

ESSENTIAL OIL OF *Protium unifoliolatum* (BURSERACEAE)

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ABSTRACT — The major constituents of the leaf essential oil of *P. unifoliolatum* are *trans*-caryophyllene (37.45%), limonene (24.23%) and α -humulene (9.94%).

Key words: Burseraceae, *Protium*, Essential oils, Terpenes.

Óleo essencial de *Protium unifoliolatum* (BURSERACEAE)

RESUMO — O óleo essencial obtido das folhas frescas de *P. unifoliolatum* apresentou como constituintes principais *trans*-cariofileno (37,45%), limoneno (24,23%) e α -humuleno (9,94%).

Palavras-chave: Burseraceae, *Protium*, Óleos essenciais, Terpenos.

INTRODUCTION

The trees or shrubs of the Burseraceae have in their bark prominent vertical schizogenous resin-ducts (containing triterpenoids compounds and ethereal oils) (CRONQUIST, 1981) which produce oil and gum-resins that are responsible by many of its medicinal properties (COSTA, 1975). This species are also used in perfumery industries (CRAVEIRO *et al.*, 1981). The genus *Protium* known in Amazon region as "Breu" are utilized for boats sealing (Le COINTE, 1934) and in the confection of varnish (RIZZINI & MORS, 1921); already was shown to contain essential oils. Essential oils from leaves of the *P. heptaphyllum* March. (RIZZINI & MORS, 1921) and from the bark steam of *P. paraense* Cuatr. (GOTTLIEB *et*

al., 1981) were already reported. Now we report the chemical composition of the essential oil from the leaves of *P. unifoliolatum* Engl. (Tab. 1).

RESULTS AND DISCUSSION

Gas chromatography/mass spectrometer obtained analysis revealed that the major constituents from the essential oil of the leaves of *P. unifoliolatum* were *trans*-caryophyllene, limonene and α -humulene. The concentration of these compounds comprises 71.6% of the oil. From these compounds, limonene and α -humulene are present in appreciable amount in the essential oil from the leaves of *P. heptaphyllum* (RIZZINI & MORS, 1921). Identifications of the components was accomplished by comparison of mass spectra with Wiley/NBS library

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Table 1. Constituents of the essential oil of *Protium unifoliolatum*

Peak N°	Compound	% of oil+
1	α -pinene	0.63
2	β -pinene	0.37
3	limonene	24.23
4	α -terpinolene	1.25
5	benzoic acid, 2-hydroxy-methyl ester	0.49
6	α -copaene	6.24
7	trans-caryophyllene	37.45
8	α -humulene	9.94
9	β -cubebene	2.14
10	eremophilene	0.83
11	β -bisabolene	0.64
12	δ -cadinene	0.87

+ Relative to quantitation report of the data system

present at data system; retention data and Kovats Indexes.

EXPERIMENTAL

Plant material of *P. unifoliolatum* was collected in Manaus, state of Amazonas, during the raining season in 4/91. Fresh leaves were subjected to steam distillation according to current techniques (CRAVEIRO, 1976). The obtained oil was centrifuged together with anhydrous Na_2SO_4 and produced a yield of 0.11%

The volatile oil was analyzed by gc/ms at a Hewlett Packard system (chromatograph model 5890 and mass spectrometer model 5988), using a 25m x 0.32mm crosslinked methyl silicone gum, fused silica column. Helium was used as carrier gas. The temperature program was 85 to 180°C at 3°C/min and then 180 to 250°C at 20°C/min. The ms was in EI mode at 70 eV.

The obtained spectra were compared to the spectra present at the Wiley/NBS Library which is part of

our data system. All resulting spectra were stored on tape for latter recall.

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