Essential Oils Of *Tagetes minuta* From Brazil

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The *Tagetes* genus, which is widespread throughout the world, is very rich in species containing essential oils, like most members of the Compositae family.[1] A new interest in the essential oil of *Tagetes minuta* L. has been growing recently due to its flavor and fragrance properties. However, the increase in diseases caused by the mosquito *Aedis aegypti* in Brazil has stimulated research toward control of this insect using non-classical approaches.

Reports that a component of *T. minuta* oil (5E)-ocimenone, known as trans-tagetenone, kills (in 40 ppm concentration) 100% of *Aedis aegypti* larvae,[2] prompted us to make a close examination of the essential oil obtained from different locations in Brazil to examine their effect against this dreadful pest.

Results and discussion

Although the chemical composition of the essential oil of *T. minuta* is well documented in the literature,[1] there is only one report about a Brazilian oil together with its comparison with a commercial sample.[3]

Table I summarizes the analyses of the major components, made on two oils obtained by steam distillation from different regions of Brazil. All compound identifications were made by MS and confirmed by retention time using Kovats indices.

Flowers and inflorescences were submitted to steam distillation giving a dark essential oil which was dried over anhydrous sodium sulphate. The oils wsere analysed by GC/MS using a HP-5995 mass spectrometer with a fused silica capillary column (50m x 0.25mm i.d) using SP-2100 as stationary phase. Program temperature: 50-250 °C (4°C/min). Electron energy 70 eV.

The variation in the chemical composition in this species is well known, nevertheless it is

Table I. Essential Oils from *Tagetes minuta* L.

Compound	Samples* F785	F914	Commercial[3]
Dihydrotagetone	69.7	99.0	8.6
trans-Tagetone	16.6		1.8
cis-Tagetone			7.2
Thymol	7.4		
Ocimene			48.4
trans-Ocimenone			3.8
cis-Ocimenone			11.1

* F785 plant collected in Triunfo - State of Pernambuco
F914 plant collect in Jacobina - State of Bahia

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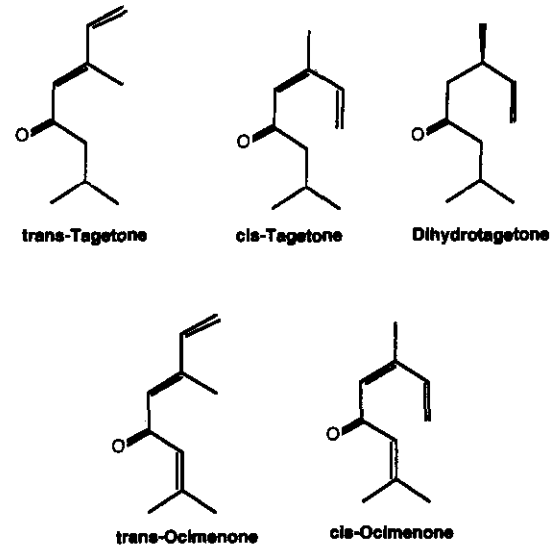
amazing that the differences between the oils obtained from different parts of Brazil are so great. Although the source of the commercial sample is not known, it probably originated from the southern part of the country. The two strains that were analysed in this study came from the northwestern states.

The unique composition of sample F785 in which dihydrotagetone is the exclusive major constituent is particularly surprising because it is not the major constituent in the former analysis of this species.[4]

Although Ocimenone is not present in the samples now analysed, it is interesting to test both oils againsat the *Aedis aegypti* larvae due to the close structural relationship among these ketones. This study will be reported elsewhere.



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