Essential oil content and composition from *Lippia alba* accessions of UFRRJ germplasm collection

Marco A. A. Souza, Pedro C. D. Junior

Universidade Federal Rural do Rio de Janeiro - BR 465, km 7, Seropédica, RJ, Brazil
decoerej@yahoo.com.br

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Genetic knowledge concerning to essential oils production and quality is important to development of selection strategies looking for commercial varieties. Essential oil yield depends of vegetative characteristic such as leaves production, and its quality is controlled by biochemistry and physiologic aspects (1). Oil yield is impacted mainly by combination of genetic and edaphoclimatic conditions, but oil quality is strongly controlled by genetics (2,3). Thus with this aim, essential oils from *Lippia alba* (Mill.) N.E. Brown accessions extracted, as well as, their chemical composition and content were evaluated. For this proposal, 20 accessions, 3 blocks, 5 plants/ block, totaling 300 plants were planted and grown at experimental area of Department of Plant Science (UFRRJ). Leaves and flowers samples were collected (harvested in November 2013), homogenized and separated into replicates (n=3). The essential oil was extracted by hydrodistillation (50 g dried weight at 2 h), then, 15 mL of distilled water plus essential oil samples were collected and partitioned with 3 x 5 mL of dichloromethane. The less polar phase was dried over anhydrous sodium sulfate, filtered and concentrated with nitrogen gas at room temperature until constant weight. Gravimetric measurements were performed base on the dry weight of leaves and fruits and converted to essential oil percentage (w/w). The oils were analyzed by GC/FID (5890 Series II, Hewlett-Packard, USA) and GC/MS (QP-2010 Plus, Shimadzu, JPN), both with Factor Four-VF-5ms fused silica capillary columns (30 m X 0.25 mm X 0.25 µm). Hydrogen was used as carrier gas for GC/FID and helium for GC/MS, both with a flow rate of 1.0 mL/minute. Oven temperature was raised from 60°C for 2 min followed by heating at 5°C/min to 110°C, followed by heating at 3°C/min to 150°C and finally followed by heating at 15°C/min until 290°C and holding constant for 15 min. Mass detector was operated in electronic ionization mode at 70eV. The percentage composition was obtained by normalization from FID. Oil components were identified by comparison of both mass spectra and linear retention indices with spectral library and literature. Concerning to essential oil content variations from 0.26 to 1.10% were observed, highest levels were found on accessions 3, 4 and 8 (1.02, 1.06 and 1.10 %, respectively). Also, 6 chemotypes were discriminated: Citral (56-75%), accessions 1, 2, 5, 11, 12, 15, 18, 19 and 20; β-myrcene/ citral (12-16% and 44-52%), accessions 6 , 9, 14, 16 and 17; limonene/ carvone (19-27% and 46-58%), accessions 3, 7 and 8; linalool (67%), accession 4; β-caryophyllene/ citral (19 and 54%), accession 10 and myrcene/ β-caryophyllene (16-29%), accession 13.

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