



Evaluation of stability and antimicrobial activity of a topical formulation containing essential oil of *Lippia alba* (Mill.) NE Brown and *Lippia origanoides* Kunth (Verbenaceae)

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Lippia alba and *Lippia origanoides* are aromatic plants belonging to the family Verbenaceae with high essential oil content (OE). The OE obtained these species has been tested and have shown pharmacological properties as antiprotozoal, antifungal, antibacterial, among others (1,2). Considering the biological potential OE of these species the aim of this study was to develop formulations containing essential oil of *L. alba* and *L. origanoides*, evaluate stability and antibacterial activity against a strain of *Staphylococcus aureus*, a gram-positive bacterium, known clinically as cause skin infections and provide resistance against the treatment with commercial antibiotics. Samples of *Lippia* were collected in the growing Productive Arrangement Medicinal Plants and Herbal located in Santarém city, Pará (S 02°26'35.7 "and 054°54'54.2 W"). The OE of species was obtained from aerial parts by hydrodistillation in Clevenger type apparatus for 2 hours. The formulations were prepared with the incorporation of an OE base LANETTE® anionic type, in concentrations of 10 and 20 g of OE per 100 g of base. It is obtained two formulations containing the OE of *L. alba* and one with the OE of *L. origanoides*. The formulations were submitted to stability test and evaluation of the antibacterial activity by disc diffusion method on agar front *S. aureus* ATCC 25923. The OE yields were 3.5% and 2.3% for *L. alba* and *L. origanoides* respectively. In stability tests in different temperatures (5 °C, 25 °C and 40 °C) the formulation containing *L. alba* OE presented pH 7.6, viscosity 33,250 MPas at 10 rpm, torque 27.1% and 65 Spindle. For the formulation of *L. origanoides* the pH was 5.67 and viscosity 24,200 MPas at 10 rpm, Torque 20.2% and Spindle 65. In centrifuge test no change was observed in homogeneity of both formulations. In bacterial activity in the inhibition zones were 45 mm for both formulations at a concentration of 20% OE, 15 mm for the concentrations of 10% *L. origanoides* and 11 mm for the same concentration of *L. alba*. The results demonstrate that the formulations are stable under the temperatures and evaluated have considerable antimicrobial activity with *Staphylococcus aureus* halos of inhibition greater than 10 mm.

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