



### Rectification of essential oil of *Lippia alba* (Mill.)

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*Lippia alba* (Mill.) N.E. Brown, also known as *L. geniculata* HBK or *Lantana alba* (Mill.), is a shrub about 0.8 m high belonging to the family Verbenaceae (1). The genus *Lippia* comprises about 200 species and grows in shape wild in Central and South America, and Africa. *L. alba* is used in folk medicine for gastric and intestinal diseases (2). The essential oil of *L. alba* citral chemotype, cultivated in the municipality of Barbosa, Santander, Colombia, was obtained by steam distillation. The oil was subjected to fractional distillation using a spin column tower B/R Instrument 800 (B/R Instrument Corporation, Easton, MD, USA) of 15 theoretical plates, at pressures of 6, 9 and 14 Torr. We performed experiments on reproducibility and the tests for each pressure were done in triplicate. In all tests, four fractions were obtained: three in the top of the tower and one in the background. This research was carried out to find operating conditions favoring the rectification of the essential oil and obtaining volatile fractions and of background of higher added value. The fractions Identification were analyzed on gas chromatograph Agilent Technologies 7890A coupled to mass spectrometer Agilent Technologies 5975C, with quadrupole analyzer. Nonpolar capillary fused-silica DB-5MS column (J&W Scientific, Folsom, CA, USA) of 60 m X 0.25 mm i.d. X 0.25 µm d<sub>f</sub> with stationary phase 5% phenyl methylsiloxane and a polar fused-silica DB-WAX column (J&W Scientific, Folsom, CA, USA) of 60 m X 0.25 mm i.d. X 0.25 µm d<sub>f</sub> with stationary phase of polyethyleneglycol were used. Oven temperature program was from 50 to 280 °C and from 50 to 200 °C, respectively; the mode of injection was split (30:1). The chromatographic analysis of essential oil of departure revealed the presence of 92 compounds of which were identified 46 (50 %). In the top fractions there was an increase in the composition of monoterpenes oxygenated mainly citral (neral and geranial) and in the bottom fraction sesquiterpene hydrocarbons were seen, however in this fraction is highlighted the increased content of geraniol. The mass of the fractions obtained at the pressure of 9 Torr accounted for 11.9, 16.4, 16.1, and 43.2 % of the initial mass of essential oil. The composition of citral in the volatile fractions was of 41.9, 40.8 and 40.5 %, in bottom fraction the citral represented 29.2 % and geraniol 20.7 %. There have been studies on the rectification under reduced pressure in essential oils such as *Cymbopogon martinii* (Palmarosa) (3), but we have not found this type of study for the essential oil of *Lippia alba* (citral).

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