Chemical Study of the Essential Oil of *Mutisia Friesiana*

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Abstract: The composition of essential oil of *Mutisia friesiana* (*Asteracae*) was studied. The oil is a complex system in which 127 compounds were identified. The major components are monoterpenes: β-phellandrene, (*Z*)-β-ocimene, α and β-pinene and sabinene.

Introduction

Coumarins, chromones, aromatic glycosides, sitosterol, lupeol, among others, have been found in *Mutisia* class species (Asteraceae family). The *Mutisia friesiana* Cabrera plant is an endemic species of the Argentinean northwest used in the popular medicine and have a pleasing and persistent perfume. It was of interest to do the chemical study of secundary metabolites and determine in a first stage the presence of substance volatile. Studies referred to essential oils (EO) are not found in bibliography for this class.

Experimental

Wild specimens of *M. friesiana,* identified as **Ma** (herbarium: Ahumada 7183) y **Mb** (herbarium: HG1115) were collected in two high places of the Jujuy province: Puna and Quebrada. The EO was extracted from the aerial part by hydrodistillation. It was analyzed by gas chromatography with flame ionization detector and capillary columns DB1, HP5, HP1 y HP-INNOWAX with H_2 carrier. The Ma GC/MS was made in a GC-MS Shimadzu QP-500 (LANAIS-EMAR-CONICET) and the Mb analysis in a GC HP 6890 MS HP 5972 A (Agua de los Andes) with He carrier and DB1 y HP5 columns.

Results and Discussion

The EO yield is similar to other aromatic species (0,33% to 0,80% v/w over dry material). One hundred and twenty seven components were identified by comparison of their mass spectra with those reported in literature. Percentage contributions of the different compound families are given in the attached Table. The EO composition of the two different zones of Jujuy is qualitatively similar. Linalool (E)-β-damascenone, hexanol and (Z)-3-hexenol contribute to the perfume of the essential oil.

PERCENTAGE DISTRIBUTION OF COMPOUNDS CHEMICAL FAMILIES IN THE COMPOSITION OF E. O. OF *Mutisia friesiana*

	Skeleton of	Ma	Mb
MONOTERPENES			
Hidrocarbonated Acycles		13.81	15.56
Monocycles	p-mentane	25.87	25.43
Bicycles	tuyane	8.92	5.11
	pinane	15.83	11.31
	isocanfane	0.55	0.20
Alcohols Acycles		0.74	0.19
Monocycles	p-mentane	9.75	5.11
Bicycles	carane	0.46	-
	pinane	0.90	0.16
Ésters Acycles		1.41	0.48
Monocycles	p-mentane	1.86	-
Aldehydes Monocycles	p-mentane	0.20	0.07
Oxides Monocycles	p-mentane	t	0.22
Peroxides Monocycles	p-mentane	1.54	-
Ketones Bicycles	Thujane	1.01	9.68
SESQUITERPENES *Hydrocarbonates*			
Skeleton of Ma Mb			
Bisabolane - 0,10	Eudesmane	0.08	0.24
Amorfane 3.36 4.24	Cyclogerrmacrane	-	0.88
Copaene 0.06 0.16	Maaliane	0.01	013
Humulane - 0.66	Aristolane	-	0.01
Cariofilane 0.20 1.83	Guaiane	-	0.12
Germacrane 0.01 0.88	Aromadendrane	0.34	0.28
Elemane 0.01 1.21	Isocomane	0.07	-
Alcohols			
Skeleton of Ma Mb			
Amorfane 3.70 7.09	Eudesmane	-	0.35
Humulane 0.84 -	Guaiane	0.01	0.34
Cariofilane 0.01 0.01	Aromadendrane	1.83	0.88
Elemane - 0.17	Bourbonane	-	0.13
Ketones	Oplopane	-	0.70
Oxides	Humulane	-	0.21
	Cariofilane	0.01	0.24
NORTERPENOIDES		0.09	0.46
OTHER COMPOUNDS			
(E)-propenylphenols		-	0.26
(E) Cinnamo Acid Derivates		0.72	0.10
Ketones		0.73	-
Esters		4.14	3.35

Acknowledgments: To Dr. E. Gros because of his support and the revision of the present work. To the Fac. Ing. (UNJu) for partial financial support.

References and Notes

1. Daily, A. *Planta Medica* **1988**, *54*, 50.
2. Bittner, M. *Phytochemistry* **1994**, *27 (3)*, 695.
3. Kováts, E. *Helv. Chim. Acta* **1958**, *41*, 1915.
4. Davies, N. W. *J. Chromatog.* **1990**, *503*, 1.
5. NBS 75K. L.