

# Composition and antimicrobial activity of essential oils of an endemic plant of Madagascar: *Cinnamosma fragrans*

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Table 1: Composition of the essential oils of *Cinnamosma fragrans*.

	Tsaramandroso	Mariarano
	% area (n=30)	% area (n=38)
<i>Monoterpenes hydrocarbons</i>		
$\alpha$ -pinene	1.0 $\pm$ 1.3	3.5 $\pm$ 1.5
camphene	1.1 $\pm$ 1.6	4.8 $\pm$ 2.2
$\beta$ -pinene	0.9 $\pm$ 1.0	8.0 $\pm$ 3.8
sabinene	0.9 $\pm$ 1.0	1.8 $\pm$ 0.9
<i>Oxygenated monoterpenes</i>		
1,8-cineole	0.5 $\pm$ 0.9	<b>47.3 <math>\pm</math> 10.2</b>
Linalool	<b>72.5 <math>\pm</math> 23.3</b>	1.1 $\pm$ 1.5
terpinen-4-ol	1.5 $\pm$ 2.3	2.2 $\pm$ 2.0
1-terpineol	1.2 $\pm$ 1.4	4.2 $\pm$ 3.0

## INTRODUCTION

*Cinnamosma fragrans* Baillon is an endemic tree of Madagascar of the family of *Cannellaceae*. The study determined (i) the chemical composition of the essential oil of *C. fragrans* collected from leaves in 2 regions in Madagascar, (ii) the *in vitro* antimicrobial activity against different bacteria.

**RESULTS:** The essential oils of *C. fragrans* collected in Tsaramandroso and Mariarano were characterized by their high content in linalool and 1,8-cineole respectively (Table 1). The MIC values (Minimum Inhibitory Concentration) ranged from 0.18 to 5.88 mg/ml for Tsaramandroso and from 0.37 to 11.75 mg/ml for Mariarano samples (Table 2).

Table 2: Antimicrobial activity (MIC mg/ml) of the essential oils of *Cinnamosma fragrans* and pure linalool and 1,8-cineole.

	Linalool	Tsaramandroso B8:95.8% linalool	1,8-cineole	Mariarano B143:71.6% 1,8-cineole
<i>Gram positive</i>				
<i>Micrococcus luteus</i>	5.88a	5.88a	11.75b	11.75b
<i>Bacillus subtilis</i>	0.18a	0.18a	0.37b	0.37b
<i>S. aureus</i>	0.18a	0.18a	0.37b	0.37b
<i>Gram negative</i>				
<i>S. tyhimurium</i>	2.93a	5.88c	11.75b	2.93a
<i>Escherichia coli</i>	1.47a	1.47a	2.93b	1.47a
<i>Vibrio fischeri</i>	0.73a	0.73a	1.47b	0.73a

Values followed by different letters within a line are significantly different by Fisher's test (p=0.05)

## CONCLUSION

*C. fragrans* samples showed a strong antimicrobial activity. Their MICs against all Gram-positive bacteria were similar than their respective pure major component. Possible synergistic or antagonist effects may occur in Gram-negative bacteria.