioja—Sede Chemical. Biurrun y Pagliari 6593.

Plant Part

The leaves and flowers (300 g) of *B. tenella* were hydrodistilled (2 h) using a Clevenger-type apparatus. The oils obtained were dried over anhydrous sodium sulphate and stored in a refrigerator until analysis. The yield of essential oil was 0.1% of fresh weight.

Previous Work

To the best of our knowledge, nothing is known about the chemical composition of *B. tenella* oil.

Present Work

GC analyses: Analyses were accomplished with use of a Shimadzu GC-RIA (FID) gas-chromatograph, fitted with a

30 m x 0.25 mm (0.25 µm film thickness) fused silica capillary column coated with a DB-5 (J&W). The GC operating conditions were as follows: oven temperature programmed from 40°-230°C at 2°C/min, injector and detector temperatures 240°C, carrier gas was nitrogen at a constant flow at 0.9 mL/min. Identification of the components was performed by comparison of their retention times with those of pure authentic samples. GC/MS analyses were performed with a Perkin Elmer Q-700 equipped with a SE-30 capillary column (30 m x 0.25 mm, coating 0.25 µm film thickness). Analytical conditions: Oven temperature from 40°C-230°C at 2°C/min, carrier gas helium at a constant flow at 0.9 mL/min, source 70 eV. The oil components were identified by two computer library MS searches using retention indices as a preselection routine, and visual inspection of the mass spectra from literature for confirmation (1). The relative amounts of the individual components found in the oil (see Table I) are based on electronic integration of FID peak areas without the use of an internal standard or response factor corrections.

Acknowledgements

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References

1. R.P. Adams, *Identification of Essential Oil Components by Gas Chromatography and Mass Spectrometry*. Allured Publ. Corp., Carol Stream, IL, (1995).

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Table I. Essential oil composition of *Baccharis tenella* Hook. et Arn.

Compounds	RI	%	Methods of identification	Compounds	RI	%	Methods of identification
<i>trans</i> -pinocarveol	1139	6.7	ms, ir	(E)- β -ionone	1485	2.1	ms, ir
<i>trans</i> -p-mentha-2-en-1-ol	1140	0.6	ms	δ -cadinene	1513	4.3	ms, ir
α -terpineol	1189	4.0	ms, ir	α -calacorene	1542	0.7	ms, ir
<i>trans</i> -carveol	1217	1.1	ms, ir	spathulenol	1576	29.4	ms, ir, co
carvone	1242	0.6	ms, ir, co	caryophyllene oxide	1581	8.2	ms, ir
carvacrol	1298	9.4	ms, ir, co	cubenol	1642	8.1	ms, ir
(Z)- β -damascenone	1359	0.4	ms, ir	α -cadinol	1653	0.5	ms, ir
isocomene	1386	2.5	ms, ir	oplopanone	1733	0.2	ms, ir
β -caryophyllene	1418	4.1	ms, ir, co				
γ -elemene	1433	1.1	ms, ir	Total		84.0	

Compounds are listed in order of their elution from a DB-5 column; co, peak identifications are based on comparison with standards; ms, peak identifications are based on MS comparison with file spectra; ir, peak identifications are based on relative retention time